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EXERCISES

IN

SMALL-ARMS AND FIELD ARTILLERY:

ARRANGED FOR THE

NAVAL SERVICE,

UNDER AN

United States

ORDER OF THE BUREAU OF ORDNANCE AND HYDROGRAPHY
OF THE NAVY DEPARTMENT.

By Henry H. Lockwood and E. Luger.

-
- PART I. SMALL-ARM COMPANY EXERCISES.
PART II. SMALL-ARM BATTALION EXERCISES.
PART III. FIELD ARTILLERY WITHOUT HORSE.
PART IV. SMALL AND BROADSWORD EXERCISES.
-

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the Bureau of Codmanac,
through Capt. Henry H. Hise.
Christ. A. Bureau.

U. S. NAVAL ACADEMY, ANNAPOLIS, Md.:
December 22, 1851.

SIR: In compliance with the orders of the Bureau of Ordnance and Hydrography, of May last, directing me to prepare a System of Small-Arm Company and Battalion Drill, and Field Artillery, and Small and Broadsword Exercises, I have the honor to report the following pages.

I have carefully avoided a departure from the established drills of the Army, confining myself to such selections and rearrangement as appeared to me best adapted to the circumstances and wants of the Naval service.

E.

Part IV., on the Small and Broadsword, is entirely by Mr. Seager, who instructs on those arms at this Institution; also all the plates.

I am, very respectfully, &c.,

HENRY H. LOCKWOOD,
Prof. U. S. Navy.

To Commodore CHARLES MORRIS,
*Chief of the Bureau of Ordnance and Hydrography
of the Navy Department.*

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ERRATA.

- Page 13, line 6th, *for* "the centre" *read* "the 2d file from the right."
- Page 15. The paragraph "A corresponding alignment, &c.," should come in at the bottom of the page.
- Page 19. "Drop the left hand to the side," at the end of the 4th paragraph, should close the 3d instead.
- Page 20, line 4th, *for* "that hand" *read* "the right hand."
- Page 21, line 11th, *for* "raise" *read* "seize."
- Page 33, line 16th, *for* "with the shanks" *read* "with the shank."
- Page 34, line 8th, *for* "file leaders" *read* "file closers."
- Page 44, lines 11th and 12th from bottom, *for* "captain" *read* "guide."
- Page 48, line 7th, *for* "guides left" *read* "guides right."
- Page 61, line 9th, *for* "a color bearer" *read* "two color bearers."
- Page 78, 2d line from bottom, insert "(the captain halting in his own person)" after the word "left."
- Page 100, 6th line from bottom, *for* "from in rear" *read* "form in rear."
- Page 107, bottom line, *for* "that hand up" *read* "that hand down."
- Page 115, 5th line from bottom, *for* "1st and 2d loader on the right" *read* "1st and 2d loader on the left."

PART I.

SMALL-ARM COMPANY EXERCISES.

COMPANY EXERCISES.

I. ORGANIZATION AND FORMATION.

FROM fifty to one hundred rank and file, four guides, one captain, and two or three lieutenants, may be organized as a company of Infantry, and exercised as such. A smaller number of rank and file, with a proportional reduction of lieutenants and guides, may, under a captain, be exercised as a company; but platoon movements, with less than fifty men, would seldom be used. Colors may be carried in a company, but are not usual; if carried, they are borne by a guide or other non-commissioned officer. One or more pioneers may likewise accompany a company. The music of a company consists of one fifer and one or more drummers; for skirmishers, one bugler.

In the absence of one or more commissioned officers, the others that remain succeed them. In the absence of all, the 1st and 2d guides take their places, so far as to fill the posts of captain and 1st lieutenant. With two commissioned officers present, the guides do not succeed, except to command platoons or sections.

TO ASSEMBLE AND FORM COMPANY.

The 1st guide causes the music to beat "the Assembly," on the company parade or other appointed grounds. After a proper interval of time, the 1st guide posts the 2d guide at the point where he designs the left of the company to rest, and commands

Fall in Company—Left—FACE—Size—MARCH.

The men, with arms at a shoulder, take their places according to height, the smaller coming first, behind the guide thus posted.

In two ranks form Company—MARCH. [Pl. 1, fig. 1.]

The guide on the left, together with the man next him, face to the front, the remainder of the company mark time, and come up successively; the 2d man from the left covering the 1st—the 3d on the right of the 1st—the 4th covering the 3d. All face to the front as they come up, stand fast, and dress to the left under the supervision of the 2d guide. In like manner, each odd numbered file from the left comes up to form the front rank, and each even file to form the rear. Should a front rank man remain uncovered in the rear rank, the rear rank man covering the 2d file from the right will cover him. The distance from rank to rank, measuring from the back of the front rank man to the breast of the rear rank man, is thirteen inches. During this formation, the 3d and 4th guides stand in rear of the company and assist in bringing the men to their place. When all the men have come up and are dressed, 2d guide commands—**FRONT.**

The 1st guide then brings the men to an order, causes the files to call their numbers from the left, divides the company into platoons and these again into sections, numbered respectively from the right, takes post on the right of the company, and commands—*Company—REST.*

The captain and lieutenants now appear, and with the guides, music, &c., take the following

POSTS OF OFFICERS AND GUIDES OF A COMPANY IN LINE.

[Pl. 1, fig. 2.]

The Captain on the right of the front rank, touching the 1st man with his left elbow.

1st or right guide—guide of the 1st platoon and 1st section—in the rear rank, covering the captain. When the captain leaves his post on the right, this guide takes his place in the front rank.

The other officers and guides constitute the rank of file closers, and take post in rear of the rear rank, two paces distant—thus:

The 2d or left guide—guide of the 2d platoon and 3d section—opposite the second file from the left. When the company acts singly this guide has post when in line on the left of the front rank.

The 1st Lieutenant equidistant between the left guide and the centre of the 2d platoon.

The 2d Lieutenant opposite the centre of the 1st platoon.

The 3d Lieutenant opposite the centre of the 2d platoon.

The 4th Lieutenant opposite the centre of 1st section.

The 3d guide—guide of 2d section—opposite 2d file from the left of the 1st platoon.

The 4th guide—guide of 4th section—opposite the centre of the 2d platoon.

If there be *other petty officers*, these are posted on the right and left of the company, according to size, and act as files.

Music on the right of the company at the distance of four paces. In flank or column movements, it precedes the leading flank or column by this distance, changing place when necessary by the rear.

The *pioneer or pioneers* of a company, on the right of the line of file closers.

Colors are posted on the right of the front rank of the 2d platoon, and manœuvre with it.

The above are the posts when all are present, and the captain is in command or instructs.

REMARKS.

Whenever officers or guides shift to the right or left, they do so by the front.

A column of platoons or sections is said to be right in front, when the 1st platoon or 1st section leads; and left in front, when the 2d platoon or 4th section leads. As a rule, the guide of a column is at the *left* when the *right is in front*; at the *right* when the *left is in front*.

In a column of platoons or sections, their chiefs stand in front of their centres at the distance of half the front of platoon or section.

In flank movements of a company, the 1st lieutenant leads by the side of the right guide when the right flank is in front, or by the side of the left guide when the left flank leads. In both cases that guide which leads is in the front rank, the other in the line of file closers.

In flank movements of platoons or sections, their chiefs lead at the elbows of the guides of these platoons or sections respectively.

Files in the front rank, that may fall or otherwise be displaced, are for the time replaced by those that cover them in the rear rank.

Files should be required to remember their numbers, and also who stand on their right and left.

Whenever a column or company is put in motion, the cadence, *common*, *quick* or *double quick*, should be given before the command *March*. As a rule, the passage from one order to another is made in quick time.

Common time requires ninety steps of twenty-eight inches each to the minute.

Quick time requires one hundred and twenty steps of the same length in a minute.

Double quick requires one hundred and forty of the same length.

The commands are of two kinds; those of caution, printed throughout this text in *italics*, and those of execution, printed in SMALL CAPITALS.

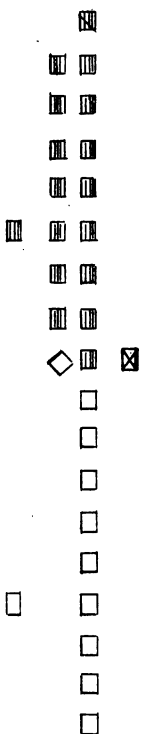
It will be understood that when the person giving the command is not named, it is the captain or other officer in command.

Should there be an officer superior to and independent of the captain, instructing the company, the duties laid down here for the captain are his, and the captain performs those of the 1st lieutenant.

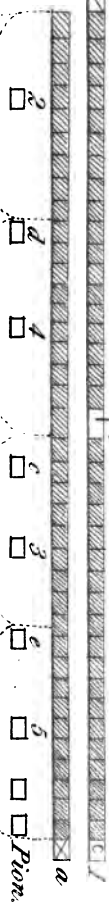
II. POSITION OF THE SOLDIER.

1. Heels on the same line.
2. Heels more or less closed, according to the figure of the man.
3. Toes equally turned out, at an angle somewhat less than a right angle.
4. Knees extended, but not stiff.
5. Body erect on the hips.
6. The upper part of the body inclined forward.
7. Shoulders square.
8. Arms hanging naturally, elbows near the body; palms of the hands turned a little to the front, with the little fingers near or in rear of the seams of the pantaloons.
9. Face directly to the front, with the chin drawn in, but without constraint.
10. Eyes cast directly to the front, and fixed on an object fifteen paces to the front.

"Fall in company—right face—size march—" "In two ranks form company—March."



2



Music

1, Captain.
2, 1st Lt.
3, 2nd Lt.
4, 3rd Lt.
5, 4th Lt.

Posts of officers guides &c.

a,	1 st Guide.
b,	2 nd G.
c,	3 rd G.
d,	4 th G.

Fig. 1.

"By file—right forward—dress."

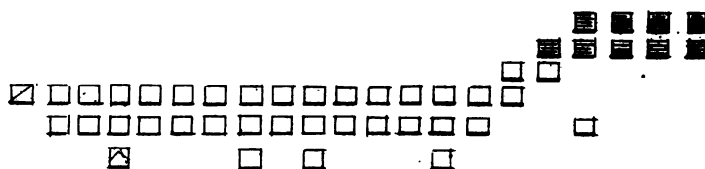
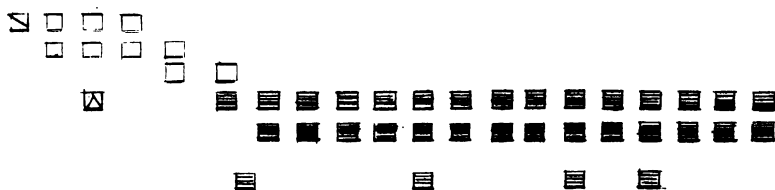


Fig. 2.

"By file—right backwards—dress."



III. ALIGNMENTS.

PRELIMINARIES.

Eyes—RIGHT.

Turn the head gently so as to bring the inner corner of the left eye on a line with the buttons of the coat, the eyes fixed on the line of eyes of the men in, or supposed to be in, the same rank.

FRONT.

Bring the face to the front again.

Eyes—LEFT. FRONT.

These movements of the head should not derange the squareness of the shoulders, which will happen if the movement of the former be too sudden.

ALIGNMENTS BY FILE.

Place the two front rank men on the right flank, two paces to the front, and, having aligned them, command

By file—Right forward—DRESS. [Pl. 2, fig. 1.]

A corresponding alignment may be made to the rear, by the command

By file—Right backwards—DRESS. [Pl. 2, fig. 2.]

Each man—beginning with the third from the right—steps up two paces, shortening the last so as to find himself about six inches behind the new alignment, which he ought never to pass; he then turns his head and eyes to the right, and moves up steadily by steps of two inches until he finds himself in the exact line of his neighbor, whose elbow he will slightly touch without opening out his own. Care must be observed that, in so doing, he does not derange the position of the head, the line of the eyes, or the squareness of the shoulders.

FRONT.

Turn the head and eyes to the front, and remain firm. The same may be executed by the left flank.

ALIGNMENTS FORWARD.

Should the line upon which it is desired to establish the company, be two or more steps in advance of its present position, command

Company right (or left) forward—DRESS.

If in rear of the position occupied by the company, command

Right (or left) backwards—DRESS.

At which the men step back a foot beyond the line, and dress up to it as before.

GENERAL ALIGNMENT.

Right (or left)—DRESS.

The whole company, except two files previously placed in advance as a basis of alignment, move up to within six inches of the line, turn the head and eyes towards the flank named, and gaining steadily by steps of two inches, come on to the line, until each man can see the breast of the second man from him, but no further.

In dressing, the captain stands in the front rank on the flank named. The right guide dresses the rear rank if the dress be towards the right; the left guide if towards the left. After the word *front*, no one will move, though he may be out of dress.

FRONT.

Bring the head and eyes to the front.

RULES TO BE OBSERVED IN ALL ALIGNMENTS.

1. Arrive steadily on the line with calmness and precision, and avoid precipitation.
2. Do not bend the body back, nor the head forward.
3. Turn the head only so far as to see the line of eyes, or to perceive the breast of the second man towards the basis.
4. Avoid passing the line of alignment.
5. At the word "*front*," stand fast, though not yet aligned.
6. At the command *this* or *that file forward* or *back*, the file named alone will move.

Formation in open order. Passing from two to one rank.

"In one rank form company—March."

fig 1.

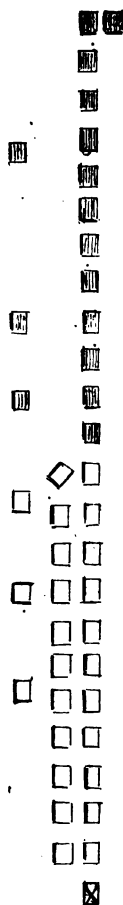


fig 2



Music



"Attention company—To the rear open order—March."

IV. TO PASS FROM TWO RANKS TO ONE RANK.

In one rank form Company—MARCH. [Pl. 3, fig. 1.]

The left guide faces to the left at the first command, and at the word *March*, steps off in the prolongation of the line of the company, the 1st Lieut. being at his right elbow. The man standing next him in the front rank faces to the left and follows; then the man on the left of the rear rank; he in turn is followed by the second in the front rank, and he by the one that covers him; and so on in succession. If the file next to the right be uncovered, the man in the rear rank covering the first right file, will cover the second before turning into the file.

The above presupposes that the company had been formed in two ranks on the left. If, however, the formation into two ranks had been by the right, the return to it must be by the right also. This rule is general.

V. TO OPEN RANKS AND INSPECT.

Attention. To the rear open order. [Pl. 3, fig. 2.]

Right and left guides make six steps to the rear in the back step, of fourteen inches each, and halt. The captain sees them aligned parallel to the line of file closers.

MARCH.

Rear rank and file closers step back, until the rear rank is beyond these guides, halt and are dressed to the right by the right guide, who afterwards commands—FRONT. Thus disposed, arms may be inspected by first bringing the company to an order and commanding

Inspection of ARMS. [Pl. 4.]

1st motion.—[Fig. 1.]—Face once and a half to the right on the left heel, carry the right foot perpendicularly to the rear of the alignment about six inches from, and at right angles to the left,

seize promptly the piece with the left hand, a little above the middle band, incline the muzzle to the rear without displacing the heel of the butt, the rammer being turned to the front.

2d motion.—[Fig. 2.]—Seize the head of the rammer, draw it as in "load in ten times," (p. 23,) and let it glide to the bottom of the bore.

3d motion.—Face promptly to the front, seize the piece with the right hand, and retake the position of ordered arms.

The captain or other inspecting officer then passes along the ranks, having first put up his sword, and inspects the arms, equipments, and dress of each man. Each man, as he passes, raises smartly his piece with the right hand, seizes it with his left between the tail-band and lock, and holds it, lock to the front, with the left hand as high as the chin and opposite the left eye. [Fig. 3.] The inspector takes the piece with his right hand at the small or handle, brings it down into his left and inspects it. After inspecting the piece he returns it, holding it as he received it; the man receives it with his right hand between the tail-band and lock, and replaces it in the position of order arms. [Fig. 4.]

When the officer has passed, the man retakes the position described under the first motion of inspection of arms, returns rammer and faces to the front.

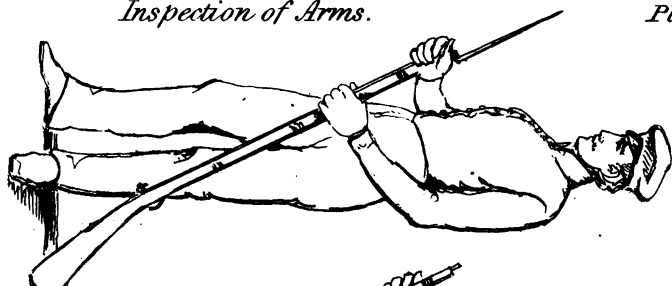
The inspector passes along the whole of the front of the front rank, and returns by the rear of the same, raising the covers of the cartridge boxes, which have been unbuttoned by the men.

Should the bayonets be unfixed at the command, *inspection of arms*, the men fix bayonets at the same time that they draw rammers.

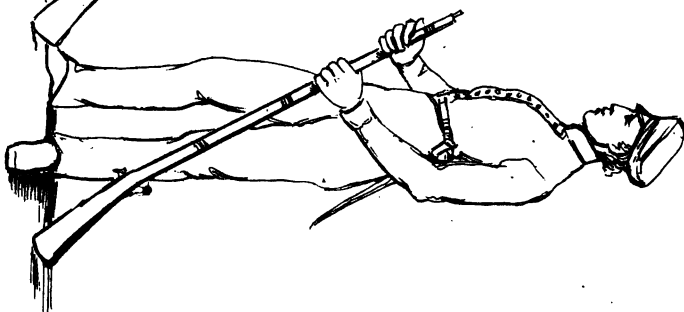
Inspection of Arms.

Pl. 4.

fig 1.
1st Motion.

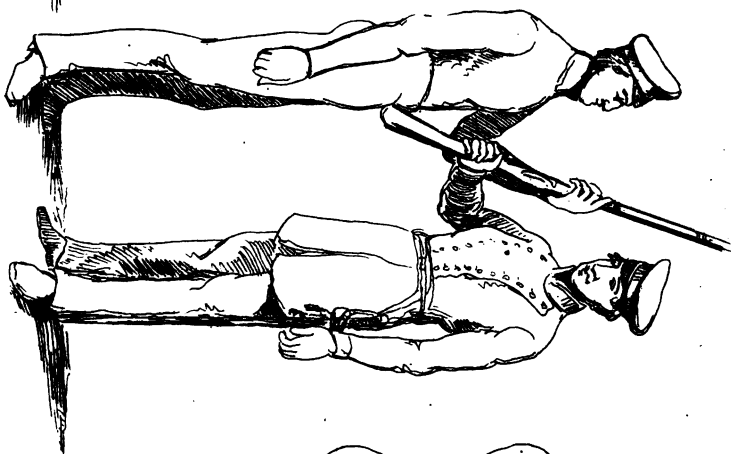


2
2nd Motion.



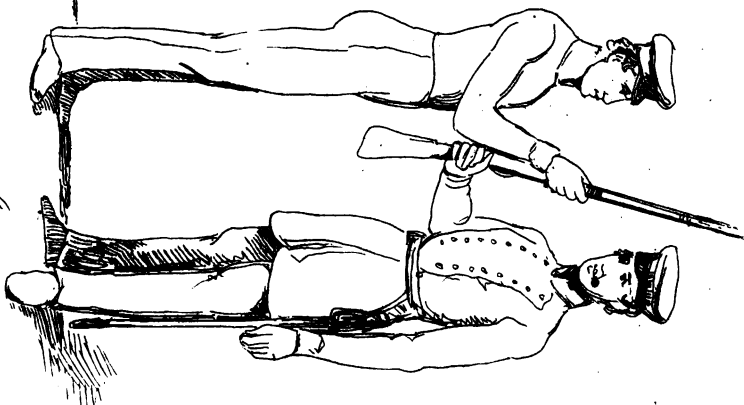
Inspector receives the piece.

3.



Inspector returns the piece.

4



VI. MANUAL.

Position at shoulder arms.

[Pl. 5, fig. 1.]

The piece in the right hand, the barrel nearly vertical, and resting in the hollow of the shoulder, the guard to the front, the arm hanging nearly at its full length near the body, the thumb and forefinger embracing the guard, the remaining fingers closed together and grasping the small of the stock just under the cock.

The command being at a *shoulder arms*, the instructor commands:—

Order—ARMS. [Pl. 5, fig. 2.]

1st motion.—Detach the piece with the right hand slightly from the shoulder, the barrel vertical, seize it promptly with the left hand half way between the lower bands, loosen the grasp of the right hand, and lower the piece with the left till the butt is within four inches of the ground; seize it with the right hand as high as the hip, the little finger in rear of the piece.

2d motion.—Extend the right arm, bring the piece to the ground without shock, the beak of the butt on a line with and against the small toe, the elbow near the body, the barrel vertical, and held between the thumb and forefinger extended along the stock, the other fingers extended and joined; drop the left hand to the side.

Shoulder—ARMS.

1st motion.—Raise the piece vertically with the right hand without changing the position of the elbow, until the hand is as high as the right breast; seize it with the left hand under and against the right, drop the right hand and grasp the piece at the swell of the stock, the thumb and forefinger embracing the guard.

2d motion.—Press the piece against the shoulder, and drop the left hand quickly to the side.

Support—ARMS. [Pl. 5, fig. 3, (a.)]

1st motion.—Raise and detach the piece slightly; seize it with the left hand at the lower band.

2d motion.—Carry the piece to the left shoulder, turning at the same time the barrel to the front, and changing the position of the fingers of the left hand to effect it; then grasp the small of the stock with that hand about two inches below the guard, and bring the left forearm between the cock and right hand horizontally across the body, the cock resting on the forearm, and the left hand open on the right breast.

3d motion.—Drop the right hand quickly to the side.

Carry—ARMS.

1st motion.—Grasp the piece with the right hand under and against the left forearm, seize it with the left hand at the lower band, the thumb extended, the left forearm along the stock; detach the piece slightly from the shoulder.

2d motion.—Carry the piece vertically to the right shoulder with both hands, turning the guard to the front; change the position of the right hand so as to embrace the guard with the thumb and forefinger, the right arm nearly straight; steady the piece against the shoulder with the left hand open, the fingers joined.

3d motion.—Drop the left hand quickly by the side.

As carbineers—Support—ARMS. [Pl. 5, fig. 3, (b).]

Bring the piece with the right hand obliquely across the body, the barrel resting in the hollow of the shoulder; embrace or cover the right hand with the left extended.

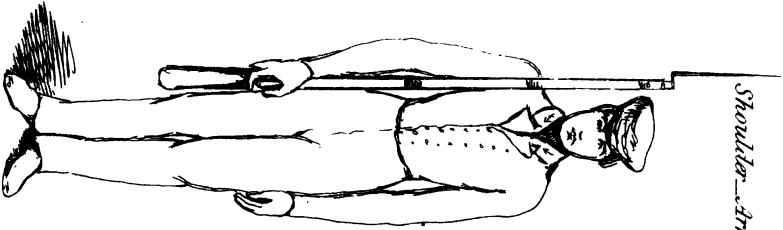
Carry—ARMS.

Disengage the hands, and let both fall to the sides, the right grasping the piece.

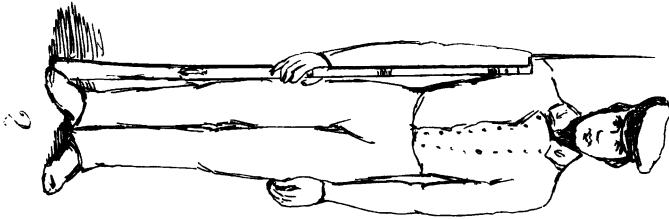
Present—ARMS. [Pl. 5, fig. 4.]

1st motion.—With the right hand bring the piece erect, opposite to the middle of the body, the rammer to the front, at the same time seize the piece with the left hand above the lock, the little finger against the upper end of the lock plate, the thumb extended along the stock, the forearm horizontal and resting on the body without constraint.

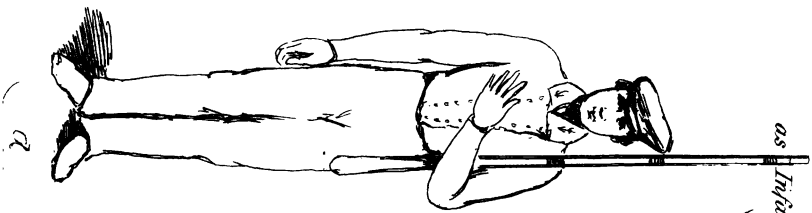
Shoulder-Arms.



Order-Arms.

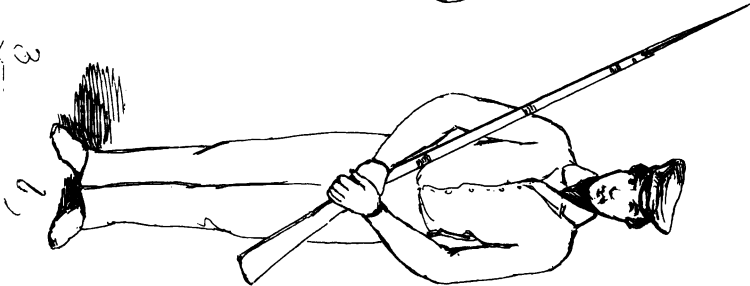


as Infantry.

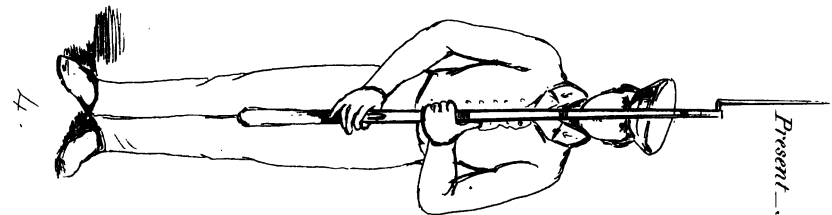


Support-Arms.

as Carbineers.



Present-Arms.



2d motion.—Grasp the small of the stock with the right hand, the guard resting on the forefinger, elbows near the body.

Shoulder—ARMS.

1st motion.—Bring the piece to the right side, shift the position of the right hand so as to embrace the guard with the thumb and forefinger; steady the piece against the shoulder with the left hand open and as high as the elbow.

2d motion.—Drop the left hand quickly by the side.

Trail—ARMS. [Pl. 6, fig. 1.]

1st motion.—Drop the muzzle to the front till the barrel has an inclination of about 15 degrees, raise the piece at the same time with the left hand above and near the lower band, the thumb against the stock; grasp it with the right hand about three inches below the left.

2d motion.—Extend the right hand without depressing the shoulder, lowering the muzzle till the barrel is nearly horizontal, drop the left hand by the side; if bayonets are fixed, retain the inclination of 15 degrees from the vertical.

Order—ARMS.

At the word *order*, bring the piece to the right side with the right hand, the barrel vertical; at the word *arms*, let it slip through the hand to the ground without shock.

Trail—ARMS.

Throw up the piece and seize it with the right hand just below the lower band; incline the muzzle to the front till the barrel has an inclination of 15 degrees, if bayonets are fixed; if without bayonets, nearly horizontal.

Shoulder—ARMS.

At the command *shoulder*, raise the piece vertically with the right hand; at the word *arms*, execute what has been prescribed for coming to a *shoulder* from the position of *ordered arms*.

Arms—AT WILL. [Pl. 6, fig. 2.]

Carry the piece at pleasure on either shoulder, with one or both hands on the butt, the muzzle elevated.

Shoulder—ARMS.

Re-take quickly the position of *shoulder arms*.

Order—ARMS.

(As prescribed.)

Ground—ARMS. [Pl. 6, fig. 3.]

1st motion.—With the right hand turn the piece, the barrel to the left, advance the left foot, and bending the body, place the piece on the ground, the barrel straight to the front.

2d motion.—Rise up, bringing the left foot back to its place, and drop the hands by the side.

Take—ARMS.

1st motion.—Advance the left foot, and bending the body to the front, seize the piece just above the lower band.

2d motion.—Rise up and take the position of *ordered arms*.

Charge—BAYONET.

[Pl. 7, fig. 2.] *1st motion*.—Raise the piece with the right hand, in half-facing to the right on the left heel, and bring the hollow of the right foot opposite to and three inches from the left heel.

[Pl. 7, fig. 3.] *2d motion*.—Drop the piece forward into the left hand, which will seize it a little above the lower band, the barrel up, the left elbow supported against the body; with the right hand seize the handle below the guard, this hand supported against the hip, the point of the bayonet at the height of the eye.

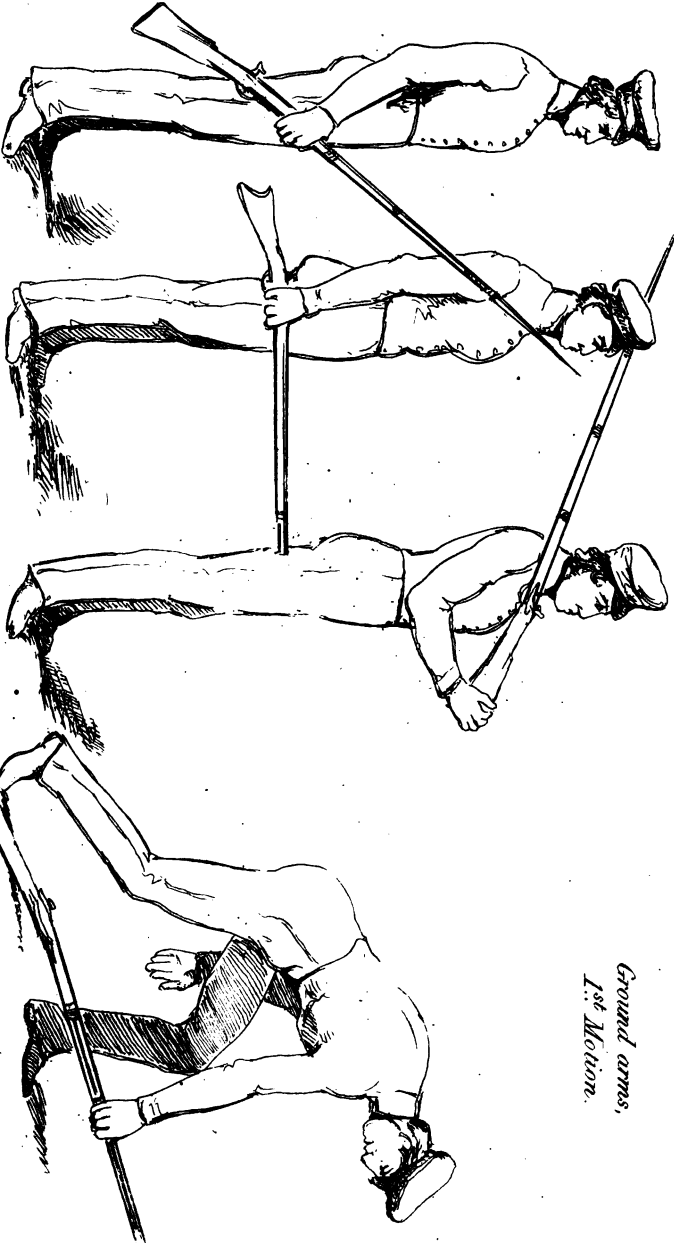
Shoulder—ARMS.

[Pl. 7, fig. 4.] *1st motion*.—Face to the front, bring up the right foot, raise the piece with the left hand, bring it erect against the right shoulder, the rammer to the front; with the right hand, at the same time, embrace the cock and guard.

*Trail arms.
Bayonet, unfixed.*

Arms at ease.

*Ground arms,
1st Motion.*

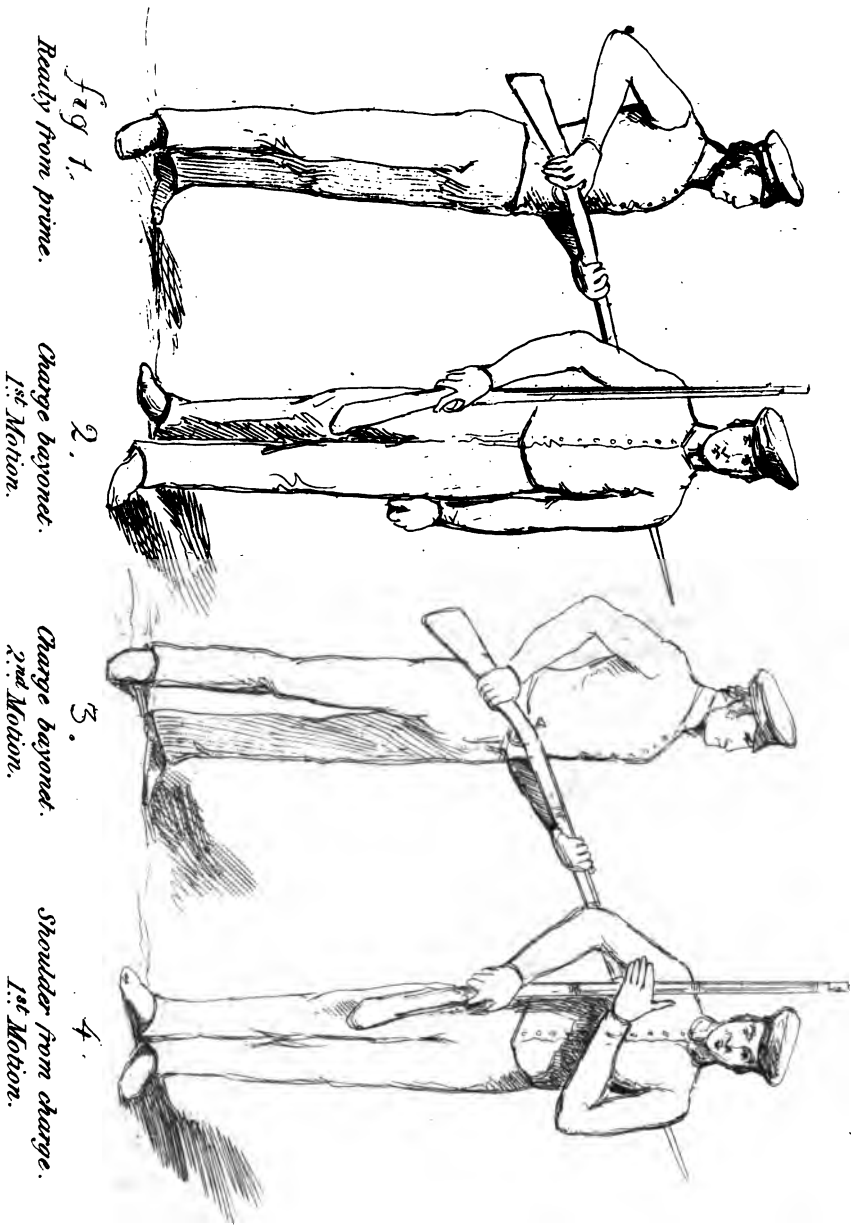


a.

fig 1 b

fig 2.

fig 3.



2d motion.—Quit hold with the left hand, and drop this hand to the side; lengthen the right arm at the same time.

Unfix—BAYONETS.

[Pl. 8, fig. 1.] *1st motion.*—Bring the left hand promptly to the middle band, detach slightly the piece from the shoulder.

[Pl. 8, fig. 2.] *2d motion.*—Lower the piece with the left hand, seize it with the right above the lower band, rest the butt on the ground, letting the piece slip through the left hand; bring the right hand immediately to the bayonet.

3d motion.—Wrest off the bayonet and return it to the scabbard; next seize the piece with the right hand a little above the lower band; drop the left hand at the same time by the side, and take the position of *ordered arms*.

Shoulder—ARMS.

(Same as from *ordered arms*.)

Fix—BAYONETS.

1st and 2d motions.—As those of *unfix bayonets*; except that at the end of the second motion the right hand will be brought to seize the bayonet by the socket and shank, so that the socket may extend about an inch above the hand.

3d motion.—Draw the bayonet from the scabbard with the right hand, carry and fix it on the muzzle; next seize the piece with the right hand above the lower band, and drop smartly the left hand by the side.

Shoulder—ARMS.

(Same as from *ordered arms*.)

As heavy Infantry—Shoulder—ARMS.

[Pl. 8, fig. 3.] *1st motion.*—Detach the piece from the shoulder, bring it erect between the eyes, seize it with the left hand at the height of the neck, grasp the handle with the right hand, this hand as high as the elbow, the rammer to the front.

[Pl. 8, fig. 4.] *2d motion.*—Raise the piece with the right hand, the thumb extended along the counter-plate, turn the barrel to the front, support the piece against the left shoulder; at the same time drop the left hand and place it under the butt.

[Pl. 8, fig. 5.] *3d motion*.—Drop the right hand to its side.

As Light Infantry—Shoulder—ARMS.

1st motion.—With the right hand seize the piece at the handle, turn the lock to the front.

2d motion.—Carry the piece with the right hand erect against the right shoulder, the rammer to the front, the right arm nearly straight, the right hand embracing the guard and cock; steady the piece with the left hand at the shoulder.

3d motion.—Drop the left hand by the side.

VII. LOADING.

TO LOAD IN TEN TIMES.

The company being at *shoulder arms*, the instructor commands:

Load in ten times.

1. LOAD.

[Pl. 9, fig. 1.] *1st motion*.—Seize the piece with the left hand as high as the shoulder, carry the right foot to the front and place it with the heel opposite and adjoining the hollow of the left, carry the piece across the body to the left side and extend the right hand.

[Pl. 9, fig. 2.] *2d motion*.—Release the hold with the right hand, and with the left let the piece descend to the ground without shock, the piece touching the left thigh, and the muzzle near the centre of the body; carry the right hand quickly to the cartridge box, and open it.

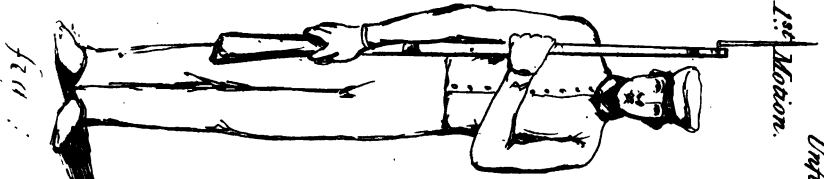
2. *Handle*—CARTRIDGE. [Pl. 9, fig. 3.]

Seize a cartridge with the thumb and next two fingers, and place the folds between the teeth.

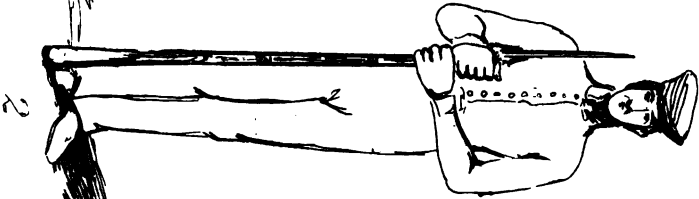
3. *Tear*—CARTRIDGE. [Pl. 9, fig. 4.]

Tear the paper down to the powder, hold the cartridge between the thumb and next two fingers, near the top; in this position place it in front of and near the muzzle, the back of the hand to the front.

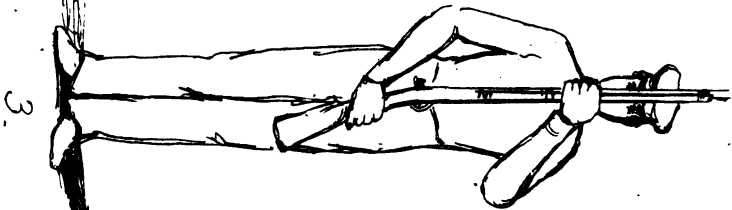
Light bayonets.
1st Motion.



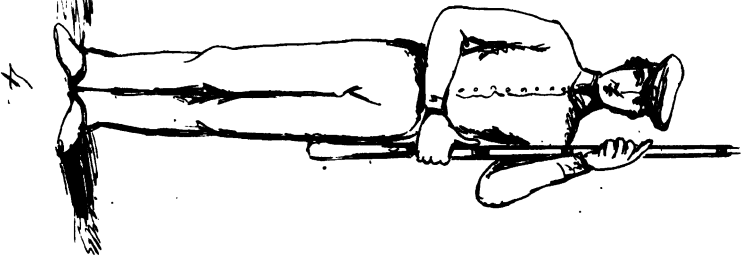
2nd Motion.



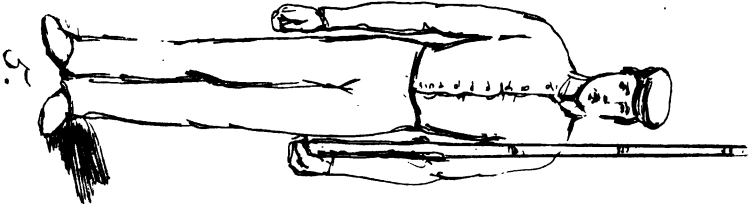
From shoulder as light, to shoulder as heavy Infantry.
1st Motion.



2nd Motion.



3rd Motion.



4. *Charge*—CARTRIDGE. [Pl. 9, fig. 5.]

Fix the eye on the muzzle, turn quickly the back of the right hand to the body, in order to discharge the powder into the barrel, raise the elbow to the height of the wrist, shake the cartridge, force it into the muzzle, and leave the hand reversed, the fingers together, but not clenched.

5. *Draw*—RAMMER.

[Pl. 10, fig. 1.] *1st motion*.—Drop smartly the right elbow, and seize the rammer between the thumb and forefinger bent, the other fingers shut, draw it smartly by extending the arm, seize the rammer again at the middle between the thumb and forefinger, the hand reversed, the palm to the front, the fingers extended, the nails up, the eyes following the movement of the hand; clear the rammer from the pipes by again extending the arm.

[Pl. 10, fig. 2.] *2d motion*.—Turn rapidly the rammer between the bayonet and the face, closing the fingers, the rammers of the rear rank grazing the right shoulders of the men of the same file in front, respectively, the rammer parallel to the bayonet, the arm extended, the butt of the rammer opposite to the muzzle, but not yet inserted, the eyes fixed on the muzzle.

[Pl. 10, fig. 3.] *3d motion*.—Insert the butt of the rammer and force it down as low as the hand.

6. *Ram*—CARTRIDGE.

Support the rammer in its place by pressing it with the thumb whilst extending the arm to its full length, seize the rammer between the right thumb extended and the forefinger bent, the other fingers closed; with force ram home twice, and seize the rammer at the little end, between the thumb and forefinger bent, the other fingers closed, the right elbow touching the body.

7. *Return*—RAMMER.

1st motion.—Draw briskly the rammer, re-seize it at the middle between the thumb and forefinger, the hand reversed, the palm to the front, the nails up, the fingers extended, the eyes following the movement of the hand; clear the rammer from the barrel by extending the arm.

2d motion.—Turn rapidly the rammer between the bayonet and the face, closing the fingers, the rammers of the rear rank grazing the right shoulders of the men in the same file in front, respectively, the rammer parallel to the bayonet, the arm extended, the little end of the rammer opposite to the first pipe, but not inserted, the eyes fixed on that pipe.

[Pl. 10, fig. 4.] *3d motion.*—Insert the little end, and with the thumb, which will follow the movement, force it as low as the middle band, raise quickly the hand a little bent, place the little finger on the butt of the rammer and force it down; lower the left hand on the barrel to the extent of the arm without depressing the shoulder.

8. *Cast*—ABOUT.

[Pl. 10, fig. 5.] *1st motion.*—With the left hand bring up the piece vertically against the left shoulder, seize it smartly with the right hand at the handle, and slide the left hand down as low as the chin.

[Pl. 11, fig. 1.] *2d motion.*—Make a half face to the right on the left heel, bringing the left toe to the front; place at the same time the right foot behind and at right angles with the left, the hollow of the right foot against the left heel; carry the piece opposite to the right shoulder, and bring it with the right hand into the left, which will, at the same instant, seize it at the tail-band, the thumb extended along the stock, the butt under the right forearm, the handle against the body and about two inches under the right breast, the muzzle at the height of the eye, the guard turned a little out, the left elbow supported against the side; at the same time place the thumb of the right hand on the hammer, the fingers remaining under and against the guard.

9. PRIME. [Pl. 11, fig. 2.]

Half-cock the piece, brush off the old cap, and with the thumb and first two fingers of the right hand take a cap from the pouch or pocket, place it firmly on the cone by pushing it down with the thumb, and seize the piece at the handle.

10. *Shoulder*—ARMS.

1st motion.—Make a half face to the left and bring up the right foot; bring up the piece against the right shoulder with the left

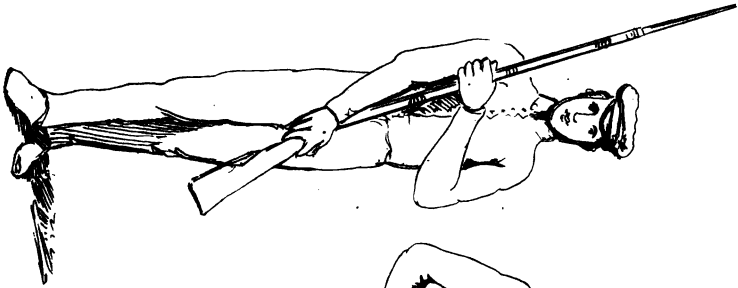
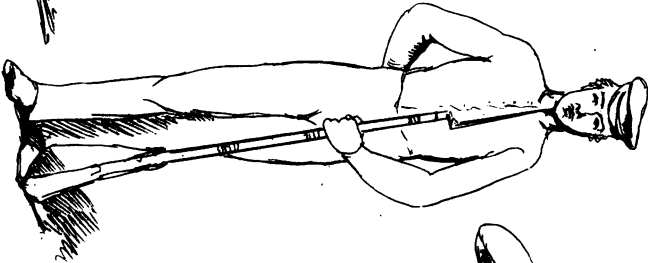


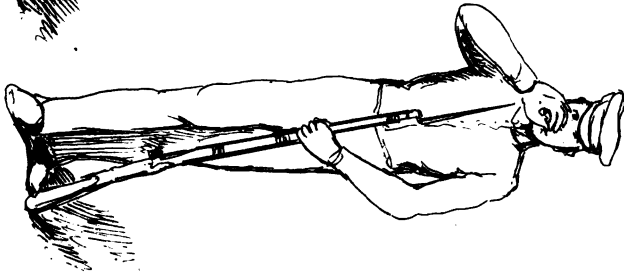
fig 1

Load, 1st Motion.



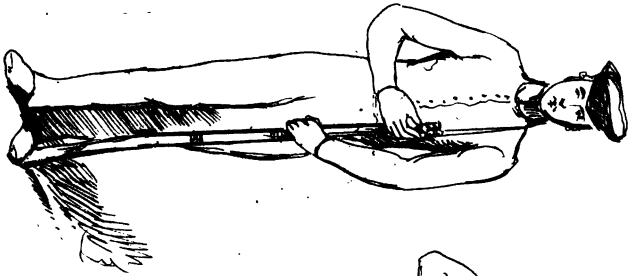
2.

Load, 2nd Motion.



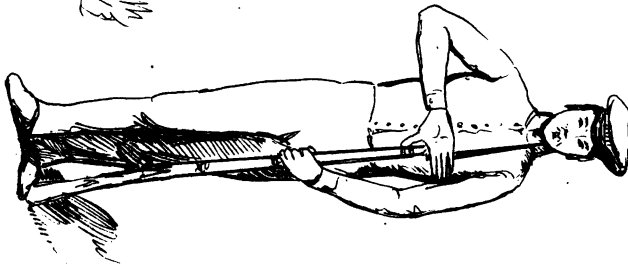
3.

Handle cartridge.



4.

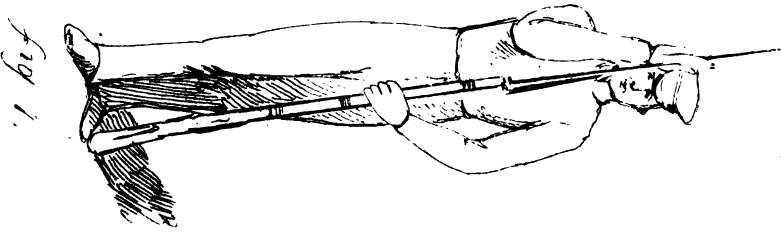
Tear cartridge.



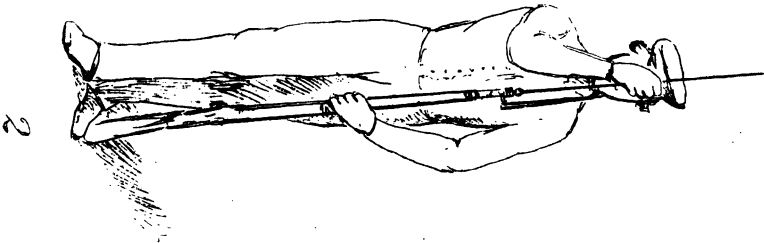
5.

Charge cartridge.

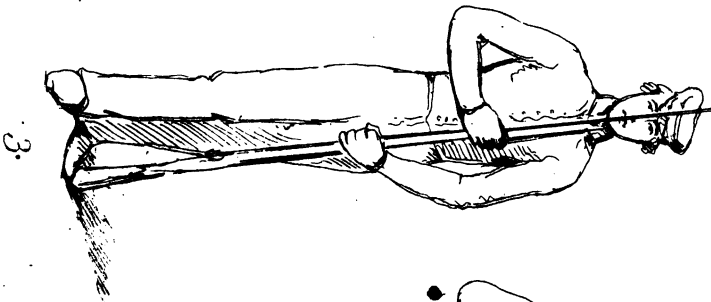
1st Motion.



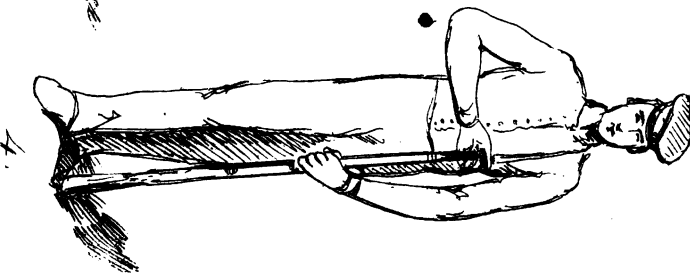
*Draw rammer.
2nd Motion.*



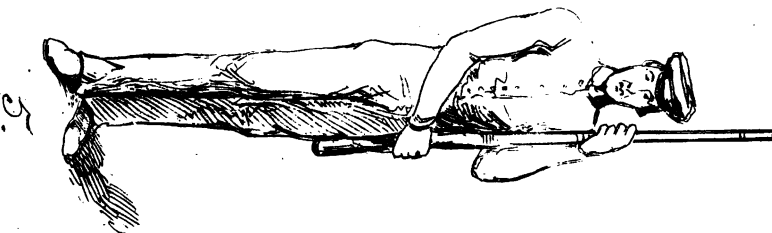
3rd Motion.



*Return rammer.
3rd Motion.*



*Last about.
1st Motion.*



hand and steady it there, at the same time changing the right hand to the guard.

2d motion.—Drop smartly the left hand to the side.

READY.

[Pl. 11, fig. 3.] *1st motion.*—Half face to the right on the left heel, place the right foot behind and at right angles with the left, the hollow of the right foot against the heel of the left; grasp the piece with the left hand as high as the elbow, and detach it about four inches from the body.

[Pl. 11, fig. 4.] *2d motion.*—Raise the piece vertically with the right hand, slip it through the left, and grasp it half way between the lower band and heel, the hand as high as the neck, the left elbow down, the rammer to the front; place the right thumb on the head of the cock, the fingers supported against the guard and the small of the stock; cock by depressing the elbow, closing it smartly to the body, and seize the small of the stock with the right hand. [Pl. 11, fig. 5.]

AIM. [Pl. 12, fig. 2.]

Lower the muzzle quickly to the front, support the piece with the left hand, the thumb extended along and the fingers pressing the stock, the butt against the right shoulder, the right arm horizontal, the head inclined to the right, so as to bring the right eye in a line passing through the points of sight, and directed upon the object aimed at; the left eye closed, the forefinger of the right hand lightly touching the trigger. The rear rank man will step with the right foot six inches to the right, bend the knee slightly, and aim midway between the pieces of the men in front. [Pl. 12, fig. 1.]

For *aim kneeling*, see [Pl. 12, fig. 3].

FIRE.

Press the forefinger against the trigger, and remain perfectly steady.

LOAD.

1st motion.—Bring down the piece quickly with both hands, depress the butt by extending the right arm, and carry it with the arm thus extended to the left side, the barrel to the front and oppo-

site the left shoulder, the left hand at the height of the chin, the back of the hand to the front, the left forearm touching the stock; at the same time face to the front and carry the right foot forward, the heel against the hollow of the left foot.

2d motion.—Let go the piece with the right hand, and let it descend through the left to the ground without shock, and take the position of *load in ten times*.

FROM FIRE TO SHOULDER ARMS.

Shoulder—ARMS.

1st motion.—Face to the front and carry up the right foot; at the same time depress the right hand, raise the barrel to the shoulder with the left, and steady it there.

2d motion.—Drop the left hand.

FROM AIM TO RECOVER ARMS.

Recover—ARMS.

Withdraw the finger from the trigger, throw up the muzzle smartly with the left hand, and retake the position of *ready* from a *shoulder*. The rear rank draws back the right foot.

READY FROM A SHOULDER TO COME TO A SHOULDER.

Shoulder—ARMS.

[Pl. 12, fig. 4.] *1st motion.*—At the word *shoulder*, place the right thumb on the head of the cock, the forefinger on the trigger, the others under and against the guard, let the cock gently down to half-cock, and seize the small of the stock with the right hand.

2d motion.—At the word *arms*, face to the front and bring up the right foot, depress the right hand and let the piece slip through the left to the middle band; press the piece to the right shoulder with the left hand.

3d motion.—Drop the left hand.

READY, FROM THE POSITION OF PRIME. [Pl. 7, fig. 1.]

READY.

Place the thumb of the right hand on the hammer, (the fingers

Last about, 2nd Motion.

Prime.

1st Motion.

*Ready,
2nd Motion.*

Loading.

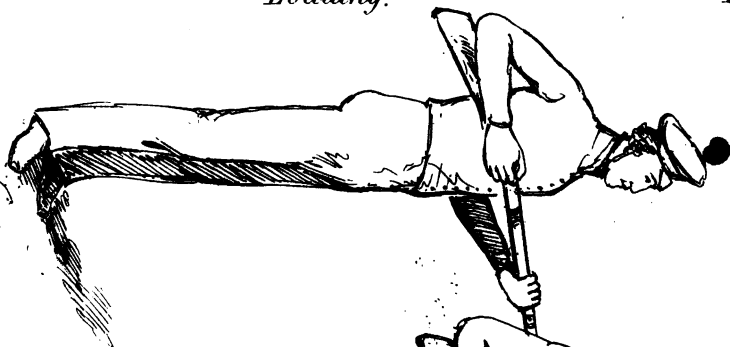
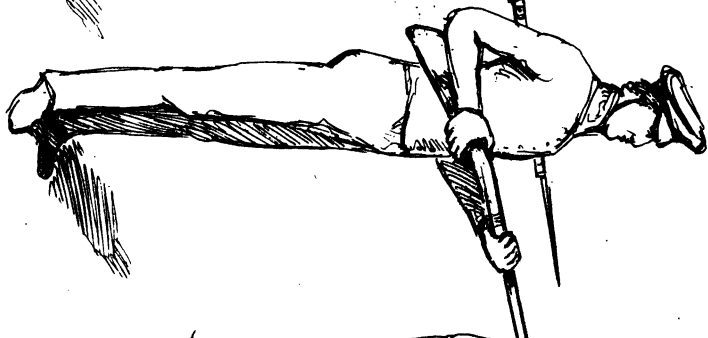
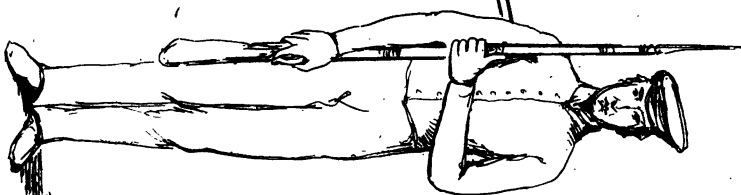


fig 1.



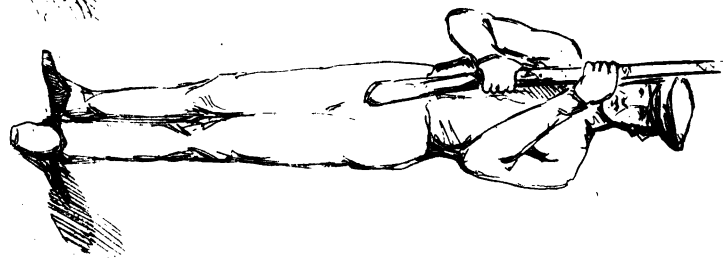
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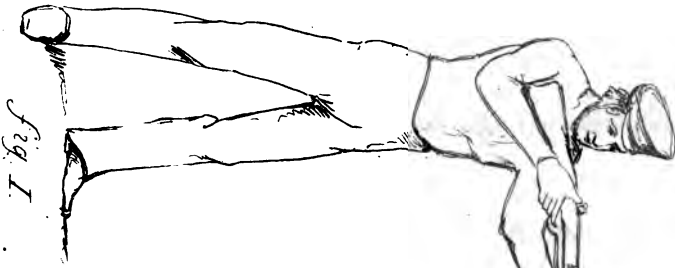


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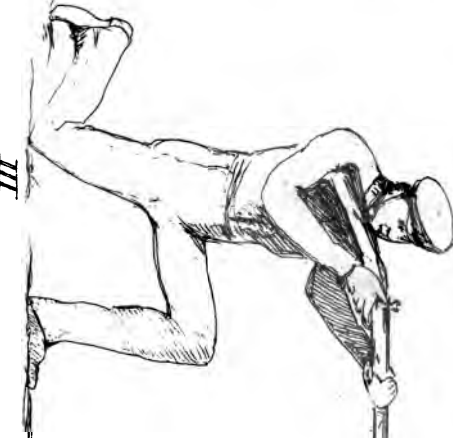
Rear rank.



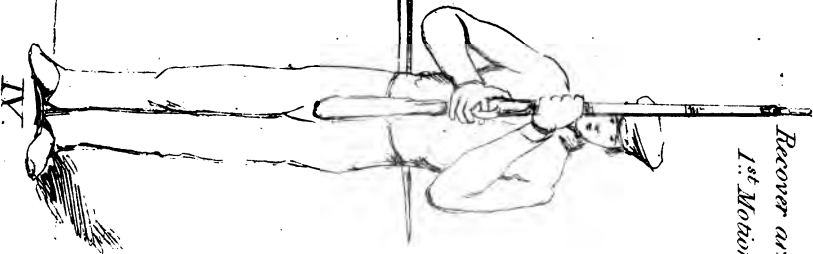
*limb,
Front rank.*



Kneeling



*Recover arms,
1st Motion.*



remaining under and against the guard,) cock the piece, and bring the right hand to the small.

AIM.

Raise the butt to the shoulder, and take the same position as in aiming from *ready* from a *shoulder*.

AT READY FROM A PRIME TO SHOULDER ARMS.

Shoulder—ARMS.

1st motion.—At the word *shoulder*, place the thumb of the right hand on the head of the hammer, the forefinger on the trigger, the other fingers under and against the guard, let the hammer gently down to half-cock.

2d motion.—Face to the front, bring up the right foot, and at the same time depress the right hand, and with the left bring up the barrel to the shoulder; slip the left hand to the middle band and press the piece to the shoulder.

3d motion.—Drop the left hand.

TO LOAD IN FOUR TIMES.

LOAD.

Execute the motions of loading, handle cartridge, tear cartridge, charge cartridge.

TWO.

Draw rammer, enter it as far as the band, and ram twice.

THREE.

Return rammer, cast about, and prime.

FOUR.

Come to a shoulder arms.

TO LOAD AT WILL.

Load at will—LOAD.

All the motions are executed without interval; ending with *shoulder arms*, or, if specially ordered, *ready* from *prime*.

VIII. FIRING.

TO FIRE BY COMPANY.

Fire by company.

The captain takes post opposite the centre of his company and four paces to the rear of the line of file-closers.

The right and left guides fall back into the line of file-closers.

This disposition for the captain and guides is general throughout the firings. [Pl. 13, fig. 1.]

Commence firing.

Company—READY—AIM—FIRE—LOAD.

Which are severally executed as under Loading; the loading being always *at will*.

For the oblique fire, the captain precedes the word *aim* by the words, *right* (or *left*) *oblique*;—at which the right (or left) shoulder is thrown back and the object steadily viewed. At the word *load*, pieces that load at the breech remain in the intervals aimed through, until brought to a shoulder.

TO FIRE BY PLATOONS.

Fire by platoons—Commence firing.

First platoon—READY—AIM—FIRE—LOAD.

And after a portion have loaded and returned to a shoulder,

Second platoon—READY—AIM—FIRE—LOAD.

And so continue alternately.

The fire by sections may be executed in the same way—the order of fire being 1st, 3d, 2d, 4th.

TO FIRE BY FILE.

Fire by file. Company—READY.

Commence—FIRING.

At the last command the men aim together, fire and load individually, as briskly, consistently with safety and coolness, as possible.

To try the distance, or to reserve a portion of the pieces charged, the command would be instead of "*commence firing*," "*by the right of company*," or "*by the right and left of company*," "*commence firing*;" at which pieces from the flanks are brought down in succession, beginning at the flank or flanks and progressing towards the centre; observing, however, that no one brings down his piece to the position of aim, until the preceding file brings his piece back to that of load. By this means a portion of the pieces are kept charged.

TO FIRE TO THE REAR.

Fire to the rear.

The captain places himself in front of his company, at the distance of six paces, and commands

Company—about—FACE—Company—READY, &c.

At which the company faces about, the file closers and right and left guides pass by the nearest flank and place themselves opposite their former positions in front of the company—now become the rear. [Pl. 13, fig. 2.]

TO RESUME THE FRONT FIRING.

Fire to the front.

At which the company is faced about, and the officers and guides resume their positions for front firing.

TO EXECUTE THE FIRE BY FILE WITH OPENED RANKS.

Fire by file, as in open order.

By the right of company, (or by the right and left of company),
Commence—FIRING.

The file or files indicated step to the front until four paces in advance of the front rank—the rear rank man making the last step to the right oblique, so as to uncover the front. They aim deliberately, fire, bring their pieces to a shoulder, face about, retake their positions in the rank (the rear rank man leading), and load.

The next file steps out to the front as the preceding one faces about.

TO STOP THE FIRE IN ALL CASES, command

Cease—FIRING,

or cause a roll with taps from the drummer; at which the pieces are reloaded, if necessary, and shoulder arms resumed. The command "*cease firing*" is repeated by every commissioned officer and guide.

REMARKS.—In firing with blank cartridges, it should not be forgotten to enjoin on the men to observe, before loading, if smoke issues from the touch-hole or barrel—a certain indication that the piece has gone off. If no smoke issues, instead of reloading, they should simply prick and prime. The length of charge in ramming would likewise serve to detect errors, if not otherwise discovered.

With a view to greater safety, as also to know the condition of the arms, inspections should take place after firing. Care should be had that the hammer stands at half cock. Very serious accidents have arisen from allowing the hammer to rest on the nipple.

TO ASCERTAIN IF THE PIECES ARE OR ARE NOT CHARGED.

Spring—RAMMERS.

At which the position of *inspection of arms* is assumed, and the rammer drawn. But as the inspector approaches, the piece is not thrown up.

To determine the point in question, the inspector takes, or causes the men to take, the rammers by the small end, and spring them into the pieces.

The rammer is returned, and position of order-arms resumed, as in inspection of arms.

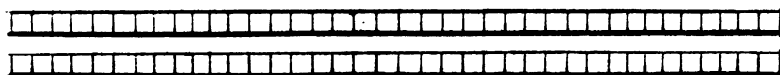
IX. TO STACK ARMS, DISMISS COMPANY, &c.

Form the company in two ranks, bring it to an order, and tell off the files in couplets, beginning on the right.

Fig. 1.

To the front.

Front rank.



Rear rank.

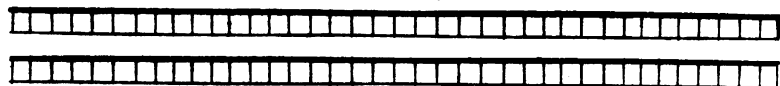


Fig. 2.

To the rear.



Front rank.



Rear rank.

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Cambridge, Mass.

Stack—ARMS. [Pl. 14, fig. 1.]

The front rank man of every even-numbered file passes his piece to the front, seizes it with his left hand above the middle band, and places the butt behind and near to the right foot of the man next on his left, the barrel turned to the front.

At the same time, the front rank man of every odd file passes his piece to the front, seizes it with the left hand below the middle band, and hands it to the man next on the left. The latter receives it with the right hand two inches above the middle band, throws the butt about thirty-two inches to the front, opposite his right shoulder, inclines the muzzle towards himself, and locks the shanks of the bayonets of this and his own piece; the lock of this second piece towards the right, and its shank above the other.

The rear rank man of every even file projects his bayonet forward and introduces it, using both hands, between the bayonets of the other two pieces, with the shanks above their shanks. He then abandons the piece to his file leader, who receives it with the right hand under the middle band, brings the butt to the front—holding up his own piece and the stack with the left hand—and places it between the feet of the man next on the right, lock towards the rear.

The stack thus formed, the rear rank man of every odd file passes his piece into his left hand with the barrel to the front, and sloping the bayonet forward rests his piece against the stack, which is now complete. [Pl. 14, fig. 2.]

The men now resume the position of the soldier without arms.

TO DISMISS THE COMPANY, command

Break ranks—MARCH.

TO REFORM AND RESUME ARMS.

Company—FALL IN.

The files fall-in in order, standing in two ranks opposite to and in rear of their respective pieces.

Attention—COMPANY—Take—ARMS.

The rear rank men of the odd files first withdraw their pieces from the stacks; the front rank men of the even files seize their own

pieces with the left hand, and those of the front rank men of the odd files with the right; the rear rank men of the even files seize their pieces with the right hand at the middle band, advancing for this purpose the right foot. The stack is raised by these files, and the shanks parted. The front rank odd files receive their pieces from the hands of the man next on their left respectively.

All resume the position of *order arms*.

Those file leaders that bear fire arms rest them against the nearest stack *after* the ranks are broken, and retake them *before* the company is reformed, unless otherwise directed.

TO PASS FROM A POSITION OF ATTENTION TO ONE OF EASE,
command

In your places—REST.

When neither steadiness of position nor silence is required, but the left heel as also the butt of the piece must remain in place. The same command could be given at a *support*.

To allow greater freedom, command

Company—REST.

The men may now leave their places, but not the ground. But before this enlarged freedom is allowed, arms should be either *stacked* or *grounded*.

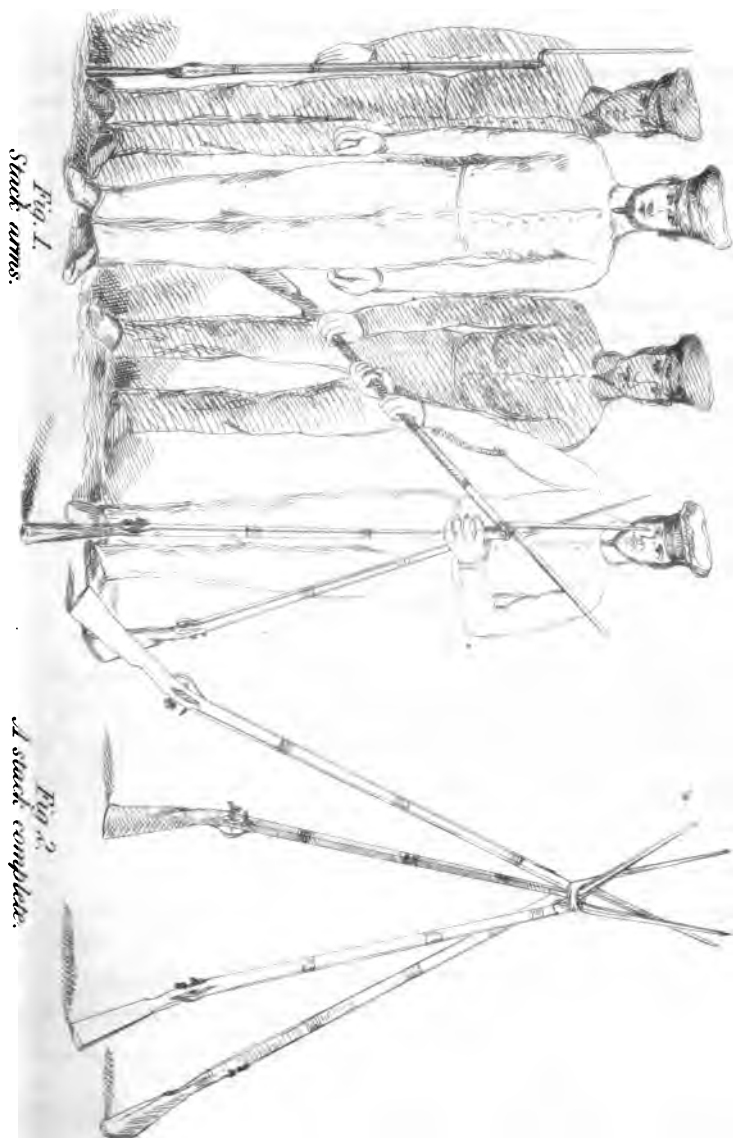
TO RESUME ATTENTION.

Attention—COMPANY.

X. FACINGS.

Company—by the right (or left) flank—right (or left)—FACE.

Slightly raise the left toe, and turn towards the flank indicated on the left heel; at the same time bring the right heel to the side of the left and on the same line, so that the present line of heels shall be precisely at right angles with the former line.



*Fig. 1.
Stack arms.*

*Fig. 2.
Stack complete.*

Company right (or left) half—FACE.

Executed as the full face, except that the new line of heels shall be at half a right angle with the former.

Company—ABOUT—FACE.

1st motion.—[Pl. 15, fig. 1.]—At the word *about*, turn on the left heel and bring the left toe to the front; at the same time carry the right foot to the rear, the hollow opposite to and three inches from the left heel, the feet square to each other.

2d motion.—At the word *face*, turn on both heels, raise slightly the toes, extend the hams, face to the rear, and bring the right heel to the side of the left.

When under arms as *heavy infantry*, turn the left hand at the word *about*, so as to bring the lock of the piece to the front, and seize the inner corner of the cartridge box with the right hand. At the word *face*, quit hold of the cartridge box, let the hand fall to the side, and restore the barrel to the front.

XI. BALANCE STEP.

Right foot—FORWARD. [Pl. 15, fig. 2.]

At the word *right foot*, rest the weight of the body on the left leg, but hold both legs straight. At the word *forward*, smartly but without a jerk, carry forward the right foot twenty-eight inches, the sole near the ground, the ham extended, the toe a little depressed, and, as well as the knee, slightly turned out.

GROUND. [Pl. 15, fig. 3.]

Press the weight of the body forward, plant the right foot firmly but without shock, and rest the weight of the body on the right leg; raise the left foot and hold it in rear, with the leg slightly bent, and with the toe raised an inch above the ground.

Left foot—FORWARD. [Pl. 15, fig. 4.]

Carry forward the left foot and hold it in precisely the same manner as was the right.

GROUND. [Pl. 15, fig. 5.]

Plant the left foot, and raising the right hold it extended to the rear.

HALT.

Bring whichever foot may be extended to the rear, along-side the other.

XII. TO MARCH IN LINE OR BY THE FRONT.

[Pl. 16.]

Company forward—GUIDE RIGHT—COMMON TIME.

The captain places himself in front of and opposite to the centre of the company, distant four paces. The right guide replaces him in the front rank, and takes up covering points in advance on which to direct his march.

The body is inclined forward slightly, the weight of the body rests on the right leg, but the left is held straight.

MARCH.

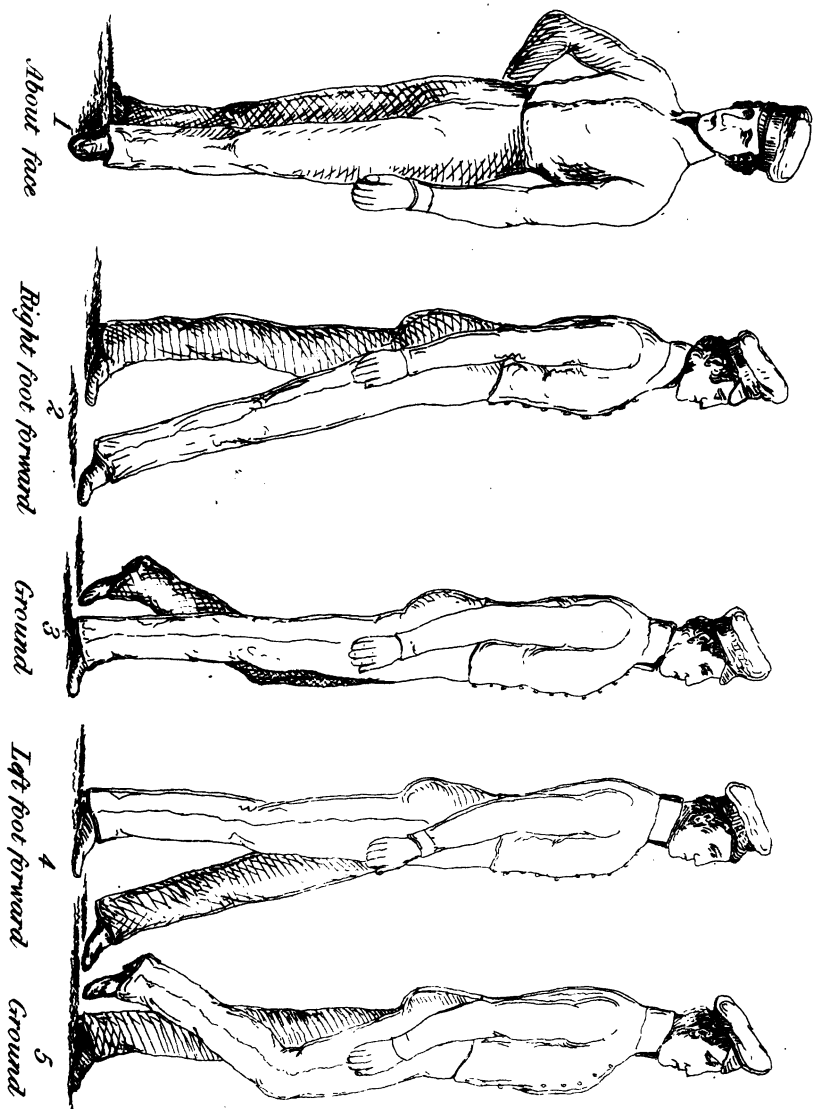
Carry forward the left leg smartly, but without a jerk, the leg extended, sole near to the ground, the ham extended, the toe a little depressed, and as also the knee slightly turned out. Press forward the weight of the body, plant the left foot twenty-eight inches in advance of the right, and rest the weight of the body on the left leg. In like manner carry forward the right leg, toe pointed and knee turned out, plant it without jar twenty-eight inches in advance of the left. Thus continue until the command

Mark time—MARCH.

At the word *march*, which should be given as a foot comes to the ground, complete the step, and make a semblance of marching by advancing first one foot and then the other without gaining ground.

TO RESUME THE MARCH, command

Forward—MARCH.



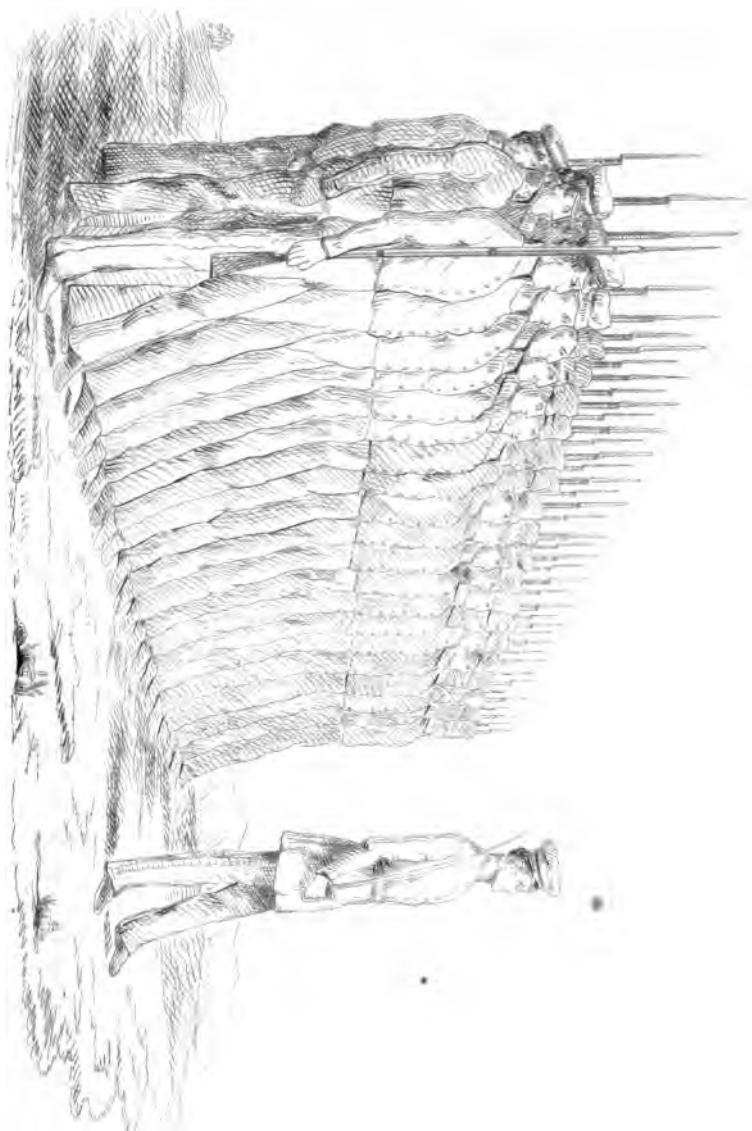
6. 1

Q. What day was that?

A company marching in line to the front.

Pl. 16.

"Company forward guide right common time March."



TO CHANGE THE STEP, command

Change step—MARCH.

Finish the step, bring up the foot in rear to the side of that planted in front, and step off with the first.

TO HASTEN THE MARCH, command

Quick time—MARCH.

At which steps of the same length as in common time are taken, but at the rate of one hundred and twenty per minute.

The march in quick time is regulated by the same principles as in common time, but the impulsion of the quick step rendering the men liable to forget themselves, the cadence of the step must be rigidly observed, as well as erectness of person and length of step.

TO RESUME COMMON TIME, command

Common time—MARCH.

TO CHANGE THE GUIDE, command

Company—Guide—LEFT.

At which the left guide immediately takes up points in advance, and the dress and touch is towards him.

TO HALT THE COMPANY, command

Company—HALT.

Complete the step with the foot then raised and bring up the other to its side.

The word halt should be given as a foot comes to the ground, and no one should move after this, however much he may be out of position. In movements in quick time, the word halt should be given rather earlier than for common time.

RULES TO BE OBSERVED IN MARCHING IN LINE OR BY THE FRONT.

1. Rest the weight of the body on the right foot at the word "forward."
2. Depress the toe, but without constraint or affectation.

3. Turn the knee and toe slightly out.
4. Press the upper part of the body forward.
5. March with the ham extended.
6. Plant the foot flat without shock.
7. Pass the foot near the ground.
8. Keep the face and eyes direct to the front.
9. Touch lightly the elbow towards the guide.
10. Do not open out the elbow or arm.
11. Yield to pressure coming from the side of the guide, and resist that that comes from the other side.
12. If the touch of the elbow be lost, recover it gradually.
13. If in advance or in rear of the alignment, correct by shortening or lengthening the step by degrees almost insensible.

TO SUM UP, the alignment can only be preserved during a march, by observing the regularity of step, the touch of the elbow, the squareness of shoulders with respect to the line of direction; for if the step of some be longer than that of others, a separation of elbows and loss of alignment is inevitable; or if the touch of the elbow be not strictly kept, it is impossible for an individual to judge whether he marches abreast his neighbor, or whether there is or is not an interval between them.

TO MARCH BACKWARDS.

Company backwards—Guide right (or left)—MARCH.

Carry the left foot to the rear, plant it fourteen inches behind the right, follow with the right, and so on successively.

XIII. THE OBLIQUE STEP.

Which in swiftness corresponds to that of the direct step, but differs in the manner of making it, its length and direction. This should not be undertaken until the men have acquired the habit of taking well the direct step in common time.

[Pl. 17, fig. 1 (a).] To show the principles of this step, cause the men to carry the right foot obliquely to the right and front, twenty-

six inches from the left and eighteen inches to the right, turning in the toe a little, in order to keep the shoulders square to the front.

[Pl. 17, fig. 1 (b).] At the command *two*, carry the left foot by the shortest line eighteen inches in front of the right heel, plant, and stand firm.

Continue this exercise at the commands *one, two, or right, left*, until the habit of keeping the shoulders and head square to the front is confirmed. When this is attained, command

Company—Right oblique—Guide right (or left)—MARCH.

Step off with the right foot, conforming to the principles before given, and observe particularly to keep the shoulders square to the front, without which the line cannot be preserved parallel to any other line. The same number of steps are taken as in the direct march.

[Pl. 17, fig. 2 (a and b).] The oblique march to the left is executed on corresponding principles.

TO RESUME THE DIRECT MARCH, command

Forward—MARCH.

The next step after the word *March*, will be direct.

REMARKS.

The object of this step is to gain ground to the right or left, without changing the direction of the front; so soon, therefore, as the men can oblique without deranging the shoulders, the length of step need not be insisted on, provided ground be gained to the right or left.

XIV. WHEELING.

PRELIMINARY OBSERVATIONS.

Wheelings are of two kinds. From a halt, or on a fixed pivot; and on the march, or on a movable pivot.

Wheeling on a fixed pivot takes place, in passing from the order in line to the order in column, and from column to line. Wheelings

on a movable pivot are made in changes of direction in line or column, when the change is made in the direction or side from the guide.

In wheeling from a halt, the pivot man turns in his place, without advancing or receding. Wheeling on a march, the pivot man takes steps of full nine inches, to clear the wheeling point before the next subdivision arrives on the same ground.

In every case, the man on the wheeling or outer flank takes steps of twenty-eight inches, and the dress is towards this flank. When the wheel is made from a halt, the touch is towards the pivot; when on a march, both touch and dress are towards the outer flank.

The movement of turning to the right or left takes place only when the change of direction is made to the side of the guide, and care must be had not to confound it with the movement of wheeling.

WHEELING FROM A HALT, OR ON A FIXED PIVOT. [Pl. 18, fig. 1.]

Company—RIGHT—WHEEL.

The 1st lieutenant steps out in front of the centre, and facing the company, and cautions to *touch to the right* and *dress to the left*.

MARCH.

The right guide stands fast, the pivot man makes a full face to the right, the others step off with the left foot, turning the head a little to the left, but preserving the touch towards the pivot. The guide, or man on the left or wheeling flank takes steps of full twenty-eight inches, casts his eyes, from time to time, along the line, and feels constantly the elbow of the next man, but never pushes him. The others regulate their steps according to their proximity to the flanks, dressing towards the wheeling and touching towards the pivot flank.

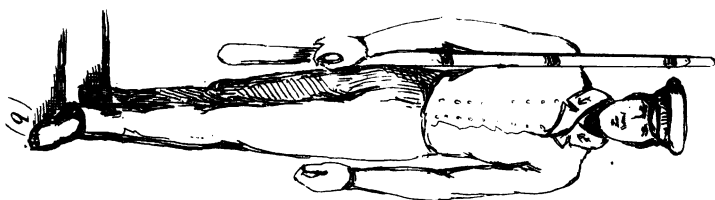
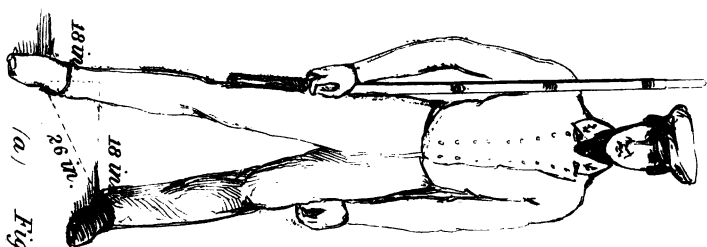
For the purpose of elementary instruction, the company may be wheeled round the entire circle once or twice before halting. In this case, the right guide retires and the pivot man faces at right angles, from time to time, as may be necessary.

Ordinarily, the company will be halted, when the wheeling flank has yet two paces to make to complete the right angle, by the captain commanding

The Oblique Step.

Pl. 17.

Right-oblique.



Left-oblique.

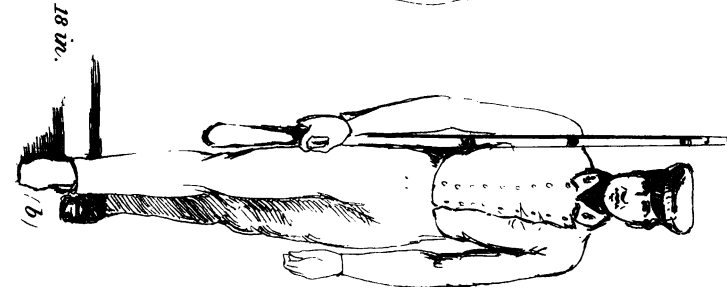
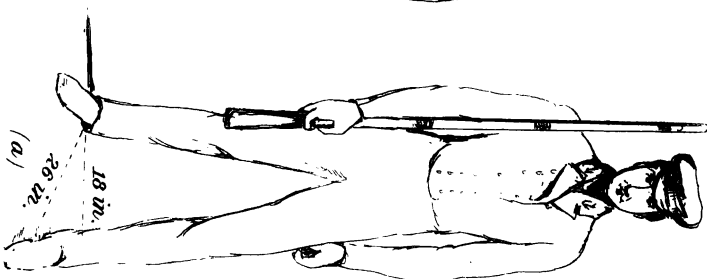
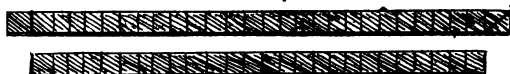
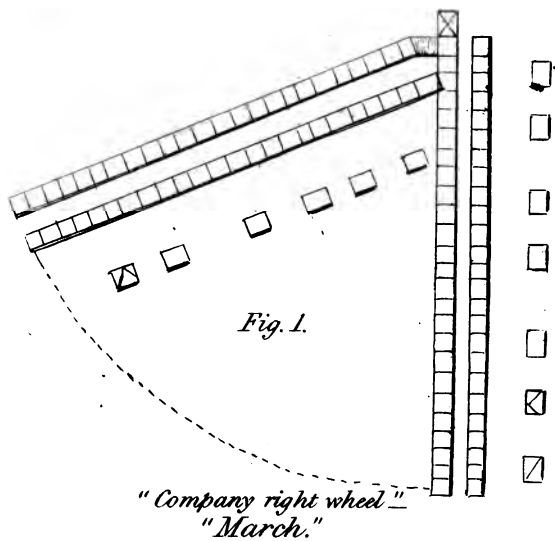




Fig. 2.



"Company halt—Left dress,"
"Front."



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"Company forward—March."

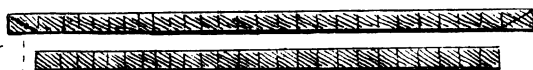


Fig. 2.

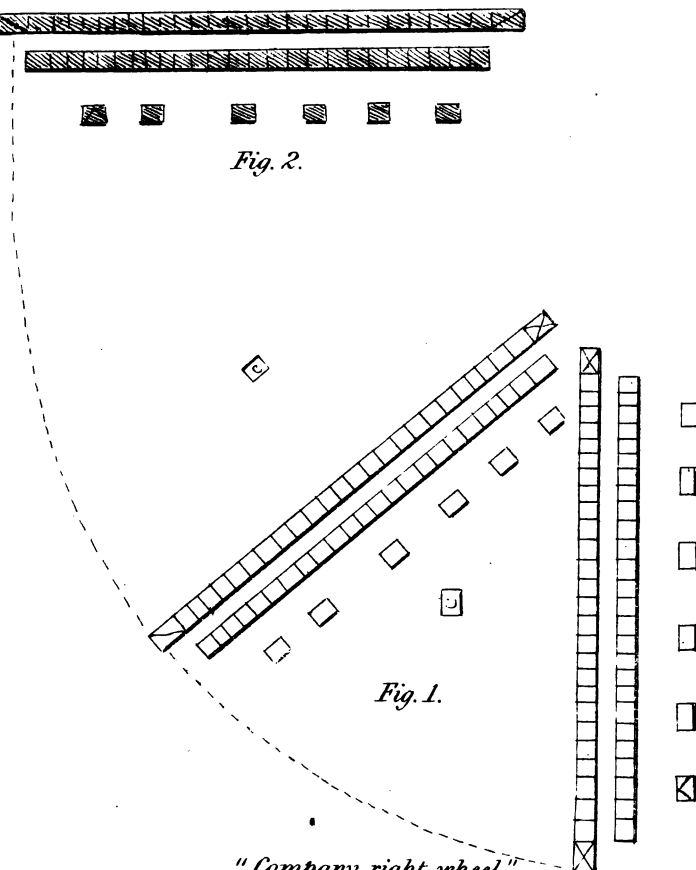


Fig. 1.

*"Company right wheel—
"March."*

Company—HALT.

No man stirs after the word *halt*. The captain steps to the flank opposite the pivot, and places the left guide in the direction desired for the line, leaving between him and the pivot man the space required to contain the other men; then commands

Left—DRESS.

The pivot man remains firm; files next to him breaking to the rear if the space is not sufficient to contain them. The company is dressed on the left guide and the pivot man as a basis.

FRONT.

The pivot man takes his post by closing in, if necessary, and files that may have broken to the rear come on the line. The right guide takes his post.

WHEELING ON A MARCH OR WITH A MOVABLE PIVOT. [Pl. 19.]

The company on a march with the guide left, if desirous to change direction towards the right or from the guide.

Company—Right wheel—MARCH. [Fig. 1.]

The first command should be given when yet four paces from the wheeling point, the captain facing the company.

At the word *march*, the wheel is executed in the same manner as from a halt, except that the touch of the elbow remains towards the outer flank, and that the pivot man, instead of turning in his place, conforms himself to the movement of the marching flank, feels lightly the elbow of the next man, takes steps of nine inches and thus gains ground forward in describing the arc of a small circle. The front may be concave, but never convex. The guide at the marching flank measures carefully, with his eyes, the ground over which he has to pass and describes the arc of a circle, without suffering himself to be turned aside by either circumstance or person.

Company—Forward—MARCH. [Fig. 2.]

The word *forward* should be given when yet four paces are required to complete the change of direction.

At the word *march*, given the instant the wheel is completed, the guide on the marching flank directs himself straight forward: all retake the full step and bring the head and eyes to the front. The captain who during the wheel faced the company faces to the front.

XV. TURNING. [Pl. 20.]

This is a change of direction towards the same side with the guide. When yet four paces from the point of change, command

Company—Left turn—

And when abreast of the turning point—

MARCH.

The leading guide faces at right angles, if no other direction be given, and moves in that direction without changing the cadence or length of step. The entire company at once break off, advance the off shoulder, or that from the guide, and come up by quickening the step to their places in line or column. As they successively arrive abreast the guide, they align themselves on him and the portion of the company already up, gain the touch of the elbow and retake the step from the guide.

XVI. MARCHING BY A FLANK. [Pl. 21.]

Company by the right (or left) flank—Right (or left)—FACE. [Fig. 1.]

The company faces towards the point indicated. The officers and guides face with the company.

Company forward—Common time—

1st. Lieut. takes his post by the front elbow of the leading guide now in the front rank ready to lead the company.

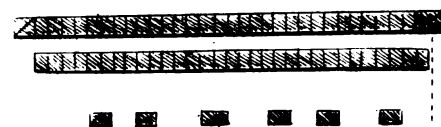
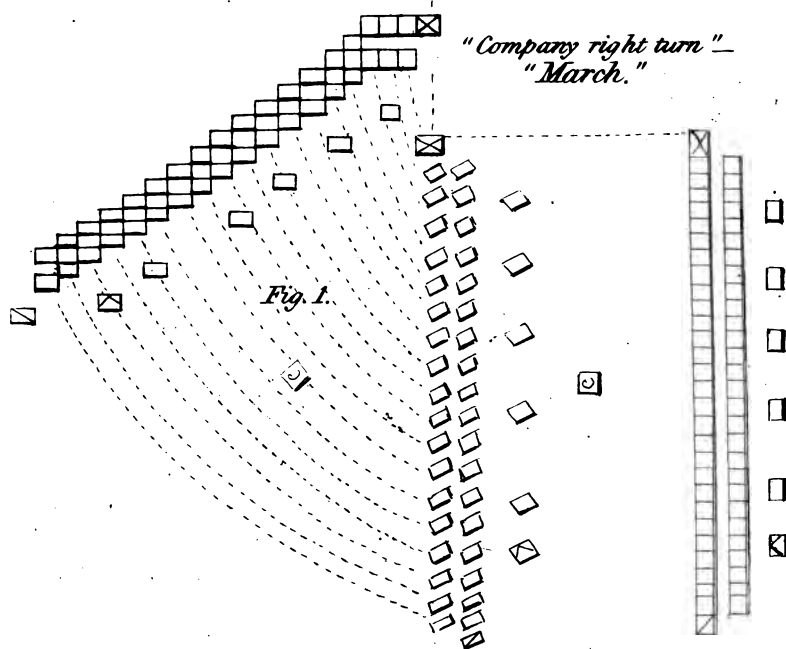


Fig. 2.



MARCH.

Company steps off in the cadence named. File closers keep opposite their respective files. If the right leads, the left guide steps into the rank of file closers—if the left leads, the right guide steps into the line of file closers. The Captain marches abreast the company, but may go elsewhere if needful.

RULES TO BE OBSERVED IN MARCHING BY THE FLANK.

1. That the step be made according to the principles prescribed for the direct step.
2. That at each step the advanced heel of each following man be planted about six inches in advance of the opposite heel (yet on the ground) of the man immediately preceding.
3. That (to avoid treading on the heels of the man that precedes) the knees be not bent.
4. That the head of the man who immediately precedes, covers the heads of all those in front of him.

Company—HALT.

At the word *halt*, each man comes to a stand still, nor will any one stir, though he may have lost his distance. This rule is necessary, to accustom the men to constant preservation of distance.

Front—FACE.

Face to the left if marching by the right flank; if by the left flank, to the right.

TO FILE TO THE RIGHT OR LEFT. [Pl. 21, figs. 2 and 3.]

By file right (or left)—MARCH.

The leading guide turns towards the side indicated; if this be towards the front he moves in the arc of a small circle with shortened steps, if from the front with full steps. The 1st Lieut. conforms to the movements of the guide. The point should be kept by a marker, or guide designated for that purpose.

Each file as it arrives at the point, wheels as though the front and rear rank man of the same constituted a column; the man on the

inner flank shortening his steps and the man on the outer keeping the full step. File closers mark time whilst their files are wheeling, or if the file be by the front rank lengthen out the step to keep opposite their respective files: they are responsible that the files do not open out, and that the rear rank men dress on their front rank files.

XVII. MARCHING BY THE RIGHT (OR LEFT) FLANK, TO FORM LINE.

1st. TO FIRE TO THE LEFT (OR RIGHT).

Command. *Company—Mark time—MARCH.*
 HALT—*Front—FACE—Right—DRESS—FRONT.*

2d. TO FIRE TO THE RIGHT (OR LEFT). [Pl. 22, fig. 1.]

On the right by file into line—MARCH.

The rear rank marks time—also the file closers.

The leading guide turns to the right, moves six paces to the rear and halts. The 1st. Lieut. then takes post outside the guide and occupies himself in dressing the files of the two ranks as they come on the line. The first file of the front rank marches straight on until one pace beyond the point where the guide filed to the rear. He then breaks off to the rear and places himself on the left of the captain. The succeeding front rank men, in like manner, continue to march on until one pace beyond the turning point of the preceding, then break to the rear and step to the left of the company already in line.

The rear rank men continue to mark time, until three of the front rank are established on the line, then move forward, break off to the rear when opposite their file leaders and cover them. A fire by file could be opened as the line was being formed.

NOTE.—The same might be effected by the command *Countermarch by file left—MARCH*, when the file is through a semicircle; and afterwards HALT—*Front—FACE—Right—DRESS—FRONT.*

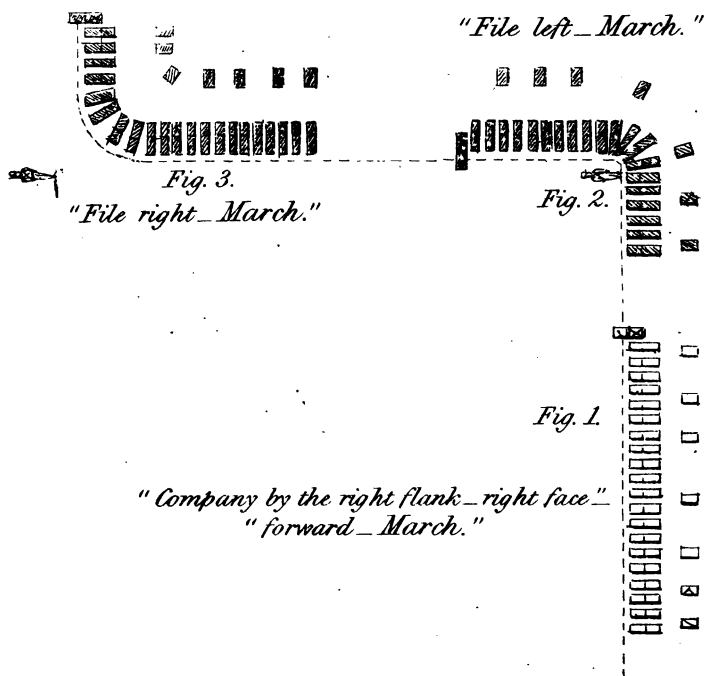


Fig. 1.

"Company on the right by file
into line—March."

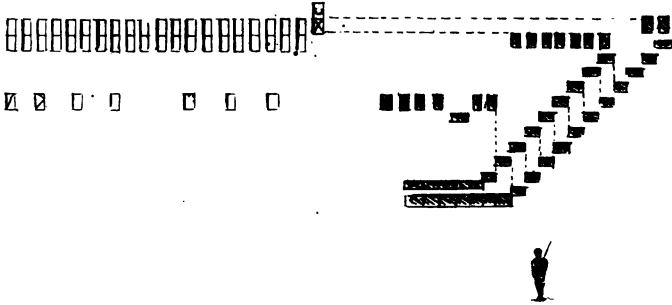
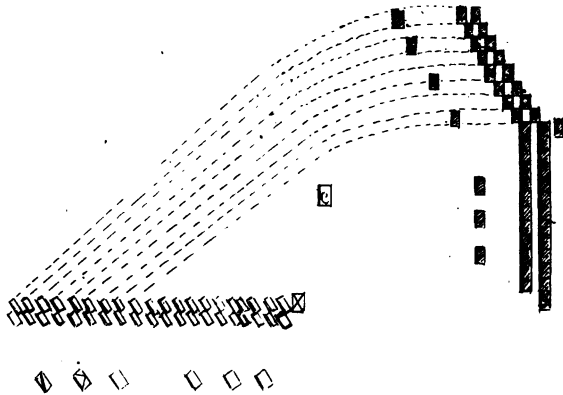


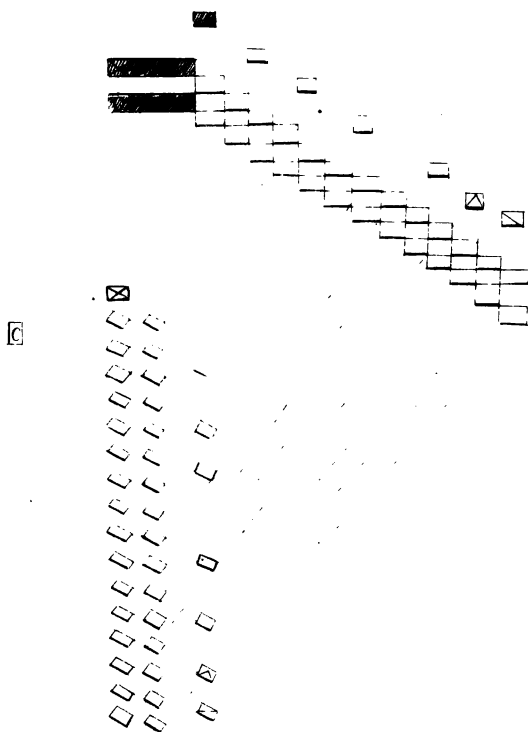
Fig. 2.

"Company—front into line—March."
"Guide left / or right."



To form into line faced to the rear.

Pl. 23.



"Company rear into line—March"
"Right dress—front."

3d. TO THE FRONT. [Pl. 22, fig. 2.]

Company into line—MARCH.

Leading guide continues to move straight on. The men and file closers advance the right (or left) shoulders, break off, come up by a diagonal line, in quick time, successively on the left (or right) of the leading guide. Rear rank men cover. All touch and dress to the guide as they come up. The line established, *guide right or left* is given.

4th. FACED TO THE REAR. [Pl. 23.]

Captain faces his company, and commands

Company—Rear into line—MARCH.

Leading guide advances three paces, halts and faces about. The 1st lieutenant takes post before the guide, who now covers him. The men advance the shoulder towards the front rank, break off, move in a diagonal line in quick time, the file closers and rear rank leading, so as to come up on the former right (or left) of the guide, but a pace in advance of him; then halt, face about, touch and dress towards him, the rear rank covering.

XVIII. TO BREAK INTO COLUMN OF PLATOONS FROM A HALT. [Pl. 24.]

1st. BY A WHEEL. [Fig. 1.]

By platoons right wheel.

Chiefs of platoons (1st and 2d lieutenants) step out two paces in front their respective platoons.

MARCH.

The covering guide stands fast, and the right front rank man of each platoon faces to the right. Chiefs of platoons halt their platoons before the wheel is complete, and pass to the point where the left of platoons will rest.

The guide of each platoon now places himself on the point where the left of his platoon is to rest—the guide of the second covering the first, and each leaving room between himself and the pivot man for the platoon. Chiefs of platoons command

1st (or 2d) Platoon—Left—DRESS, and afterwards FRONT.

Then pass to the front and centre at half platoon distance. File closers move with the rear rank of their platoons. [Fig. 1 (b).]

2d. BY FACING TOWARDS A FLANK AND COMING UP INTO LINE.

Column of platoons to the right.

Chiefs of platoons take post to the right, and in front of their platoons.

By the right flank—Right—FACE.

The company faces to the right, the right guide standing fast. The guides of the platoons are now placed in position where the left of their respective platoons will rest, by the chiefs of platoons.

By platoons into line—MARCH. [Fig. 2.]

Right front rank man of each platoon stands fast—the others advance the right shoulder, break off, and come up diagonally in quick time on the left of the right man of their respective platoons. The platoons are then dressed in the same manner and by the same commands as in forming a column of platoons by a wheel.

3d. BY BREAKING FROM A FLANK TO THE REAR INTO COLUMN.

By the right of platoons to the rear into column. Company by the right flank—Right—FACE. [Pl. 24, fig. 3.]

The company faces to the right. The right files of platoons face about, the rear rank men of these files make a step to the right oblique—the front rank man takes post faced to the rear in the rear rank. The guides of platoons put themselves in advance of the front files which are broken to the rear. The chiefs of platoon take position with the breast against the left elbow of the left file of the preceding platoon. The chief of the first standing as though another platoon were on his right.

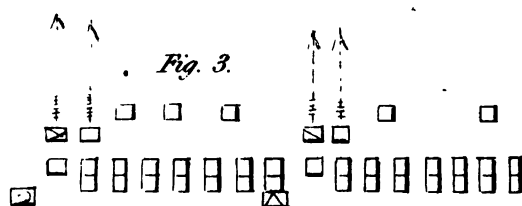
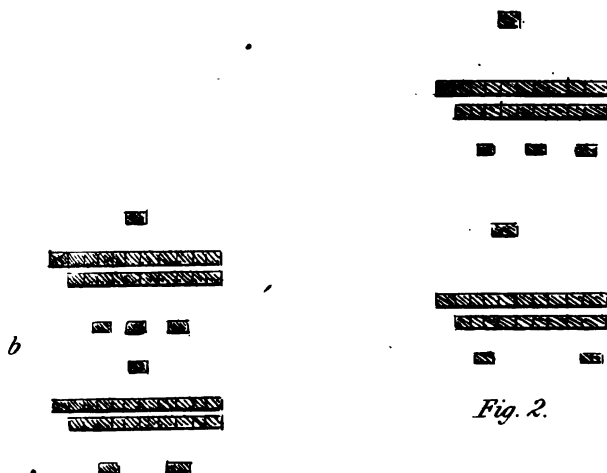


Fig. 3.

"By the right of platoons to the rear into column."
 "Company by the right flank—right face—"March."



b

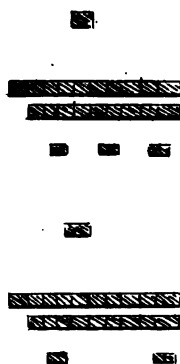


Fig. 2.

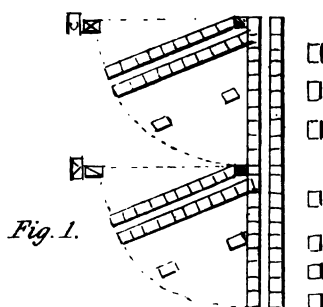


Fig. 1.

"By platoons right wheel—"March."

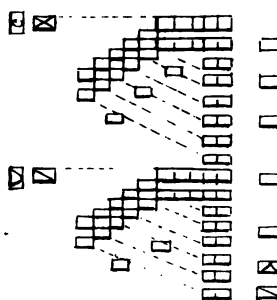


Fig. 2.

"Column of platoons to the right—"
 "Company by the right flank—right face—"
 "By platoons into line—"March."

MARCH.

Chiefs of platoons stand fast and observe the files pass. When the head of a platoon has marched to the rear a distance equal to its front, its chief commands

1st (or 2d) Platoon—Mark time—MARCH. HALT—Front—FACE.

The left file now places his elbow to the breast of his chief, who then commands—*1st (or 2d) Platoon—Left—DRESS—afterwards FRONT.* When the chief takes post in advance of the centre and the guide on the left flank.

REMARKS.—Sections may be formed to the right by either of these methods. The word *section* (1st, 2d, 3d, or 4th) replacing that of *platoon* (1st or 2d). The chiefs and guides of sections perform the same duties throughout, as those laid down for chiefs and guides of platoons.

When a company acts singly, the captain (or officer in command) marches outside the column. The officers next in rank respectively, commanding platoons. When acting in conjunction with other companies, the captain commands 1st platoon, and the 1st lieutenant the 2d platoon.

XIX. TO PUT A COLUMN IN MOTION AND CHANGE DIRECTION. [Pl. 25.]

(A column of platoons is supposed right in front, with the guide at the left.)

Column forward—Guides left—MARCH.

The leading guide takes up points on the line of direction, and continues to assume other points as these are severally reached. He is responsible for the cadence, and length of step, and for the direction.

The other guides on his flank, follow in his steps covering him, and observe not to vary the distance from the leading guide. The

front rank men touch and dress to the guides, and the rear rank men cover their front rank files. The chiefs of platoons occasionally face towards their platoons to observe the correctness of the march, &c. Should the step be lost at any time, the call to "*the step*" is made. A change may be made at any time from *common* to *quick time* by commanding *Quick time—MARCH*; or the guides may be shifted to the other flank by commanding *Column—Guides LEFT*. Should the distance be lost by any platoon, it must be regained gradually.

TO CHANGE DIRECTION TOWARDS THE GUIDE.

The captain commands

Change direction to the left; [Fig. 2.]

and marks the point where the change is to be made. This should be at least ten paces in advance.

The chief of the 1st platoon faces his platoon, and at six paces from the point of change, commands

1st platoon—Left turn—

and when the guide of the 1st platoon is directly abreast the point,

MARCH.

The guide turns to the left, and the platoon breaks off and comes up as in turning with an entire company.

The chief of the second platoon also faces his platoon, and commands *2d platoon—left turn—*and when abreast the point of change, **MARCH.** This platoon makes the turn exactly as the first did.

TO CHANGE DIRECTION FROM THE GUIDE; [Pl. 25, fig. 3.]
that is, towards the right when the guide is left.

Change direction to the right.

The point should be marked as before, and when within six paces the chief of the 1st platoon faces his platoon, and commands

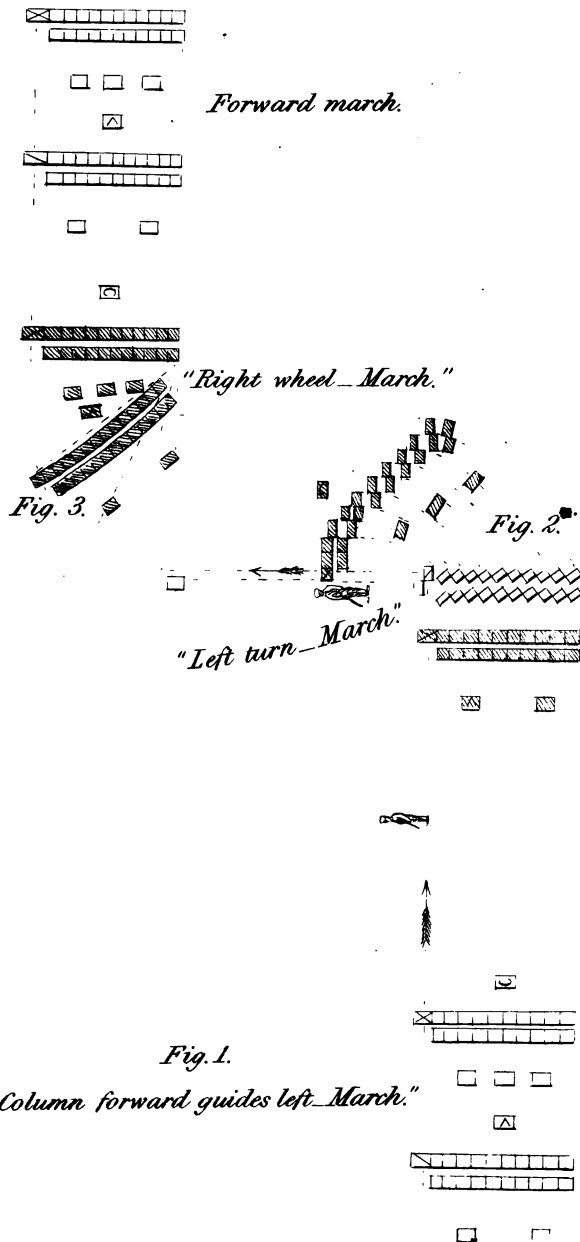
1st platoon—Right wheel—

and when abreast the point,

MARCH,

A column of platoons march forward and change direction.

Pl. 25.



at which the 1st platoon begins the wheel on a movable pivot. The wheel continues until the platoon is at right angles to the former direction, unless some other direction be given. When complete, chief 1st platoon commands

1st platoon—Forward—MARCH.

The succeeding platoon continues to march straight forward until its guide is abreast the point of change, then begins the wheel.

A *column of sections* would *change direction* from or towards the guide in like manner.

It will be observed that as the guide may at any time be changed, it is in the power of the directing officer to effect a change of direction by either of these methods at all times.

TO HALT THE COLUMN.

Column—HALT.

This command should be promptly repeated by chiefs of platoons, and as promptly obeyed. All remain steady, though there may be errors in interval, dress, &c. Errors in these and other particulars may be corrected by causing the column to mark time; after which it may be halted or may resume the march, by the command *forward—MARCH.*

XX. A COLUMN RIGHT IN FRONT, TO FORM LINE FACED TO THE LEFT.

1st. BY WHEELING INTO LINE.

The captain or other directing officer halts the column and rectifies the position of the left guides, then commands

Left—DRESS.

Each chief of platoon or section repeats, and going to the left of his platoon dresses it—then commands FRONT.

Left into line wheel. [Pl. 26, fig. 1.]

Chiefs face their commands and caution, *touch to the left and dress to the right.*

MARCH.

Guides stand fast. The left platoons or sections wheel as explained in wheeling from a halt, and are halted by their chiefs when the right has yet two paces to make to complete the wheel. The chiefs then fall into the line of file closers, and the captain commands

Company—Right—DRESS. [Pl. 26, fig. 2.]

Afterwards FRONT. When the guides who until then have remained in front, pass by the flanks to their places in line.

2d. BY FACING THE COLUMN TO THE LEFT AND BRINGING THE FILES INTO LINE.

Form line to the left.

By the left flank—Left—FACE.

The guides stand fast.

Company into line—MARCH.

Files break off and come up as heretofore explained. The captain dresses the company to the right, and at the command *front*, the guides retire from the front.

3d. BY FILING THE RIGHT FLANKS TO THE FRONT.

This is executed whilst the company is yet on the march.

Company by the right flank—By file left—

Guides shift to the right, and chiefs of platoons prepare to lead them.

MARCH.

Guides continue direct to the front. The platoons face towards the guides and file in after them to the front. When the head of the 2d platoon comes in up to the rear of the 1st, the chief and guide of the 2d retire, and the 2d platoon closes in with the 1st.

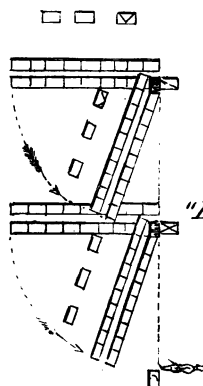


Fig. 1.

"Left into line wheel—"
"March."



Fig. 2.

"Company right dress."
"Front."

The company afterwards marks time, halts, and facing to the front dresses to the right.

Each of these methods may be used for bringing a column with the left in front into line faced to the right.

XXI. A COLUMN RIGHT IN FRONT, TO FORM LINE FACED TO THE RIGHT.

(This is executed on the march.)

On the right into line—Column—Guides—RIGHT. [Pl. 27, fig. 1.]

The captain places himself where the right of the company is to rest, some six paces to the right of the right flank, and several paces in advance of it. The chief of the leading platoon faces his platoon, and when it is within six paces of being abreast the point indicated as the right, commands

1st platoon—Right turn—followed by MARCH, when exactly abreast.

The platoon turns to the right, comes up so that the right file shall cover the elbow of the officer or marker placed at the point referred to; it then halts and dresses to the right. The succeeding platoon in like manner turns when the 2d platoon has marched up abreast the left of the 1st.

If desired, *firing by file* may begin from the right.

XXII. A COLUMN ON THE MARCH, RIGHT IN FRONT, TO GAIN GROUND TO THE RIGHT (OR LEFT) BY A FLANK MOVEMENT.

Company—By the right flank. [Pl. 27, fig. 2 (a).]

Guides shift to the right flank.

MARCH.

All face to the right without breaking, and led by the chiefs of platoons, move in that direction.

TO RESUME THE MARCH TO THE FRONT.

Company front—MARCH—Guide—LEFT. [Pl. 27, fig. 2 (b).]

All without halting face to the front, and resume the direct march.

The movement may be executed when the left is in front, and is applicable alike to a column of sections and to a single company.

Whilst marching by a flank, the platoons or sections may be filed to the front, and thus the company be reformed.

XXIII. TO ADVANCE BY THE RIGHT (OR LEFT) OF PLATOONS. [Pl. 28, fig. 2.]

Advance by the right of platoons.

By the right flank—Right—FACE.

Company faces to the right; the right files of the platoons break off to the front. The guides and chiefs place themselves in advance to lead; the files face towards the flank indicated.

MARCH.

All step off, the files in rear filing in after those broken to the front.

TO RETREAT FROM EITHER FLANK, command

Retreat by the right (or left) of platoons.

By the right (or left) flank—Right (or left)—FACE—MARCH.

Executed as the preceding, except that the first files face about, the rear rank men obliqueing to the right (or left) and rear, the front rank men stepping into their places.

The same movements may be executed by the company in line, or in column of sections.

In all cases of a movement to the front or rear by the right or left of platoons or sections, the guide of that division which would be in rear, if the movement were changed to the front, keeps the proper distance from the other.

Fig. 2.

Pl. 27.

To gain ground to the right and resume the front.

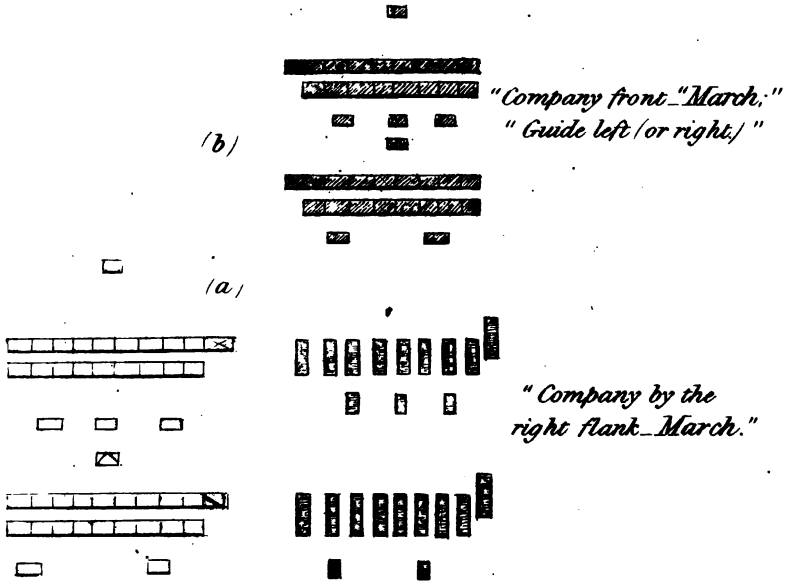


Fig. 1.

Forming into line on the reversed flank.

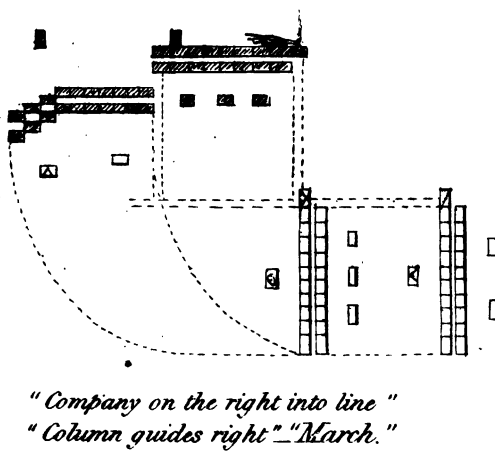


Fig. 2.

"Advance by the right "
"Company by the right flank right face—March."

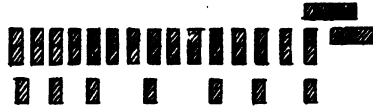


Fig. 1.

"Company by the right flank by file right—March."

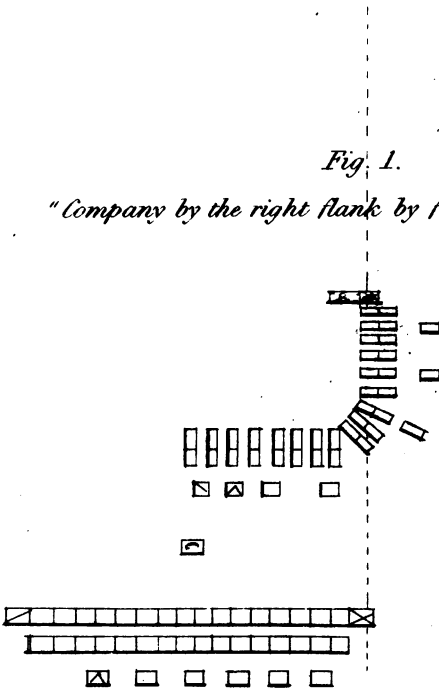


Fig. 3.

"Company into line—March."

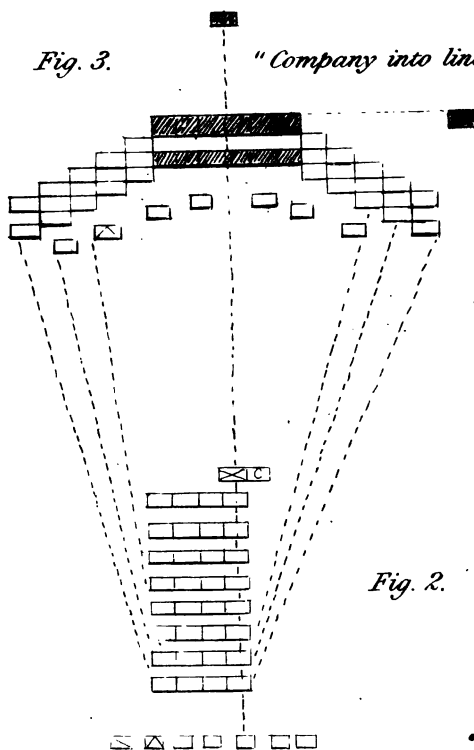


Fig. 2.

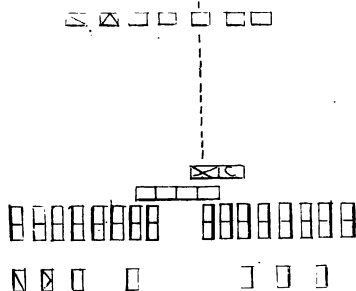


Fig. 1.

*"Advance by the centre—
Company inwards face—March."*

XXIV. MOVEMENTS BY THE CENTRE OF COMPANY.

TO ADVANCE BY THE CENTRE.

Company—Inward—FACE. [Pl. 29, fig. 1.]

The centre men of the front rank, *i. e.*, the men on the right of the 2d and left of the 1st platoons, step obliquely to the front so as to leave an interval between them, which is occupied by the rear rank men of the same files. All the others face to the centre. The right guide places himself before the left front rank man of the 1st platoon. The 1st lieutenant takes post at the right elbow of this guide.

MARCH. [Pl. 29, fig. 2.]

All step off, the files faced to the centre filing in in succession after those broken to the front.

File closers close in to the centre, mark time, form in rear of the company at the distance of two paces, and follow the company.

TO REFORM THE LINE TO THE FRONT. [Pl. 29, fig. 3.]

Company into line—MARCH.

The files of the 1st platoon advance the left shoulder and come up on the right of the centre files; those of the 2d platoon advance the right shoulder and come up on the left of the centre files. All the rear rank men cover their file leaders. The centre files close in. All close and dress to the centre, and the guides, file closers, &c., resume their places. The command *guide* RIGHT or LEFT follows.

It is evident that this movement applies to an advance by the centre of platoons.

ADVANCING BY THE CENTRE, TO FORM LINE FACED TO THE RIGHT.

Company on the right into line—MARCH.

1st platoon, without halting, faces to the front, advances four paces and halts. 2d platoon comes into line by file on the left of

the first, as in Art. XVII, 2d. Rear rank men cover their file leaders—all close in to the centre and dress to the right. File closers, &c., resume their places.

TO FORM FACED TO THE LEFT.

The 2d platoon executes what has just been laid down for the 1st, and the first what has been laid down for the second.

TO RETREAT BY THE CENTRE.

Company—Retreat by the centre—Company—Inward—FACE.

[Pl. 30, fig. 1.]

All face to the centre, except the centre files, which face about and form abreast faced to the rear, front rank men inside, rear rank outside. The guide takes post before the centre rear rank man of the 1st platoon; 1st lieutenant on his left.

MARCH. [Fig. 2.]

All step off—rear files close in on arriving at the centre. File closers now remain opposite their respective files in line.

TO REFORM THE LINE. [Pl. 30, fig. 3.]

Company—Rear into line—MARCH.

Centre men halt and face about. First platoon comes up on the left of the centre files, file closers and rear rank leading; second platoon comes up on the right of the centre men. All face about, close in to the centre, and dress to the right or centre as may be ordered.

XXV. MARCHING IN LINE TO BREAK INTO PLATOONS AND REFORM COMPANY. (Right in front.) [Pl. 31.]

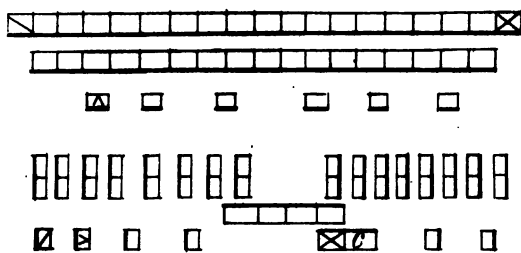
Break into platoons. [Fig. 1.]

Chief 1st platoon passes to its front and centre, and commands

To retreat by the centre and reform into line. Pt. 30.

C

Fig. 1.



"Retreat by the centre "
"Company inwards face."
"March."

Fig. 2.

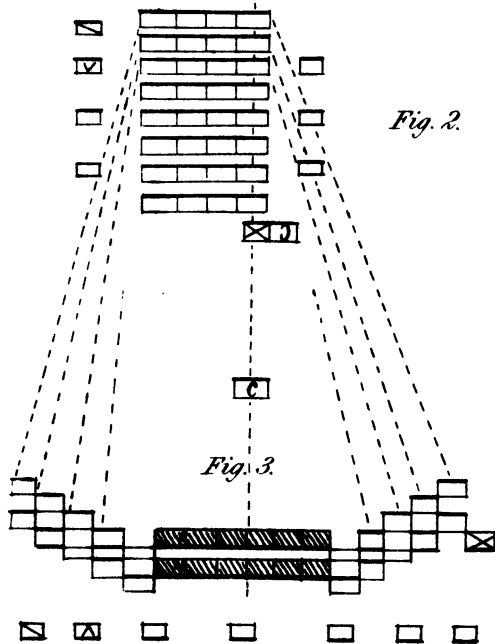
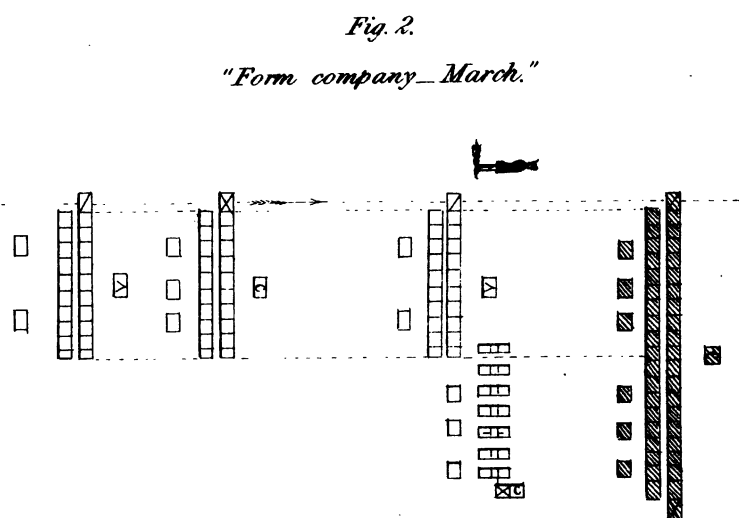
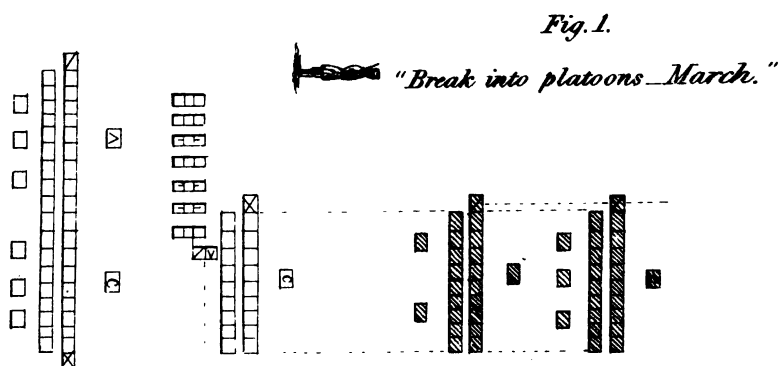


Fig. 3.

"Company rear into line_March."



1st platoon forward. Chief of the second, steps to its front and centre, and orders *By the right flank.*

MARCH.

1st platoon marches directly on. The right guide, if the guide be left, shifts to the left. The second platoon faces to the right and marks time until unmasked by the first; then moves forward until in column. Then by the command *front—MARCH, guide—LEFT*, is brought to the direct march again.

TO REFORM COMPANY.

Form company. [Fig. 2.]

Chief 1st platoon—*1st platoon by the right flank*; chief 2d platoon—*2d platoon forward.*

MARCH.

1st platoon marches by the right flank, as heretofore explained, until it uncovers the 2d—then *front—MARCH*, and if necessary *mark time—MARCH* until the 2d platoon comes abreast. When the platoons are abreast, the command *forward guide LEFT* follows.

A company may be broken into sections by this method, and again reformed. Its application to a column left in front is manifest.

XXVI. TO BREAK OFF FILES TO THE REAR AND BRING THEM INTO LINE.

Three files (or any number) from the left (or right) to the rear—
MARCH.

The files indicated face towards the company, and file in after the next two files thereof; the front rank after the first, and the rear rank after the second files not broken off. Should the files be broken off from the side next the guide, he closes in to the nearest front rank file remaining in line. Other files may, in a similar manner, be broken off, those already in rear obliqueing so as to cover the proper files remaining unbroken. [Pl. 32, fig. 2.]

Files may also be broken off from a column of platoons or sections; but it is necessary in that case that the files broken off should be from the left when the right is in front, and from the right when the left is in front, to allow a subsequent flank movement without first bringing up the rear files. At least seven files in a column of platoons, and five in a column of sections, should remain unbroken. It is important that files to the rear should keep well closed.

Flank movements with files broken off should always be made from that flank which remains entire. Files broken off will in this case conform to the movement, and file in after the unbroken portion.

TO BRING UP THE REAR FILES.

Rear files into line—MARCH. [Pl. 32, fig. 3.]

The files to the rear advance the shoulder next the company, break off, quicken the step and come up in succession to their places in line. The guide of that flank opens out to give room, at the first command. Should only a portion of the files be ordered up, as *Three rear files into line*, the three nearest the company come up into line: the remaining rear files oblique and cover the last two now in line.

Files to the rear stand in the same order as when in line; the flank file bringing up the rear. If file closers are in rear of files to be broken off, these march abreast the same files they previously covered.

XXVII. TO CHANGE FRONT.

(The company being formed in line, and at a halt.)

1st. TO THE RIGHT.

Company—Change front to the right.

By the right flank—Right—FACE.

The left guide places himself in front of and facing the right, and at company distance. The captain steps out in front of the right, faces the company, and commands

To reduce front by breaking off files—to bring the same into line again.

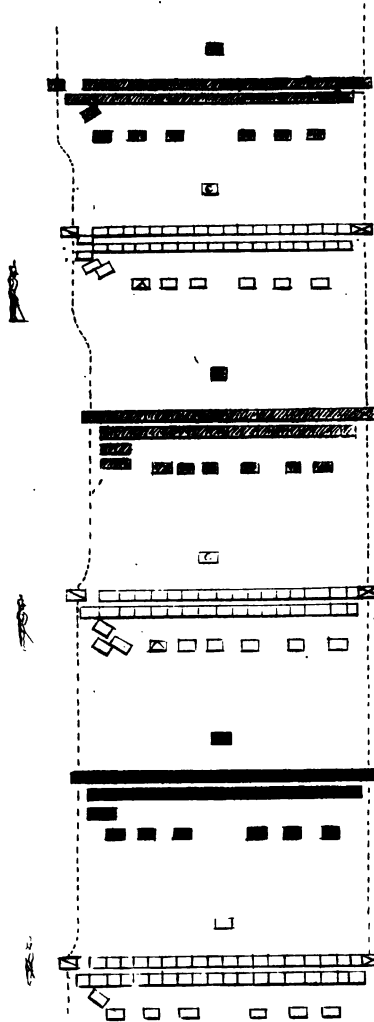


Fig. 4.

"Rear file into line—
March."

Fig. 3.

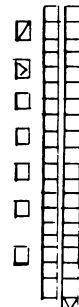
"One rear file into line—
March."

Fig. 2.

"One file from left to rear—
March."

Fig. 1.

"One file from left to rear—
March."



"Change front to the right."
"By the right flank right face."

Fig. 1.



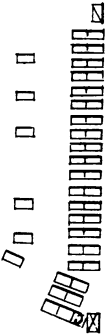
(a)



"Company into line—March."

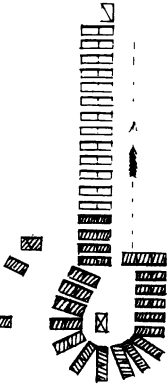
Fig. 2.

(a)



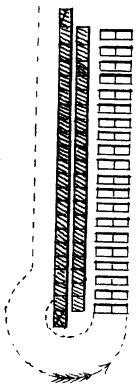
"Counter march—by
the right flank right face."

(b)



"Counter march by
file left—march."

(c)



"Mark time—march"
"Halt—" "front face—"
"right dress—" "front—"

Company into line—MARCH. [Pl. 33, fig. 1 (b).]

Right front rank man stands fast, the others move diagonally, in quick time, and come up successively on his left. All the rear rank men cover their file leaders. Captain dresses the company to the left, and commanding FRONT, he and the guides resume their posts in line.

2d. TO THE LEFT.

Change front to the left—Company—By the left flank—Left—FACE.

Right guide comes out and posts himself at company distance, and in front of the left guide.

Company into line—MARCH.

Executed as the foregoing. Company dressed to the right.

3d. TO THE REAR.

Countermarch—Company—By the right flank—Right—FACE.

[Pl. 33, fig. 2 (a).]

Guides face about—company faces to the right and breaks off to the rear. 1st lieutenant takes post at the left elbow of the right front rank man.

Countermarch, by file left—MARCH.

The company is led by the 1st lieutenant around the right guide, and brought parallel to its former position, distant one pace. When the right is within a pace of the left guide, the 1st lieutenant commands

Mark time—MARCH—HALT. Front—FACE—Right—DRESS.

The company is dressed on the two guides as a basis; at the word *Front*, given when the dress is completed, the guides shift to their proper flanks.

A countermarch may likewise be made, when the company is marching by a flank. In this case the guides file with the company.

A countermarch in all cases must be made by the front, in order to avoid crowding the line of file closers; that is, by filing to the left when the right flank leads, and to the right when the left flank leads.

PART II.

SMALL-ARM BATTALION EXERCISES.

BATTALION EXERCISES.

I. ORGANIZATION, FORMATION, &c.

FOUR or more companies constitute a battalion, and may be exercised as such.

The officers of a battalion, besides those attached to the companies, are termed the field and staff officers, and are as follows:—

Field officers.—A colonel, a lieutenant-colonel, and a major.

Staff.—An adjutant, one or more medical officers, and a quarter-master.

In addition to these, there are a color bearer, color guard, and the music, as also a sergeant-major, and a quarter-master sergeant. The adjutant and quarter-master are usually subalterns of the line; the sergeant-major, and quarter-master sergeant, color bearers, and color sergeants have the rank of sergeants; and the color guard, three in number, who cover the color sergeant and color bearers, that of corporals. Two boys are selected as right and left markers.

The positions of these officers, staff, &c., as well as the position of the companies in line, may be studied in Plate 34.

Flank companies, though not absolutely necessary to the organization, are important in operations in the field. They are thrown out as skirmishers or flankers, and are very useful in broken grounds, to guard against ambush or surprise.

Absent field officers may be supplied from the captains according to rank, staff officers from the subalterns and sergeants of the line.

FORMATION.

The adjutant and sergeant-major mark out the ground where the battalion is to form, and post the markers where the right and left

shall rest. The quarter-master and quarter-master sergeant distribute arms and ammunition. The colors, both regimental and state, are kept at head-quarters, and are not brought on the ground until after the battalion is established in line; in the mean time, the color rank takes post on the line between the markers, and is the basis of the formation. This disposition made, the adjutant signals the music to "*beat off*." The companies, previously formed on their respective company parades, are marched out, the centre companies preceding. As they successively arrive in rear of their places in the line, they are dressed on the basis, and afterwards brought to an order and rest by their respective captains.

The adjutant standing on the right then commands,

Attention BATTALION—*Shoulder*—ARMS.

Right Dress—FRONT.

At the command *shoulder arms*, the field and staff take post, and at the word *front*, the markers retire to their posts on the right and left of the line of file closers.

The adjutant then passes down the line, files to the front when opposite the centre, takes post half way between the colonel and the file, faces the latter and commands,

Battalion—*Present*—ARMS.

The adjutant then faces about, salutes the colonel and informs him that the *battalion is formed*. The colonel directs the adjutant to take his *post*, acknowledges the salute of the battalion by uncovering, draws his sword and takes command.

RECEPTION AND POSTING OF COLORS. [Pl. 35.]

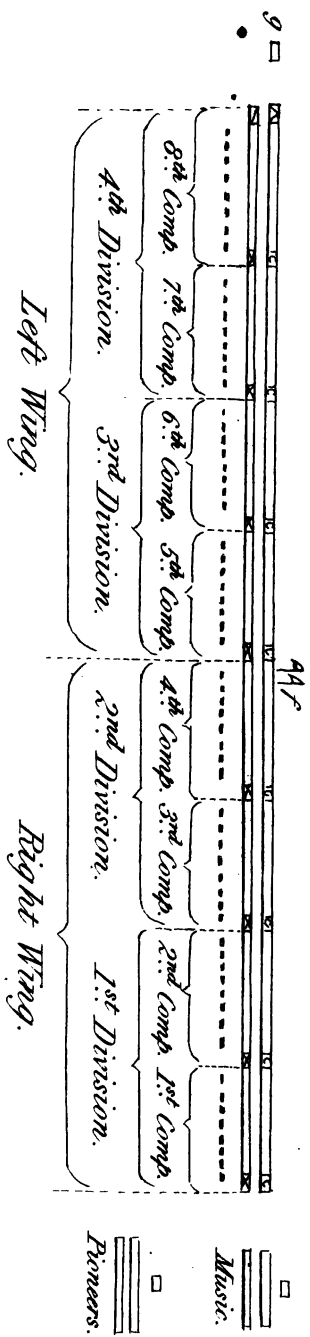
The colonel designating one of the flank or other companies as an escort, its captain puts it in motion, formed in column of platoons right in front, with the music of the battalion in front, and the color bearers and guard between the platoons. This company forms line in front of the entrance to head-quarters, or other depot of colors, music on the right, color bearers and guard in the centre.

The color bearers and a subaltern then advance to the front, enter the building or tent, receive the colors, come out and halt before

A battalion in line.



- | | |
|------------------------------|----------------------|
| a, Colonel. | d, Adj. ^t |
| b, Lt Col. | e, Q. Master. |
| c, Major. | f, Colors. |
| g, Serg. ^t Major. | |



the escort. The captain orders arms to be presented and the drums to beat; he then faces the colors and salutes them. The color bearers droop the colors, and pass to their places in line whilst the company shoulders arms. The captain then brings the escort into column as before, (colors, &c. between the platoons,) puts it in motion, and, the music playing, approaches a flank of the battalion. When arrived opposite to, and twelve yards from a flank, the colors and guard file out of the column, pass down the line—now at a shoulder—and form facing the battalion opposite the centre distant ten paces. The escort, in the mean time, with the music, now silent, passes by the rear to its place in line.

The colonel, who with the other field and staff officers, has approached to within four paces of the line, brings the battalion to a present, faces the colors, and salutes; the color bearers droop the colors by way of acknowledgment. The colonel brings the battalion to a shoulder, and with the other field and staff officers, color bearers and color guard, take their proper places in line.

II. TO OPEN AND CLOSE RANKS. [Pl. 36, fig. 1.]

Rear rank—Open order.

The covering guides and the left guide of the left company take six steps of fourteen inches each to the rear, and are aligned parallel to the line of file closers by the lieutenant-colonel.

MARCH.

The rear rank steps back a little beyond the line of guides, and is aligned on it by the right guides. The file closers also step back and are aligned on the left file closer, by the lieutenant-colonel from the right, that file closer having placed himself just two paces in rear of the line of guides.

FRONT.

This disposition of the ranks is convenient for exercise at the manual and for inspection. During such exercises the colonel super-

intends the front, and the lieutenant-colonel the rear rank, each standing where they can best observe.

To close the ranks the colonel commands,

Rear rank—Close order—MARCH.

Rear rank men close in to the front and cover their file leaders. Right guides dress them to the right.

III. FIRING. [Pl. 36, fig. 2.]

TO FIRE BY COMPANY.

Fire by Company.

Captains and covering guides, and the lieutenant and guide on the left of the battalion, retire by the flanks of their companies, the former to the rear and centre of their respective companies, the guides and lieutenant to the rank of file closers.

The field and staff retire to the rear, opposite their places in front. Music takes post in rear near the colonel. The color-guard falls back so as to bring its front rank in the rear rank of the battalion. It does not fire. The colonel may move to any position where his voice can best be heard.

These dispositions are general for every kind of front firing.

Commence Firing.

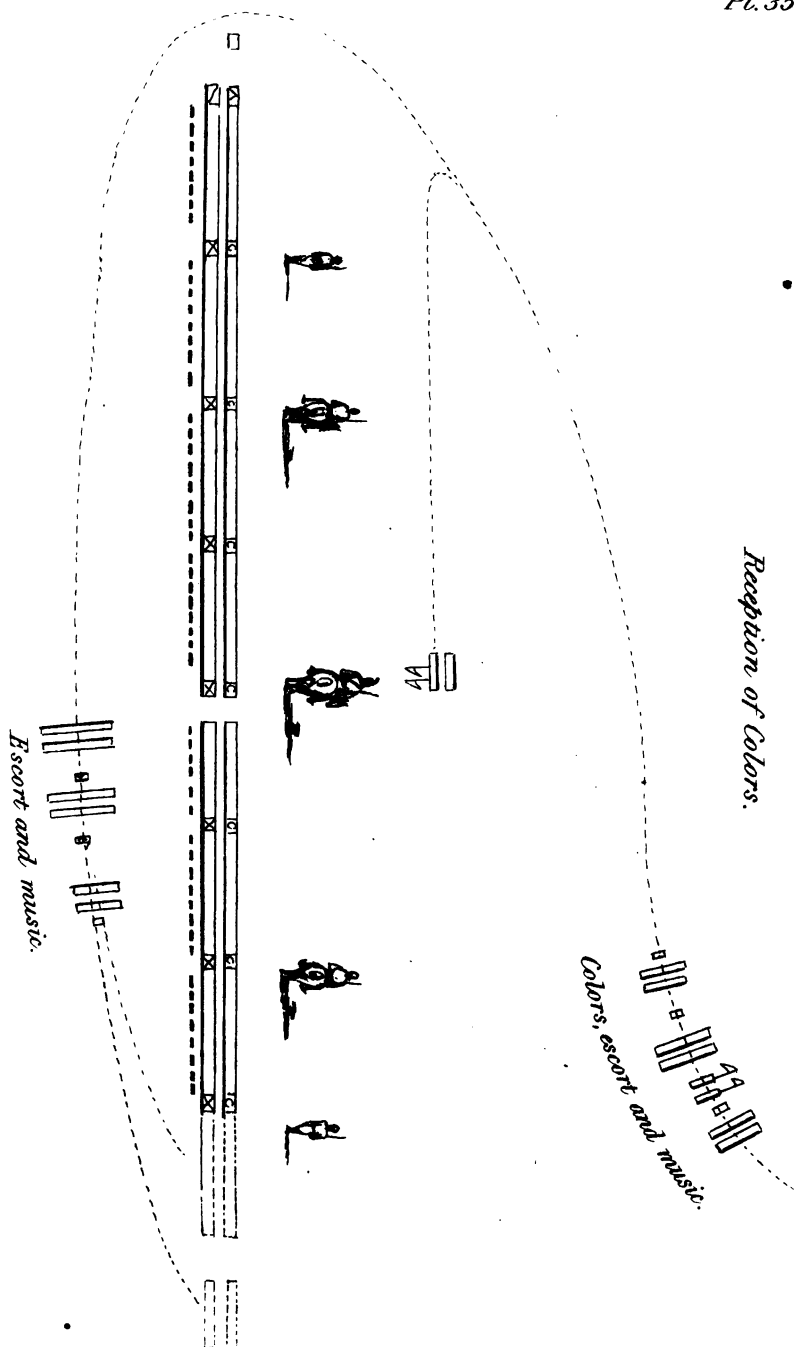
The captain of the first company opens the fire, by the command:

1st company—READY—AIM—FIRE—LOAD.

The 3d, 5th, 7th, follow in succession. When all the *odd* numbered companies have fired, the *even* numbered companies fire in succession, beginning on the right. After the first fire the succession is not observed.

To stop the fire, the colonel commands, *cease firing*, or causes a roll with taps from the drum; at which, every officer and guide repeats, *cease firing*, and the men load their pieces and come to a

Reception of Colors.



To fire to the front.



A battalion with the ranks open.

fig 2.

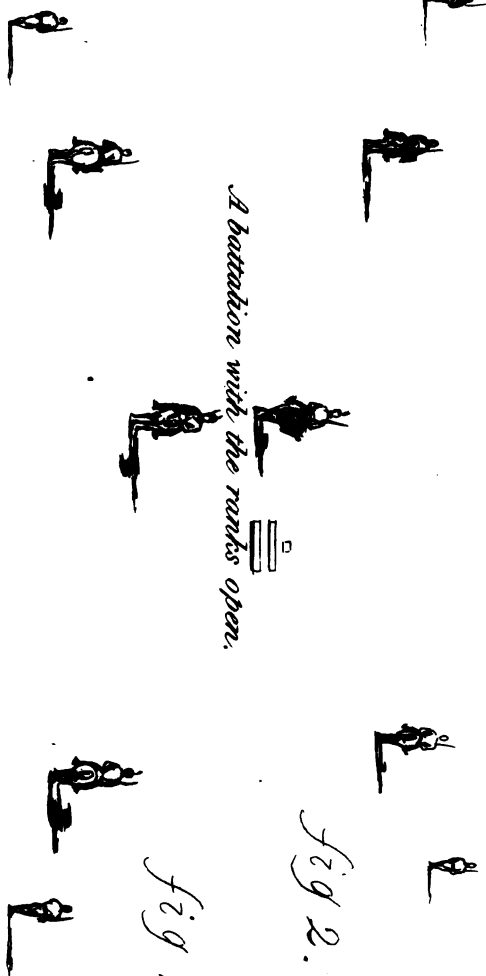
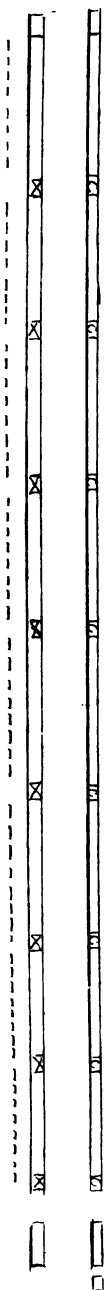


fig 1.



shoulder; whilst the officers and guides, and field and staff resume their proper stations.

This rule is general for every species of firing.

TO FIRE BY WING.

Fire by wing—Right wing—READY—AIM—FIRE—LOAD.

Left wing—READY—AIM—FIRE—LOAD.

Each wing must hold its fire until a portion of the files of the other wing have come to a shoulder.

TO FIRE BY BATTALION.

Fire by battalion—Battalion—READY—AIM—FIRE—LOAD.

TO FIRE BY FILE.

Fire by file—Battalion—READY—Commence FIRING.

The right file of every company aims and fires, and the other files successively, as in firing by file in the company exercise.

TO FIRE TO THE REAR. [Pl. 37, fig. 1.]

Fire to the rear—Battalion—About—FACE.

Field and staff officers, music, &c. pass to positions in front, corresponding to their former positions in rear of the line. Company officers and guides pass by the nearest flank of their respective companies to positions in front the line, corresponding to their former positions in rear.

All the firing beforenamed may be employed when firing to the rear. The terms *right* and *left* remain as before. Firing either to the front or rear, the aim may be oblique to the right or left if desired and so expressed.

To resume the proper front after firing to the rear.

Battalion—About—FACE.

Company officers and guides, music, &c. resume their proper positions in line.

NOTE.—Frequent inspections of arms and springing of rammers should take place after firing. If smoke does *not* issue from the vent or muzzle, the man may know his piece missed fire, and without reloading will simply overhaul the priming.

IV. METHODS OF PASSING FROM LINE INTO OPEN COLUMN.

TO WHEEL TO THE RIGHT OR LEFT INTO COLUMN. [Pl. 37, fig. 2.]

By companies—Right—Wheel.

Captains step out in front of their companies and caution, to *touch to the right and dress to the left*. The lieutenant on the left the battalion steps into the line of file closers.

MARCH.

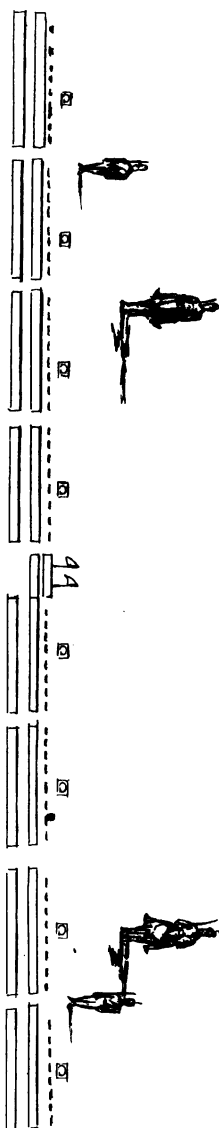
Companies wheel to the right. Each captain posts the left guide so that he shall cover the guides in front of him and be at company distance; then commands *left DRESS*, afterwards *FRONT*, and takes his post in column, in front of, and at half company distance from the centre of his company.

TO BREAK FROM THE RIGHT, TO MARCH TO THE LEFT, or TO THE FRONT.

The commands in the preceding manœuvre are preceded by that of *break to the right to march to the left* [Pl. 38]; or, *break to the right to march to the front*.

This movement is identical with the foregoing, with these exceptions: the right company, instead of wheeling to the right, marches forward (guide right) twice the extent of its front. In this case, the column, when put in motion, turns to the left or marches to the front, at the command, *column forward—guide left—MARCH*, without further intimation from the colonel. Markers should be posted at the turning points or point.

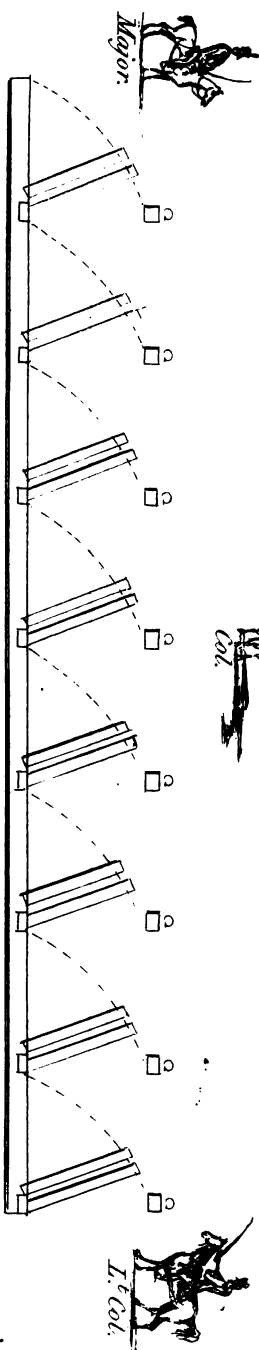
Fig 1.



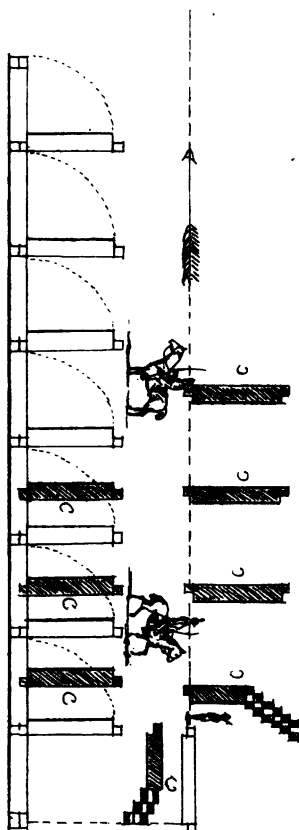
To fire to the front



Fig 2.
Wheeling to the right into column.
"By companies right wheel—March."



*"Break from the right to march to the left—
by companies right wheel—March."*



A corresponding movement from the *left* to march to the *front* or *right* may be made.

TO FORM COLUMN BY FACING TOWARDS A FLANK AND BRINGING THE COMPANIES INTO LINE. [Pl. 39, fig. 1.]

Column of companies to the right.

Battalion by the right flank—Right—FACE.

The captains step out and caution their men as to the next movement. Right guides, now in the front rank, do *not* face.

By companies into line—MARCH.

Right front rank man of each company stands fast; the others break off and come up successively on the left. Rear rank covers the front. The left guides are then posted, covering and at proper distances, the companies dressed on them: at the command **FRONT** from any captain, his right guide takes post on the right, and he in front of, and opposite the centre of his company.

TO BREAK INTO COLUMN, BY FILING THE RIGHT OR LEFT OF COMPANIES TO THE REAR. [Pl. 39, fig. 2.]

By right of companies—Rear into column.

Captains step out and caution their companies as to the next movement.

Battalion—Right—FACE.

Battalion faces to the right, and two files on the right of each company break to the rear. Each captain places himself faced to the rear, with his breast touching lightly the left elbow of the left front rank man of the company next on the right of his own. The captain of the right company stands as though a company stood on his right.

MARCH.

Each captain stands fast and observes his company, led by the right guide, file by him to the rear; as the last file wheels, he commands—*Company—HALT—Front—FACE.* The left guide posts

himself in front of his captain, pressing his breast slightly with his arm. The captains dress the companies to the left, command **FRONT**, and take their posts in column.

This method is necessary when there is not space in front the line to wheel into column, or when the pivot flank is required to move on the prolongation of the line.

The formation to the *left into column* is executed in the same general manner as to the right.

Divisions of more than one company, as also sub-divisions of platoons or sections, may be formed into column on principles akin to the foregoing.

V. TO FORM A CLOSE COLUMN, OR A COLUMN AT HALF DISTANCE.

Close column of companies on the left company, right in front [Pl. 40], or

Column of companies at half company distance, on the left company, right in front.

The captain of the left company cautions it to *stand fast*, those of the other companies to *break to the front*.

Battalion—By the left flank—Left—FACE.

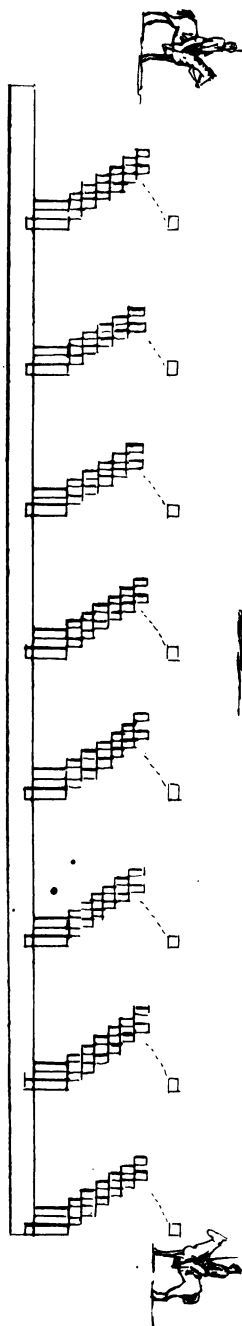
All face to the left, and break off to the front, except the left company, which stands fast.

MARCH.

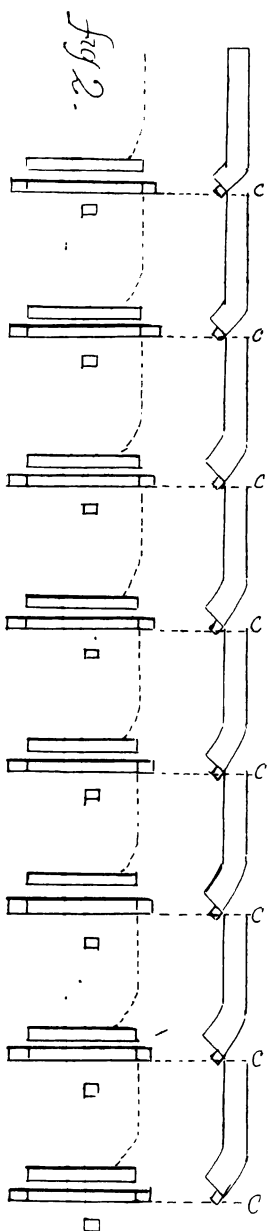
The companies are led into column in front of the left company by their captains. The right guides precede the companies and cover the right guides already in column, so as to mark the points where the several companies shall enter the column. Captains lead their several companies in rear of their respective right guides until abreast the left guide of the left company. Then *halt, front face and left dress*. The left guides face towards and cover the left

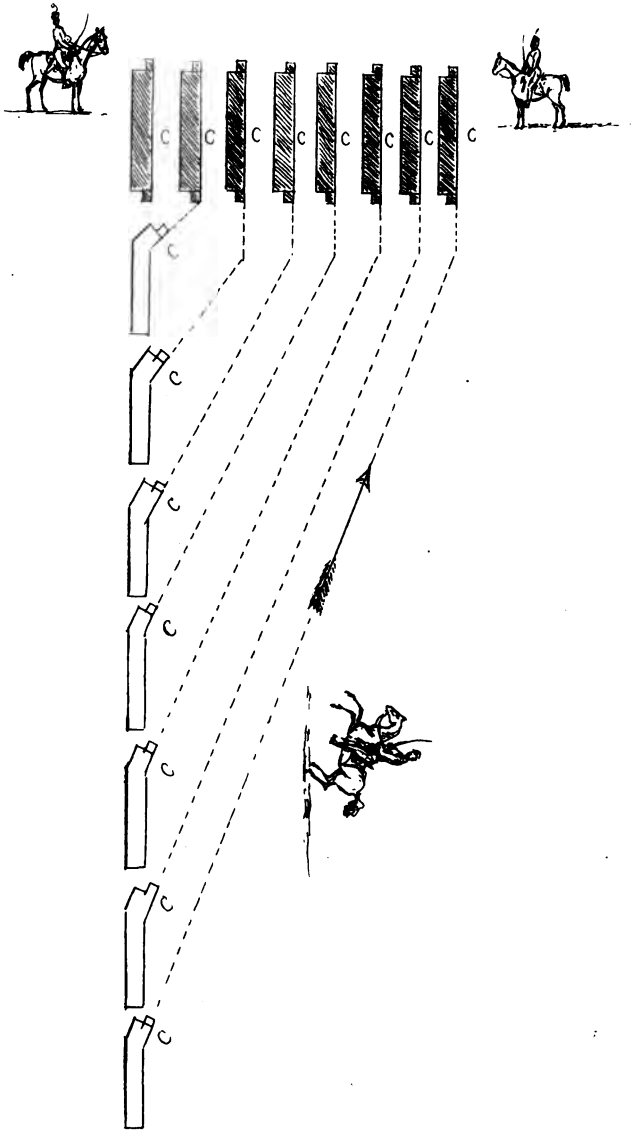
"Column of companies to the right—Battalion by the right flank—right face—by companies into line—March."

fig 1.



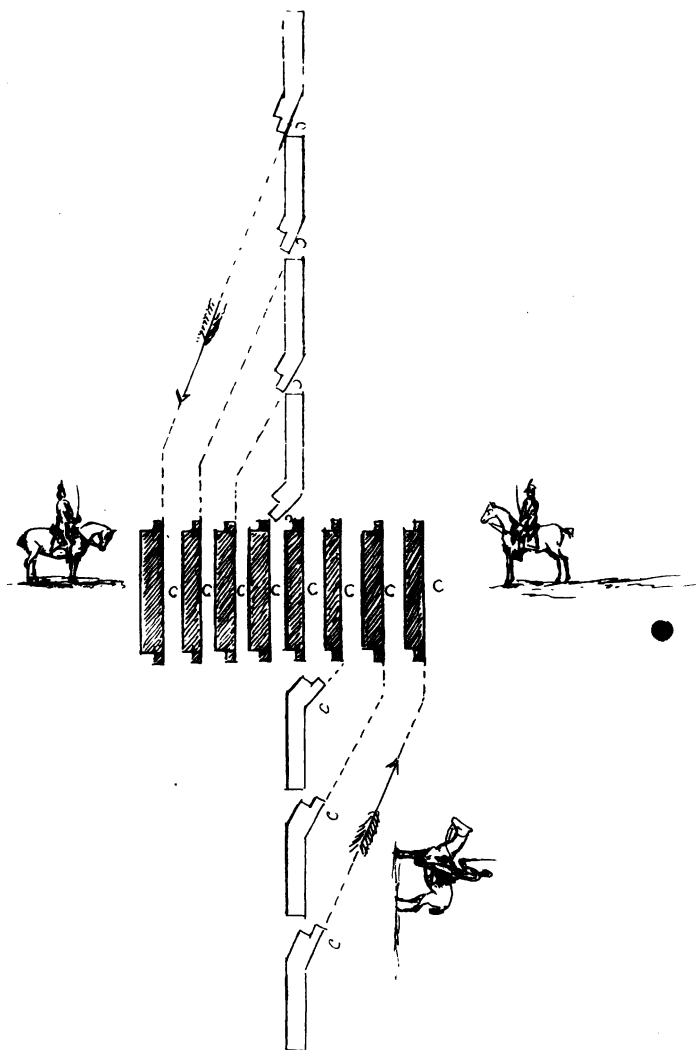
"By right of companies to the rear into column—Battalion right face—March."





"Close column of companies, on the left company right in front "
 "Battalion by the left flank, left face—quick March. "

*"Close column of companies on the fourth company, right in front.—
Battalion inwards face—quick March."*



guide of the company that stood fast. The column being formed, the colonel brings the left guides to the front by the command

Guides—About—FACE.

An open or close column, or column at half distance, may be made left in front on the left company, in the same way, except that the companies break off to the rear, and the captains halt in their own persons, when abreast the right guides, who have preceded their companies, and permit their companies to pass them; then halt and dress to the right. It is not necessary to bring the guides about, as they already face towards the front.

The formation may be made on the right company, or on any interior company [Pl. 41], right or left in front in like manner.

This method, though not recommended, may be used for forming an open column.

Divisions greater than a company, or sub-divisions may be formed into close column by this method.

VI. TO FORM COLUMN OF ATTACK.

Form column of attack—Battalion—Inward—FACE.

All the companies face towards the centre of the battalion, and break off to the rear, except the two centre companies, which stand fast.

MARCH.

Those companies broken to the rear are led into the column at company distance in rear of the centre companies. Companies occupying corresponding positions in the two wings with respect to the centre, meet in column and form a single division commanded by the senior captain. The companies close in to, and are dressed towards the centre of division. The junior captain takes post between the companies, the senior at two paces in front this point.

VII. TO MARCH IN COLUMN, AND CHANGE DIRECTION. [Pl. 42.]

Before putting a column in motion, two objects should be pointed out to the leading guide, on or near to the line of direction which he is to follow. One of those objects may be a marker thrown forward for that purpose.

Uniformly the guide is *left* when the right company leads—*right* when the left company leads. This facilitates wheeling into line.

Column forward—Guides—Left—MARCH.

The entire column steps off promptly at the word *march*. The leading guide carefully takes up other points, as those pointed out or assumed are reached: and in every case of change of direction immediately seeks for marking objects on which to direct his march. The other guides carefully cover him, keep his step and maintain the proper interval.

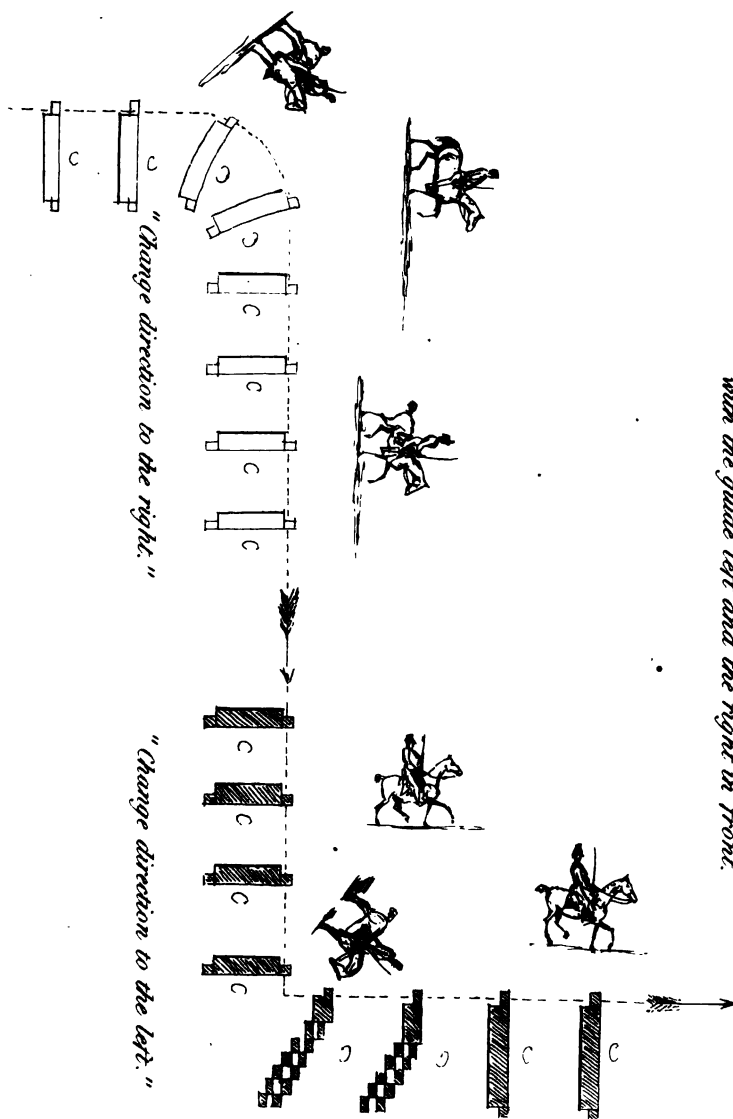
To change direction, the colonel signifies his wish to the captain of the leading company, or commands

Change direction to the right (or left).

The captain of the leading company faces his company, and if the change of direction be on the same side with the guide, (that is, left when the guide is left,) commands—*company left (or right) turn—MARCH*. The guide turns towards the new direction, at right angles (in the absence of other instructions) to the former direction, and the men come up with a quickened pace and resume the touch and dress. The lieutenant-colonel causes a marker to stand at the precise point of the turn. The other captains face their companies some paces before reaching the marker, and command—*company left (or right) turn*, and when directly abreast—*MARCH*.

When the change is made in the direction opposite that of the guide, each company wheels. A marker notes the spot where the guides shall successively begin the wheel, and captains should be careful that their companies continue to march straight forward until the command—*company right (or left) wheel—MARCH* is given.

*March in column and change direction,
with the guide left and the right in front.*



When a column arrives in front, or in rear of a line, or on the right or left of it, and desires to prolong it in order to form line upon it, it is important that this line should not be crossed or materially departed from. In such cases, markers or other general guides may be thrown out on the line or in the prolongation of it, and the guides directed to march parallel thereto.

The above directions for conducting a column apply in the main to a close, as well as an open column. In changing direction by a wheel, with a column closed in mass, or at half distance, it is required, in order that the wheeling point may be cleared in time, that the inner flank men take steps of fourteen inches or even more, instead of the step of nine inches prescribed for a column at full distance.

VIII. TO MOVE IN COLUMN OF ROUTE.

When at a halt, command

Column forward—Guides—Left (or right)—Route step—MARCH.

But if already on the march, to relieve the men by the route step, command

Route step—MARCH.

The battalion in either case advances with the ranks opened two paces apart.

Arms at EASE.

In the route step, neither cadence nor silence is required. The guides carefully preserve the intervals and direction, and the men march abreast the guide, but need not regard the dress.

Changes of direction are made without command, simply by an indication by the chief, or by some general directions to follow the road.

TO RESUME THE CADENCE AND ORDER.

Rear rank—Close order—MARCH.

The rear rank closes on the front, the whole comes to a shoulder, and resumes the cadenced step, dress and silence.

They would likewise do so if the command were halted.

IX. DIMINISHING AND INCREASING THE FRONT OF COLUMN. [Pl. 43.]

This may be done by companies successively as necessity requires, or by the entire column under general commands.

1. TO DIMINISH FRONT OF COLUMN BY BREAKING INTO PLATOONS OR SECTIONS.

Break into platoons (or sections)—MARCH.

Which is executed by the respective companies as in the company exercise.

Form companies (or platoons)—MARCH.

2. TO BREAK OFF FILES AND BRING THEM INTO LINE AGAIN.

Files from each division of the column may be broken off simultaneously by the command

—files from the left (or right) to the rear—MARCH.

These commands are repeated by every chief of division.

But generally, in column of route particularly, files are broken off by chiefs of divisions as necessity demands, and brought up into line when that necessity ceases.

As a rule, files should be broken off from the *left* when the *right* is *in front*, and from the *right* when the *left* is *in front*. Otherwise difficulties arise in executing subsequent flank movements, without first bringing the rear files into line.

3. TO REDUCE THE COLUMN BY A FLANK MOVEMENT AND REFORM IT AGAIN.

The passage may become too narrow to admit of a column, even with files broken off. In that case, on an intimation from the lieutenant-colonel, or colonel, the divisions of the column, as they successively approach the narrow way, execute the movement of *right flank by file left*, if the right be in front, or *left flank by file right*, if the left be in front, and afterwards form sections, platoons and company, as circumstances may allow.

Should the passage become too narrow to admit of even two persons abreast, the rear rank men step in behind their file leaders, and the officers, guides and file closers step into the front rank behind the file to which they may stand opposite. So soon as space admits, two ranks are re-formed; afterwards the proper divisions of the column. As in passing a battalion through a narrow passage in one rank, its extent is considerably augmented, it will be necessary, after the head of the battalion has passed beyond the passage a distance equal to the extent of its front, for it to halt until all are through and the entire column is re-formed.

X. FROM OPEN COLUMN TO CLOSE TO HALF DISTANCE, or TO CLOSE IN MASS. [Pl. 44, fig. 1.]

To half distance, close column—MARCH, or

Column close in mass—MARCH.

The leading division of the column, if it be in motion, halts and dresses, or, if the column be not in motion, stands fast. The other divisions of the column close up to half distance or in mass (three paces), halt and dress. The directing guides carefully cover as they close up, superintended by the field officers.

This movement could be made on the rear division, by *halting* the column; facing all but the rear division *about*, and causing them to *close, face-about* again and *dress*. Afterwards face the directing guides *about*.

XI. TO FORM OPEN COLUMN FROM A COLUMN AT HALF DISTANCE or A COLUMN CLOSED IN MASS. [Pl. 44, fig. 2.]

1. ON THE REAR COMPANY OR DIVISION.

On the rear company, take wheeling distance.

The captain of the leading company causes his company to advance; all the others stand fast. When the leading company is at proper distance from the next, the latter likewise is put in motion; afterwards the next in order, and successively all the companies.

If the column be in motion, the rear company marks time and halts, and successively all the others when at proper distances.

2. ON THE LEADING COMPANY.

*On the leading company, take wheeling distance—Battalion—
About—FACE.*

The leading company stands fast; the others face about; their captains give the caution *forward, guide right* (or *left*),

MARCH.

These companies, with the file closers leading, step off, and are successively halted by their captains, faced about, and dressed at proper distances, the directing guide carefully covering.

3. ON AN INTERMEDIATE COMPANY.

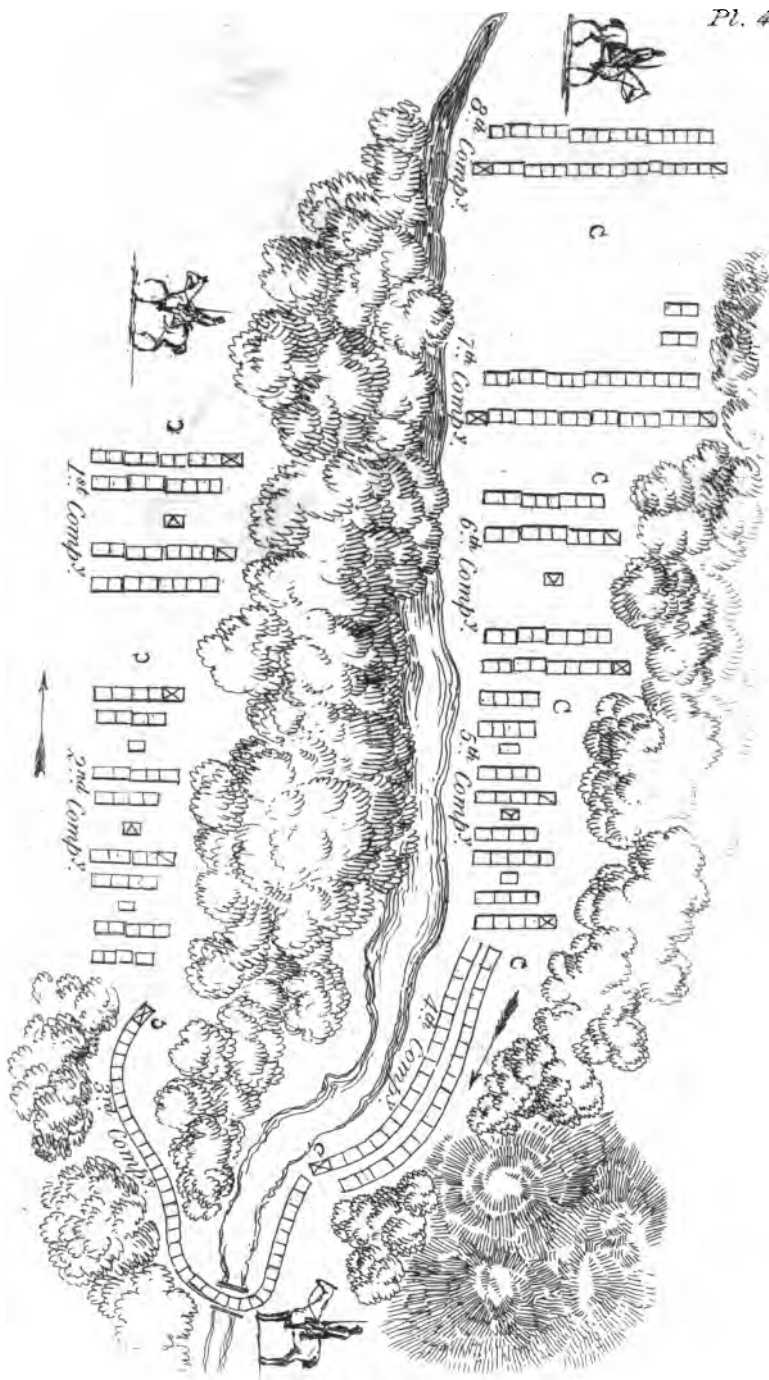
On—company—Take wheeling distance.

Captain of the company named cautions it to *stand fast*; those of the companies in advance of it caution *forward, guide left* (or *right*). The companies behind that company are faced about and cautioned *forward guide right* (or *left*),

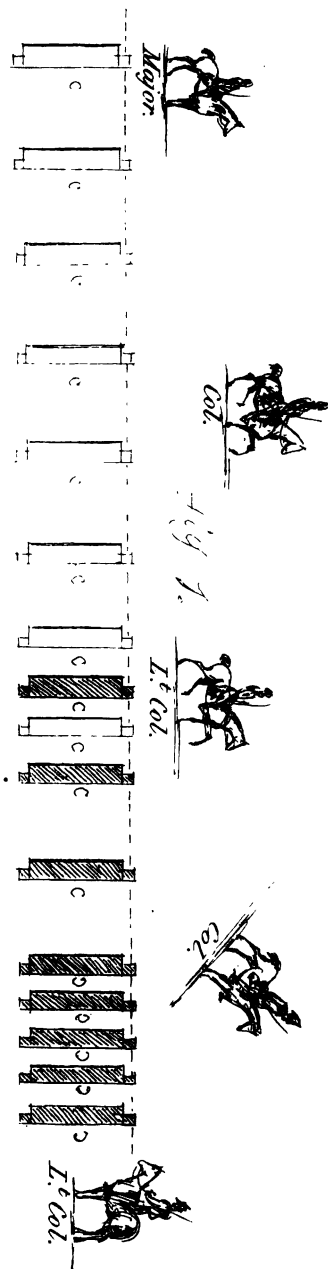
MARCH.

The companies advance as cautioned; halt at proper distance from each other; those in the rear face about; all the directing guides cover, those in advance facing about, and the companies are dressed on them.

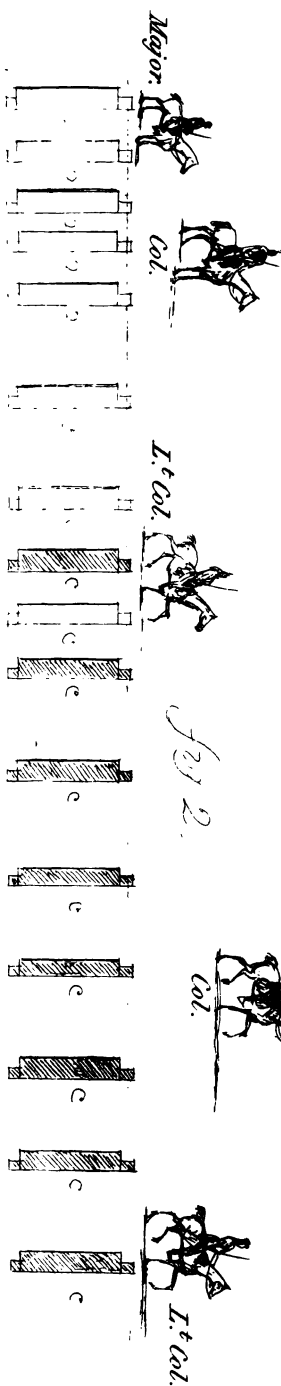
March in route and diminishing and increasing the front of column.



"Column close in mass—March."



On the rear company take wheeling distance.



XII. TO COUNTERMARCH A COLUMN AT FULL OR HALF DISTANCE. [Pl. 45.]

Change front to the rear—Companies—Right (or left) FACE.

Guides, both right and left, face about, and the companies face toward the flank indicated, and break off to the rear.

Companies—Countermarch by file left (or right)—MARCH.

Guides stand fast; each company, led by its captain, files around one guide, and when the leading flank is nearly abreast of the other, *mark time, halt*, and *dress* to this flank; the guides being the basis. At the word *front* from each captain, the guides shift to their proper flanks.

XIII. TO HALT A COLUMN AND DRESS IT. [Pl. 46, fig. 1.]

Column—HALT.

The word *halt* is repeated by each chief of division of the column; after which *no one* shall stir, however much out of position.

To rectify the dress, the colonel commands

Guides on the line (or guides cover).

At which the directing guides of the several divisions cover and correct distances, under the supervision of the lieutenant-colonel and other field and staff officers.

Left (or right)—DRESS.

Each captain stands two paces outside his directing guide, promptly aligns his company, commands *FRONT*, and resumes his place in column.

XIV. TO FORM LINE ON THE DIRECTING FLANK. (Right in Front.)

1. BY WHEELING INTO LINE. [Pl. 46, fig. 2.] .

Left into line—WHEEL.

Captains face their companies, and caution, *touch to the left and dress to the right*.

MARCH.

The companies wheel, and when the outer flank is two paces short they halt. The guides on the pivot flank stand fast with inverted pieces. The guide on the reverse flank of the leading company takes post on the line of directing guides, facing them, and at company distance from the leading one. The left front rank man of each company faces to the left and presses lightly against the breast of his guide. Each captain places himself on the line by the side of the left front rank man of the company next on the right, aligns himself correctly, dresses his company to the right, and then commands *front*

Guides—POST.

Guides in front pass to their proper posts in line. The captains in this, as in all like cases where necessity exists, step to the front and left, to allow the guides to pass to their posts.

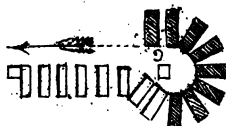
With the *left in front*, the command would be *right into line wheel*, and the execution would correspond to the foregoing.

2. BY FACING TO THE DIRECTING FLANK, BREAKING OFF AND COMING UP INTO LINE.

Left into line—Battalion by the left flank, left face—By companies into line—MARCH.

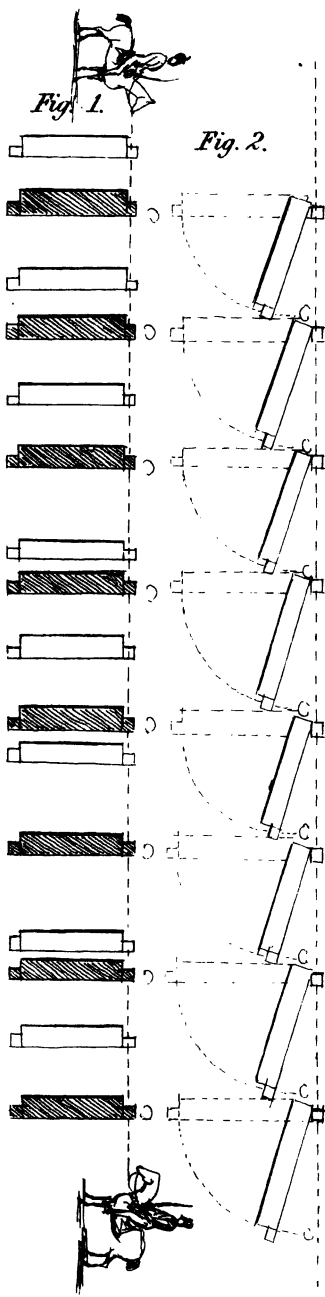
Companies face to the left—guides do not face; guide on the reverse flank of the leading company covers the directing guides; captains post themselves on the left of the left file of the company on their right, and dress the company, &c.

*Change front to the rear—Companies right face—
Countermarch by file left—March.*





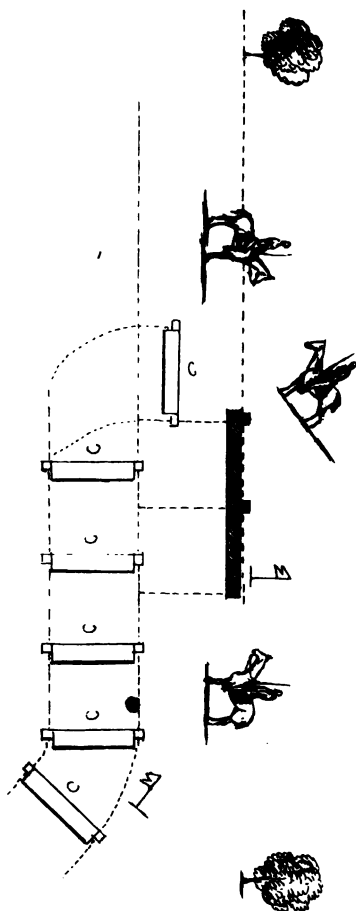
"Left into line wheel March."



Guides on the line—guides cover—companies left dress.

To form line on the reverse flank.

Pl. 47.



"On the right into line column guides right."

3. BY A FLANK MOVEMENT. (This is executed on a march.)

Companies by the right flank by file left.

The captains prepare to lead their right guides, who now become the directing guides.

MARCH.

The right guides march directly forward. The files face towards this flank, and successively file to the front after these guides. Officers and guides now have the same position as in marching by a flank.

To form line, halt the battalion, face it to the front and dress it to the right; *guides on the line* if necessary.

XV. TO FORM LINE ON THE REVERSE FLANK.

[Pl. 47.]

The lieutenant-colonel posts markers on the right of the line to be occupied and somewhat in advance of the right company.

On the right into line—Column—Guides—RIGHT.

Captain of the leading company facing his company, commands, *company right turn*, and when abreast of the 1st marker, MARCH. This company turns to the right, and the right guide so directs his march as to bring the man next himself against the 1st marker. The captain *halts* and *dresses* the company on the markers.

The succeeding companies continue the march and turn to the right as they arrive respectively abreast of the left of the preceding company. The left guides throw themselves on the line of guides, covering the markers. Captains take post on the left of the left file of the companies on their right, and dress their companies to the right.

The lieutenant-colonel rapidly rectifies the position of guides as they come up on the line.

Guides—Post.

NOTE.—In this formation, the command *commence firing*, may follow the arrival of the leading company on the line. At this command the markers and guides already on the line retire, and no more left guides come on the line, and the captains open a fire by file with their respective companies. The line should be at least four paces from the flank of the column. It may be parallel to or at an angle with the line of direction. In the latter case, the guides should so direct their companies as to bring their turning flank within four paces of the line at the moment of turning.

XVI. TO FORM LINE TO THE FRONT (OPEN COLUMN OR COLUMN AT HALF DISTANCE).
[Pl. 48.]

Halt the column if in motion. Place markers at company distance, in advance of the leading company, so that they shall mark the direction of the new line.

Front into line. Companies by the left flank—Left—FACE.

The leading company does not face; its captain cautions it *forward, guide right*. The other companies, in facing to the left, break off to the front so that the leading files will stand facing the points where the right of their respective companies will rest.

MARCH.

Leading company marches in line forward, and is halted near to, and dressed on the markers. The other companies are led by the left flank, by the captains of the same towards the points where their right will rest. When within two paces of the line they file to the left, and when parallel to and abreast their positions in line, halt, and face to the front. The left guide now posts himself on the

line of guides, so that he will stand abreast the second or third file from the left of his company in line. The captain also takes post on the left of the left file of the preceding company, and dresses the company forward to the right.

Guides—Post.

The companies might approach the left points of their positions in line, and form *front into line* when near it.

Front into line on the rear company may be executed in nearly the same manner; but it would be better to close column in mass, and deploy column, as will be shown.

XVII. TO FORM LINE FACED TO THE REAR.

[Pl. 49.]

The colonel causes markers to be established by the lieutenant-colonel on a line at company distance in advance of the leading company, either parallel to or at an angle with the same.

Into line faced to the rear.

Column right—FACE—MARCH.

Or if the column be in motion, *Column by the right flank—MARCH.* Each captain leads his company towards that point in the line where its left flank will rest. The left guide precedes his company, and quickly establishes himself on the line of guides, to mark the left point of his company. The company crosses the line in rear of the left guide, passes two paces beyond, files to the left, halts when abreast its position in line, faces to the front, and dresses to the right on the line.

Field officers rectify the position of guides, as they come on the line.

Guides—Post.

To form line faced to the rear on the rear company is executed in

very nearly the same manner. The rear company countermarches, and the others face to the left, and break off to the rear.

To form on an interior company, this company countermarches, whilst those in rear of it face to the right, and break off to the front; and those in front face to the left, and break off to the rear.

The formation into line faced to the rear when the left is in front, is made in the same general manner.

XVIII. TO FORM INTO LINE AFTER A PORTION OF THE COLUMN HAS CHANGED DIRECTION.

1. A COLUMN RIGHT IN FRONT, OF WHICH FOUR COMPANIES HAVE CHANGED DIRECTION TO THE RIGHT ON THE PROLONGATION OF THE LINE. [Pl. 50.]

Halt the column and rectify the position of those companies that have changed direction.

Left into line wheel. Rear companies, to the front into line.

Captains of those companies that have changed direction caution—*touch to the left and dress to the right.*

Captains of the rear companies, except the one in advance, face their companies to the left, and cause them to break to the front.

Captain of the leading rear company commands *forward—guide—right.*

MARCH.

The first of the above class of companies form into line by a wheel to the left.

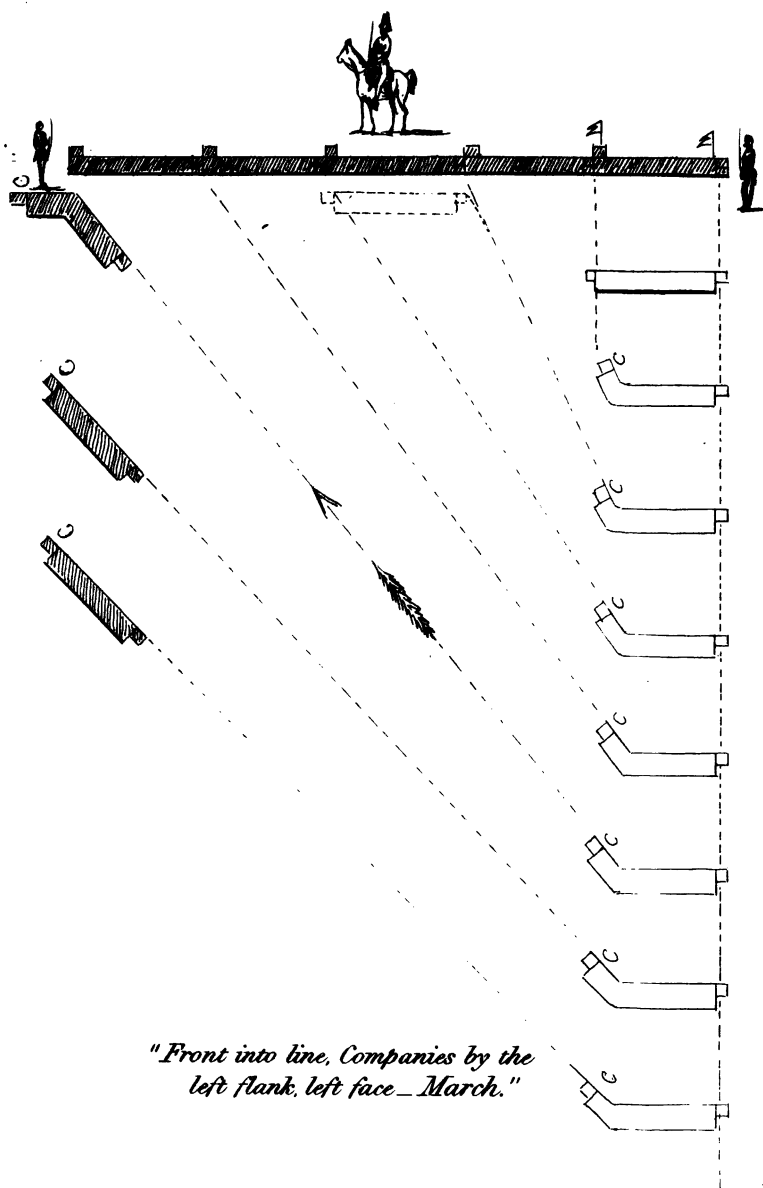
The first rear company marches forward, the right guide directing his march so as to stand in rear of his place in line. The left guide posts himself on the line of guides.

The other rear companies form *front into line.*

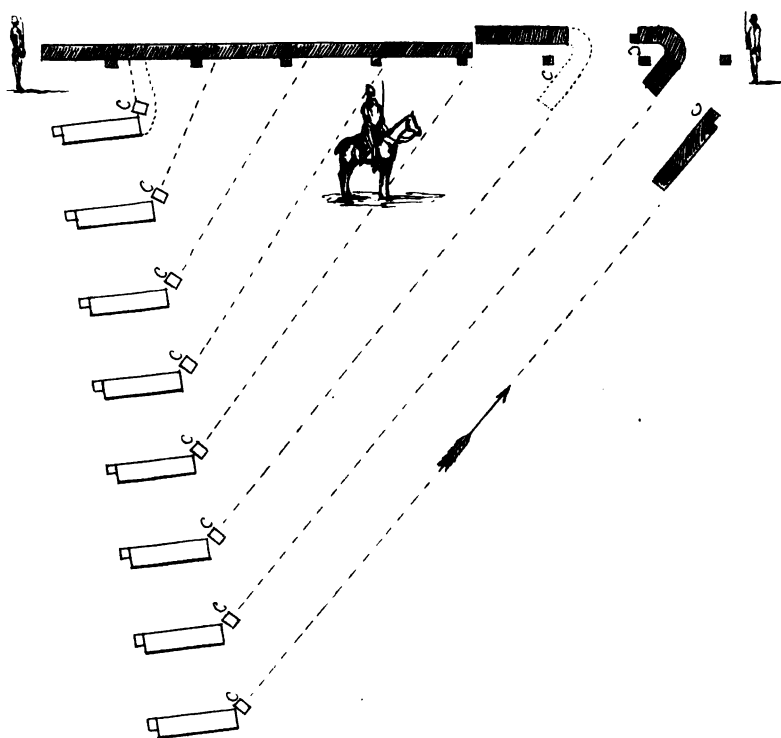
Guides—Post.

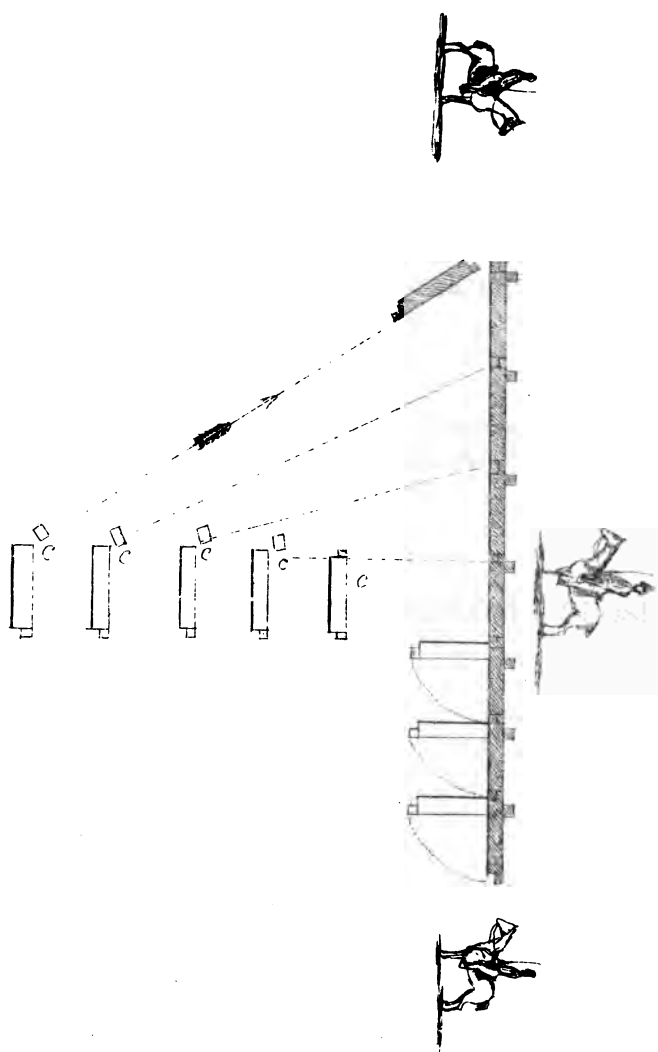
Form line to the front.

Pl. 48.



"Into line faced to the rear—"Column right face—March."





"Left into line wheel row companies front into line March."

2. A COLUMN RIGHT IN FRONT OF WHICH THE FOUR LEADING COMPANIES HAVE CHANGED DIRECTION TO THE LEFT.

Rectify the position of those companies that have changed direction.

Left into line wheel—Rear companies into line faced to the rear.

MARCH.

Those companies that have changed direction, wheel to the left into line.

The rear companies face to the right, break to the front, and form into line faced to the rear.

Guides—POST.

Left in front; these two movements can be executed in the same manner—*Right into line wheel, rear companies &c.*

XIX. TO FORM LINE FROM A COLUMN CLOSED IN MASS.

This may be accomplished by taking wheeling distance, and forming into line to the left, on the right, to the front, or faced to the rear, as before explained.

But a preferable method is to bring the column in mass, fronting the direction required, and then deploy.

These changes of front, if to the rear, are effected by a countermarch, executed as in full column, except that the alternate members or divisions of the column face in opposite directions, before filing in the countermarch.

When the change of front is to the left or right, the lieutenant colonel posts markers on the line to be occupied by the leading company.

Charge front to the left on the leading company. Battalion by the right flank—Right—FACE.

All face as ordered, the leading company breaking to the front.

MARCH.

The leading company files to the front, and, coming abreast the markers, halts, fronts, and dresses up to them. The others move by the right flank, enter the column at close column distance, halt and dress. Should the entrance be by the directing flank of the column, that is, by the left flank when the right is in front, or the reverse, the captain of each company, instead of entering the column, halts in his own person, when abreast the guide of the preceding company, and permits his company to pass him, afterwards causes it to mark time, halt, face to the front and dress.

TO DEPLOY A COLUMN CLOSED IN MASS.

1st. ON THE LEADING COMPANY.

The lieutenant-colonel posts the markers four paces in front of the head of column, and abreast of it.

On first company—Deploy column.

Battalion—By the left flank—Left—FACE.

All the companies face to the left except the 1st company; the captain of that commands *Forward, guide right.*

MARCH.

The 1st company marches forward, halts one pace from the line, and dresses on the markers towards the right.

All the other companies move by the left flank led by their several captains, except that the captain of the 2d stands fast in his own person and permits his company to file past him. When he judges the head of his company to be in advance of him a distance equal to its front, he commands—*company mark time—MARCH—HALT—Front—FACE—Forward—Guide—RIGHT.*

The company marches up to the line; the left guide posts himself on the line of guides covering the markers; the captain takes post on the left of the preceding company on the line, and commands—*company—Right—DRESS—FRONT.*

When the captain of the 3d company hears the command *mark time—MARCH*—by the company on his right, he halts in his own person, permits his company to march by him, and executes the particulars laid down for the preceding company. The other companies do the same. After the last company is on the line and dressed, the colonel commands

Guides—Post.

Where the left is in front or the left company leads, the movement would be identical with the foregoing, except that the rear companies face to the right and march up to the line with the guide left.

2d. ON THE REAR COMPANY.

On the left company—Deploy column.

Lieutenant-colonel posts markers on the line abreast of the leading company.

Battalion—By the right flank—Right—FACE.

All the companies face to the right, except the last company, which stands fast.

MARCH.

All the companies thus faced march off, led by their captains, except that of the company next to the last, who stands fast in his own person.

The rear company stands fast until unmasked by the company next in advance of it, then marches up to the markers by the command—*company forward—Guide left—MARCH.*

The rest of the movement corresponds to that when the deployment is made on the leading company.

Left in front, the deployment on the rear company is identical with the foregoing, except that the flank movement is made by the left, and that the companies move up to the line with the guide right.

In deployments on the rear company, right in front, the right guides come out on the line; left in front, the left guides.

3d. TO DEPLOY ON AN INTERMEDIATE COMPANY.

*On 3d company deploy column—Battalion—Outward—FACE—
MARCH. [Pl. 51, fig. 1.]*

Lieutenant-colonel posts markers as before. The captains next in rear and next in front the company named stand fast. The guide and dress is towards the intermediate company, the captain of which steps into the rear rank whilst the next right company is being dressed.

Guides—Post.

At which captains and guides take their proper stations.

REMARKS ON DEPLOYMENTS.

Though laid down for close column, the above methods will serve for a column at half distance, and even for an open column, by closing the latter.

To deploy a column of attack so nearly corresponds to the deployment of a column on an intermediate company, that detail is unnecessary. The command is *deploy column* simply.

XX. CHANGING FRONT.

1. FORWARD, ON THE RIGHT COMPANY. [Pl. 52.]

The colonel causes two markers to be posted on the new line, which may be at any angle with the present; these markers to indicate the position to be occupied by the right company. The right company is then wheeled, or otherwise established on these markers.

Change front forward on the first company.

Battalion—By the right flank—Right—FACE.

All the companies face to the right, and break off to the front.

"On the 3rd company deploy column—outwards face—"March."

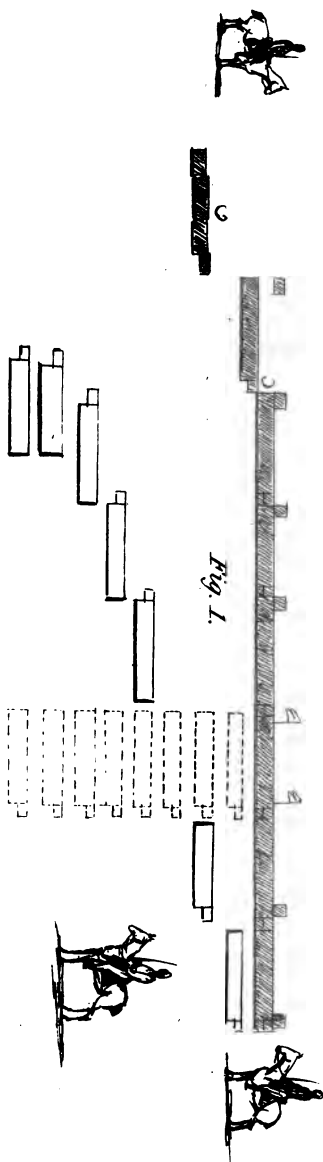
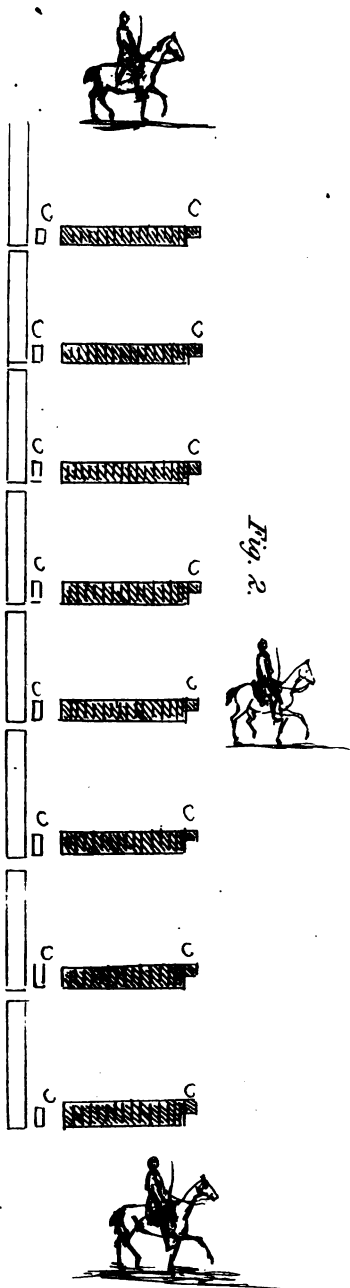


Fig. 1.

Fig. 2.

"Advance by the right of companies—Battalion right face—"March."



TO CHANGE FRONT.

MARCH.

The companies march to the front, led by their respective captains who direct the leading flank to the position where the right of the company will rest after the movement is made. As this line is approached, the left guide comes rapidly forward and posts himself, covering the markers on the line of guides. The company when within eight paces of the line is formed *front into line*, and when in rear of its position in line, is halted, fronted, and dressed to the right on the line.

Guides—Post.

2. FORWARD, ON THE LEFT COMPANY.

Markers posted as before, and left company established on them.

Change front forward on the left company.

Battalion—By the left flank—Left—FACE.

MARCH.

Each company after facing is led to the point where its left will rest; the right guide takes post on the line and the company is brought in rear of its position, and dressed to the left.

Guides—Post.

3. TO THE REAR, ON THE RIGHT COMPANY.

Face the right company about, and wheel it to the left, advance it half company distance and again face it about. Then post markers in front of it, and *dress* to the right.

Change front to the rear on the first company.

Battalion—By the right flank—Right—FACE.

Companies face to the right, and break off to the rear.

MARCH.

Each company is directed towards the point where its left is to rest; passes the line beyond the left guide, who has preceded, files

to the left when a pace beyond, and forms in rear of its position. Afterwards *front* and *dress* to the right. Or it may cross the line where its right will rest, form *rear into line* when two paces beyond, and afterwards be dressed as before.

Guides—Post.

4. TO THE REAR ON THE LEFT COMPANY.

Left company posted to the rear on the markers.

Change front to the rear on the left company.

Battalion—By the left flank—Left—FACE—MARCH.

Each company is led by the left flank, filed in rear of the right guide, who precedes the company, and dressed to the left.

Guides—Post.

5. TO THE RIGHT (or LEFT) ON AN INTERIOR COMPANY (the 5th).

If, for instance, the change is to be made on the 5th company, and that the left wing is to be thrown forward and the right wing to the rear—*Wheel* the 5th company to the right—*face* the 4th *about*—*wheel* it towards the 5th—*face it about*, and *dress* both on markers. The same may be effected by facing the 5th to the right, and forming it as a company front into line, and facing the 4th to the left and forming rear into line; then dressing on the markers.

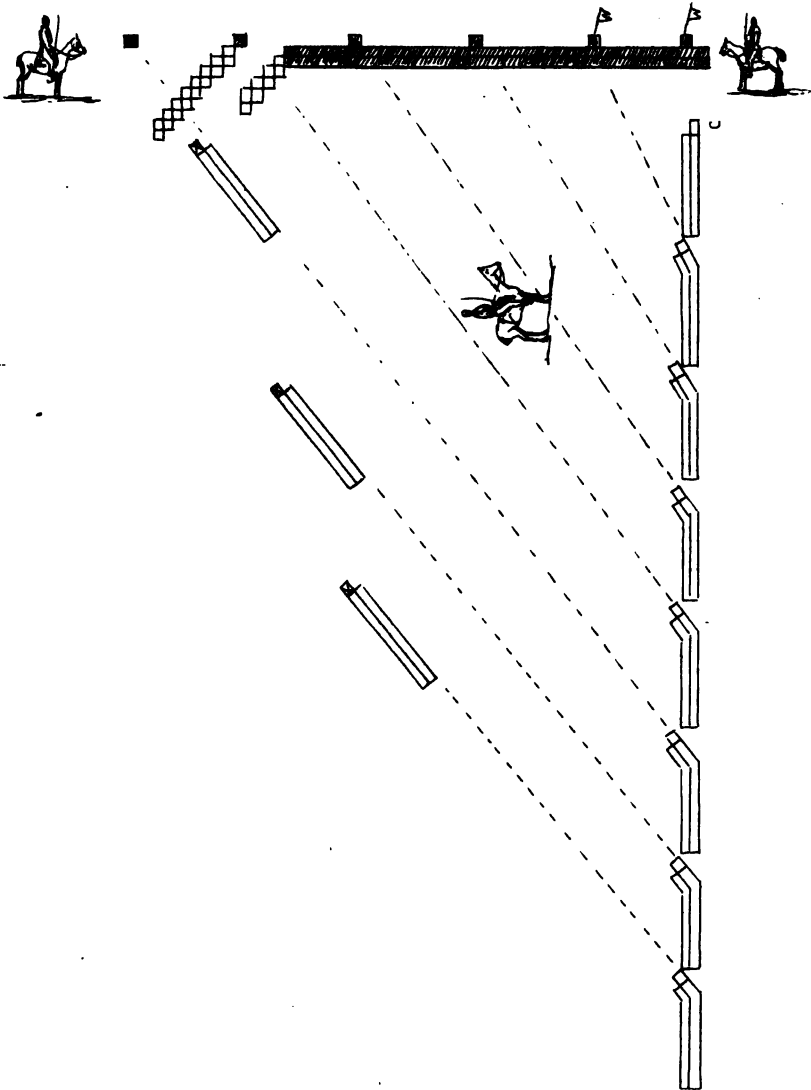
Change front on 5th company—Left wing forward.

Battalion—Inward—FACE—MARCH. [Pl. 53.]

The companies of the right wing execute the movement *change front to the rear on the 4th company*. The companies of the left wing execute the movement *change front forward on the 5th company*. The captain of the 4th company, for the time, steps into the rear rank, that the 3d may be dressed to the left.

Guides—Post.

*"Change front forward on the right company—
Battalion by the right flank right face—March."*



XXI. TO ADVANCE BY THE RIGHT (or LEFT) OF COMPANIES, AND REFORM THE LINE. [Pl. 51, fig. 2.]

Advance by the right (or left) of companies.

Battalion by the right (or left) of companies—Right (or left)—FACE.

Companies face to the right (or left) and break to the front.

MARCH.

Companies move to the front, carefully preserving the dress and distance from the leading company; that is, from the left company, when advancing by the right, and from the right company when advancing by the left of companies.

TO REFORM THE LINE.

Halt the battalion and *dress* the heads of companies, and correct the intervals if deemed necessary.

By companies into line—MARCH.

Leading guides face to the right (or left) and the companies break off and come up as in single companies; then dress to the right (or left).

Guides—POST.

NOTE.—The success of this method depends on the heads of companies preserving the interval and dress. If this be done, it is not necessary to halt the battalion before reforming line.

By simply changing the order of march, when thus advancing to the front, the battalion would be formed in column of companies; right in front, if the advance be by the left flank; left in front, if the advance be by the right flank.

XXII. TO ADVANCE BY THE CENTRES OF COMPANIES AND REFORM THE LINE. [Pl. 54.]

Advance by the centres of companies. Companies—Inward—FACE.
[Fig. 1.]

Each company faces towards its centre, and the centre files form to the front.

MARCH.

Companies advance as in the drill for a single company, carefully preserving the intervals and dress from the right.

TO REFORM THE LINE.

Companies into line—MARCH. [Fig. 2.]

Companies form line, as in the company exercise, close in to the centre, and are dressed to the right. The leading guides face to the right.

Guides—Post.

Advancing thus to the front by the centres of companies, a column of companies, right in front, could be formed by commanding

Companies—On right into line—MARCH. [Fig. 3.]

Left in front by commanding

Companies—On left into line—MARCH.

The formation of the several companies being the same as for a single company in the company exercise.

Fig. 3.

"Companies on right into line—March."

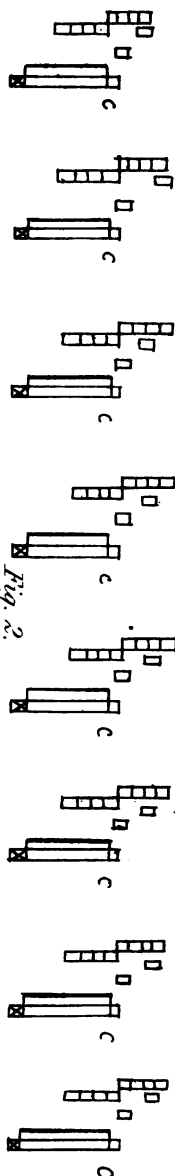


Fig. 2.

"Companies into line—March."

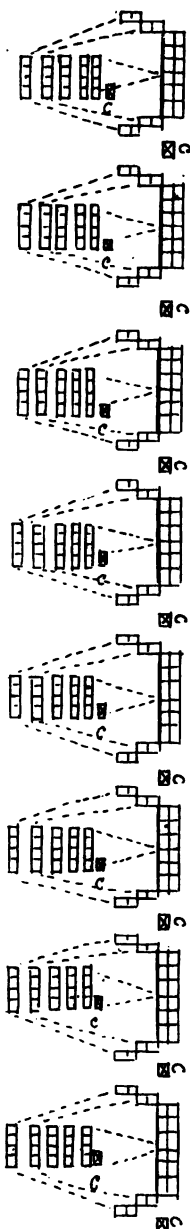
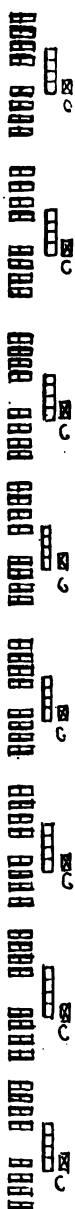


Fig. 1.

"Advance by the centres of companies—Companies inwards face—March."



XXIII. TO RETIRE BY THE RIGHT (or LEFT) OF COMPANIES, AND REFORM THE LINE.

Retire by the right (or left) of companies.

Battalion—By the right (or left) flank—Right (or left)—FACE.

Executed on principles corresponding to the advance by a flank.

TO REFORM THE LINE, command

Companies—Rear into line—MARCH.

At which the several companies reform into line, as in the case of a single company. The leading guides face to the right (or left), and the companies are dressed in the same direction.

Guides—Post.

XXIV. TO RETIRE BY THE CENTRES OF COMPANIES, AND REFORM THE LINE.

Retire by the centres of companies.

Companies—Inward—FACE—MARCH.

Executed by the several companies, as for a single one. Regard being had to dress and interval from the right company.

TO REFORM.

Companies—Rear into line—MARCH.

Executed as for a single company. Leading guides face towards the right. The companies close to the centres and dress to the right.

Guides—Post.

XXV. TO ADVANCE OR RETIRE IN LINE.

[Pl. 55.]

TO ADVANCE IN LINE.

The colonel stands in rear of the centre of the battalion, behind the color sergeant, and establishes the lieutenant-colonel on a line passing through himself and the color sergeant, and perpendicular to the battalion. [Fig. 1.]

Battalion—FORWARD.

The color rank, *i. e.*, the color sergeant and color-bearers, step six paces to the front; the color-guard replacing it in the front rank. The lieutenant-colonel establishes the front rank in the line of direction to the front. Two guides or markers take post six paces in front of the flanks of the battalion, and dress on the color-rank.

The lieutenant-colonel now takes post somewhat to the right and front of the right centre company, and the major to the left and front of the left centre company, which they endeavor to keep correctly aligned as a basis.

MARCH. [Fig. 2.]

The entire battalion steps off and keeps the touch and dress to the centre. The color sergeant carefully marches directly to the front, seeking for masking objects on which to direct his steps, whilst the guides or markers on the flanks dress on him, and the companies keep six paces distant from their line.

When advancing to a charge, at the distance of ten paces from the enemy, the colors and guides resume their places in line, and the field and staff officers and music take post in rear of, and opposite to their respective places in front.

TO RETIRE IN LINE.

Battalion—About—FACE. *Battalion*—FORWARD.

Color-rank, guides, and markers are posted as before, six paces in advance the line of file closers. Covering guides step into the line of file closers. Captains take their places.

MARCH.

The success of the movement depends mainly on the dress of the file-closers.

TO REFORM TO THE FRONT.

Battalion—**HALT**—*About*—**FACE**.

Colors, guides, markers, captains, field, staff, and music resume their places in line.

Guides—**ON THE LINE** (or *Colors and guides*—**ON THE LINE**).

[Fig. 3.]

Centre—**DRESS**—**FRONT**—*Guides*—**POST**.

XXVI. TO PASS OBSTACLES WHEN ADVANCING IN LINE. [Pl. 56, fig. 1.]

1. BY A SINGLE COMPANY.

—*company*—**Pass obstacle**.

The captain of the company named throws himself two paces in front; and, if of the right wing, commands—*company*—**By the left flank, by file right**—**MARCH**.

The company faces towards the flank indicated, and files in after the two right files of the company next on the left. The captain marches by the side of the covering guide, who steps into the front rank. Should the company named be of the left wing, it faces to the right, and files to the left after the two left files of the company next on the right.

TO BRING THE COMPANY INTO LINE,

—*company*—**Into line**—**MARCH**.

At which the company forms front into line, by coming up diagonally, as in the company exercise.

REMARKS.—The interval left by a left company, passing an obstacle by the flank, must be carefully kept by the captain of the com-

pany next on the left; that made by a right company passing obstacle must be kept by the left guide of the company next on the right, who moves up to the front rank of his company for that purpose.

2. BY MORE THAN ONE COMPANY.

Thus if the obstacle occur before the four left companies,

Four left companies—By the right flank—To the rear into column.

The captains of those companies take post in front of the right of their companies, and caution to face to the right.

Quick—MARCH.

These companies face to the right, and led by their respective captains disengage to the rear, and marching in quick time, form open column in rear of the left company not broken off.

As each company arrives in column, its captain commands

Front—MARCH—Guide left.

TO REFORM LINE. [Pl. 56, fig. 2.]

Rear companies—Into line.

Captains of rear companies respectively command—*company—By the right flank—By file left—Quick—MARCH.*

The companies are led by their captains towards the points to be occupied by the rights of their companies respectively. Within two paces, they form front into line, as with a single company, and recover the touch, dress, and step of the battalion.

REMARKS.—When retiring in line, obstacles are passed by a single company, by filing in rear of the outer flank of the company next towards the centre; by two or more companies by forming open column of companies, rear rank leading, in rear of company next towards the centre.

When the color company has to pass an obstacle, it forms in rear of the right files of the company on the left. The colors retire to the ranks of the company by the command from the colonel, and resume their places in front the line, when the company is brought up again.

If the advancing battalion, with a company broken off, has to re-

To advance in line and correct the alignment.

Pl. 55.

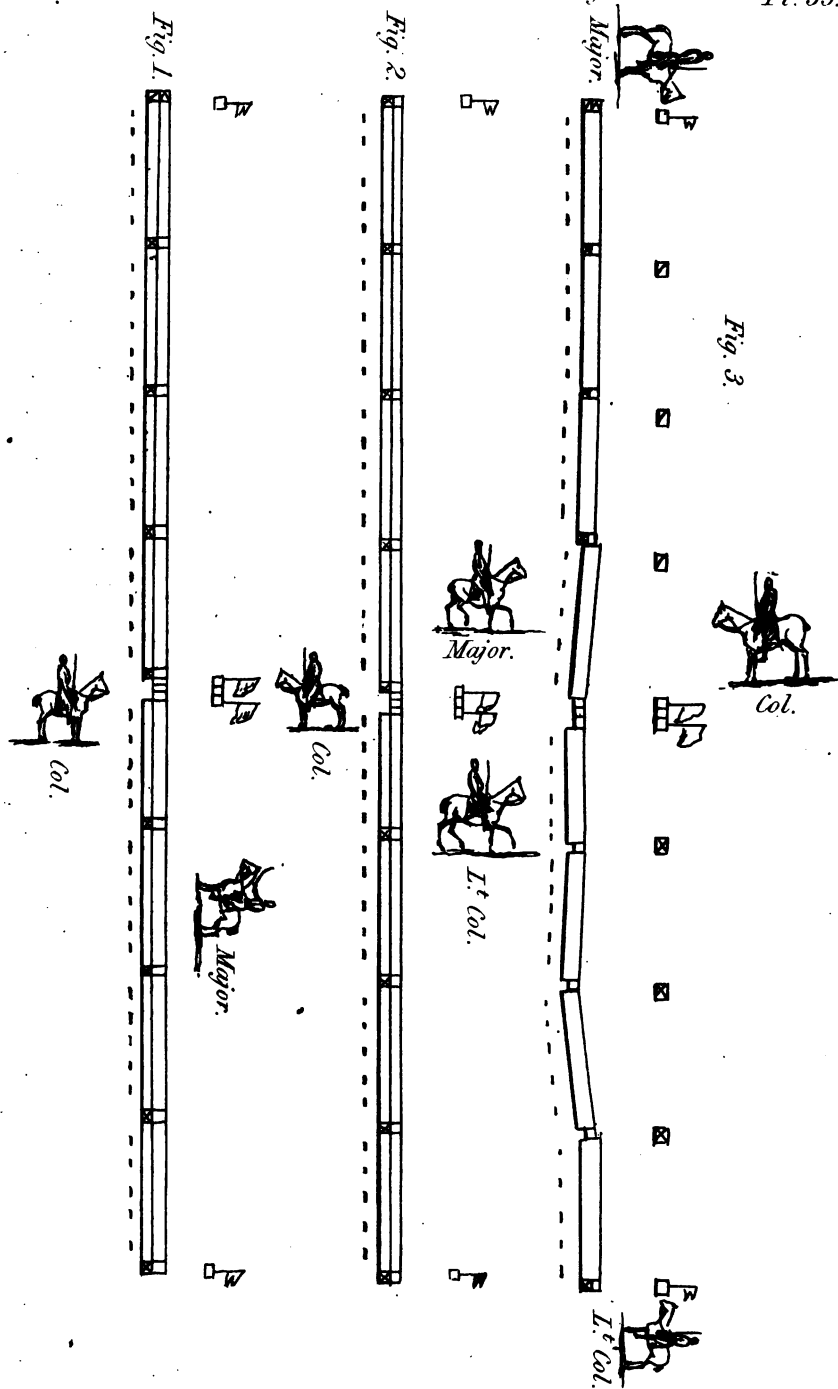
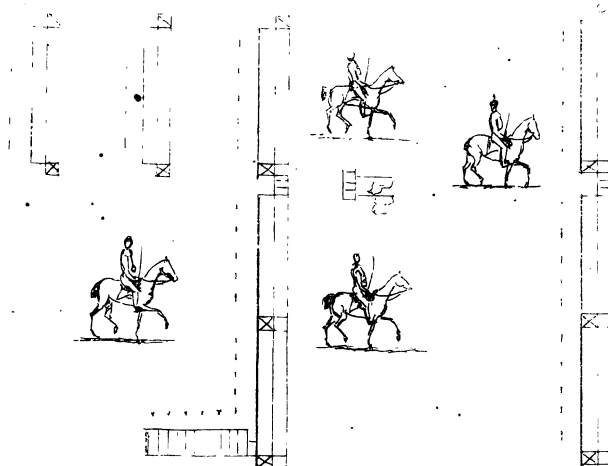
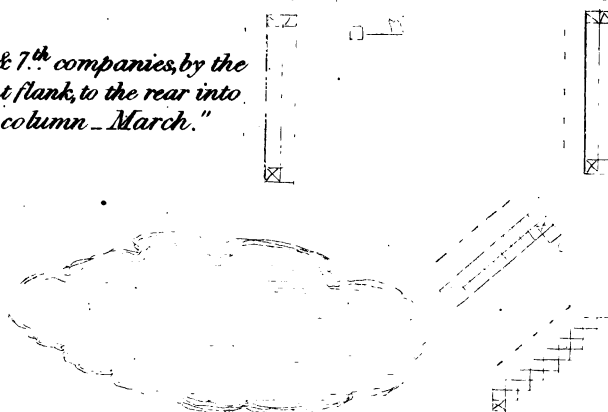


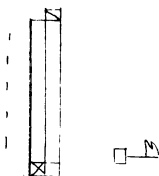
Fig. 1.

Fig. 2.

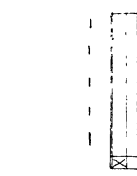
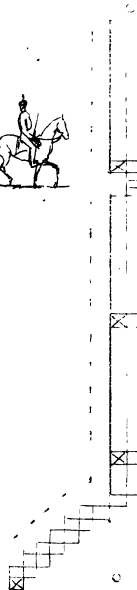
"6th & 7th companies, by the right flank, to the rear into column - March."



"2nd company, pass obstacle - March."



"Rear companies into line - March."



tire, and that company cannot be brought up into line, then it does not face about with the battalion, but stands fast, except the leading files, which break towards the space left vacant by the company. When the battalion is put in motion, in retreat, that company countermarches, and forms in front (now become the rear) of the files behind which it was before marching.

XXVII. TO HALT A BATTALION ADVANCING IN LINE, AND ALIGN IT.

Battalion—HALT.

If it is not intended to advance again or to give a general alignment, the colonel commands

Colors and guides—POST.

He may then cause the line to be aligned generally by commanding

Captains—Rectify the alignment.

The captains first align themselves correctly on the central basis under the supervision of the field officers, then align their respective companies. Should a company be some distance in advance of the line, face it about and march it to the rear of the line before aligning it.

To effect a more particular alignment, the colors and guides are not ordered from the front, but are established on the desired line; then command

Guides—ON THE LINE. [Pl. 55, fig. 3.]

Right guides of the right wing and left guides of the left wing place themselves on the line, facing the colors and covering the general guides. The captains of the right wing shift to the left of their respective companies; the captain of the left company of that wing does not shift, but steps into the rear rank.

Battalion—Centre—DRESS.

Companies step off together and are accurately aligned by their

captains, those of the right wing to the left, those of the left to the right.

Colors and guides—POST.

XXVIII. TO MARCH THE BATTALION BY A FLANK.

Battalion—By the right flank—Right—FACE.

Forward—MARCH. [Pl. 57, fig. 1.]

At the word *forward*, the right guides take the places of their captains, who take post at the left elbows of these guides. The lieutenant and guide on the left of the battalion remain in their respective ranks.

When faced to the left and the command *forward* is given, the captains and right guides remain in and face with their ranks, whilst the guide on the left of the battalion takes post in the front rank, with the lieutenant at his right elbow. [Pl. 57, fig. 2.]

The lieutenant-colonel marches opposite the leading flank, and the major opposite the colors, six paces distant from the line.

File right (or left)—MARCH.

Executed in the same manner as for a single company. Markers are posted at the filing points.

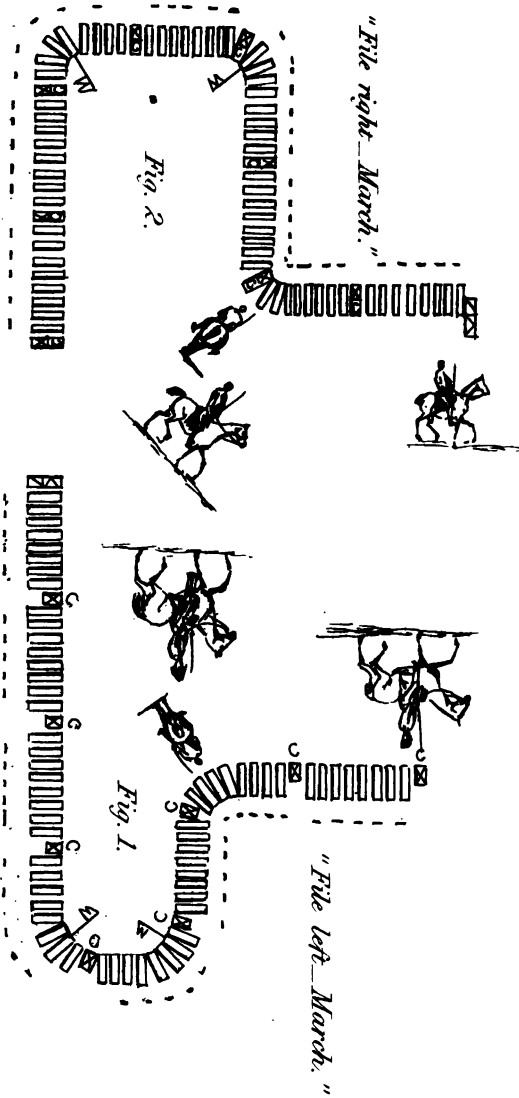
Countermarch—By file left (or right)—MARCH.

The march is continued through a half circle. This movement should always be to the left when marching by the right flank, to the right when marching by the left flank.

HALT. *Front—FACE.*

Companies—Right—DRESS. Or, *Rectify the alignment.*

Marching by the right or left flank and filing.



"Batt. by the left flank, left face—forward March."

"Battalion by the right flank, right face—forward March."

XXIX. MARCHING BY THE RIGHT FLANK, TO FORM LINE FACED TO THE RIGHT. [Pl. 58.]

The lieutenant-colonel places markers at the points where the right and left of the leading company will rest. This line should be four paces behind the line of file closers.

On right—By file into line—[Fig. 1.]

And when the leading file is abreast the first marker—

MARCH.

The files successively move to the rear as in the company exercise. The left guide of each company, except the leading one, takes post on the line of guides abreast the point where the left of his company will rest.

Guides—Post.

The corresponding manœuvre by the left flank is executed in like manner by the commands, *On left—By file into line.* [Fig. 2.] Here, however, all the captains at that command pass to the heads of their companies, whilst the lieutenant on the left passes into the line of file closers. The right guides, except that of the leading company, come out on the line of guides.

XXX. FORMATION OF SQUARE. [Pl. 59.]

To form square, close an open column to half distance. If practicable, a column of attack, or at least one of grand divisions (two companies) should be formed. [Fig. 1.]

The battalion being disposed in column, whether of companies, of grand divisions, or of attack, command—

Form square—[Fig. 2.]

Chief of the leading division cautions *stand fast*. Chiefs of the

right sub-divisions of the interior divisions command *right wheel*. Chiefs of the left sub-divisions of the interior divisions command *left wheel*. Chief of the rear division commands *forward*.

MARCH.

The several divisions and sub-divisions move as ordered. The rear division comes up to the ground before occupied by the preceding one, *halts* and *faces about*, by order of its chief. Field and staff officers, music, colors, &c. take post within the square. [Fig. 3.]

If preferred, the sub-divisions of the interior divisions could face to the right and left, or outwards, at the command *form square*, and at the command *march*, break off and form into line as in the company exercise.

XXXI. TO REDUCE SQUARE.

Reduce square—

Chief of the leading division commands *forward*. Chiefs of the right sub-divisions of the interior divisions of the column face them to the left, and command *file left*. Chiefs of the left sub-divisions of the interior divisions of the column face them to the right, and command *file right*. Chief of rear division commands *about—face*.

MARCH.

The several divisions and sub-divisions execute the commands. The leading one halts at half column distance ahead. The sub-divisions of the interior divisions close in to the centre and face to the front.

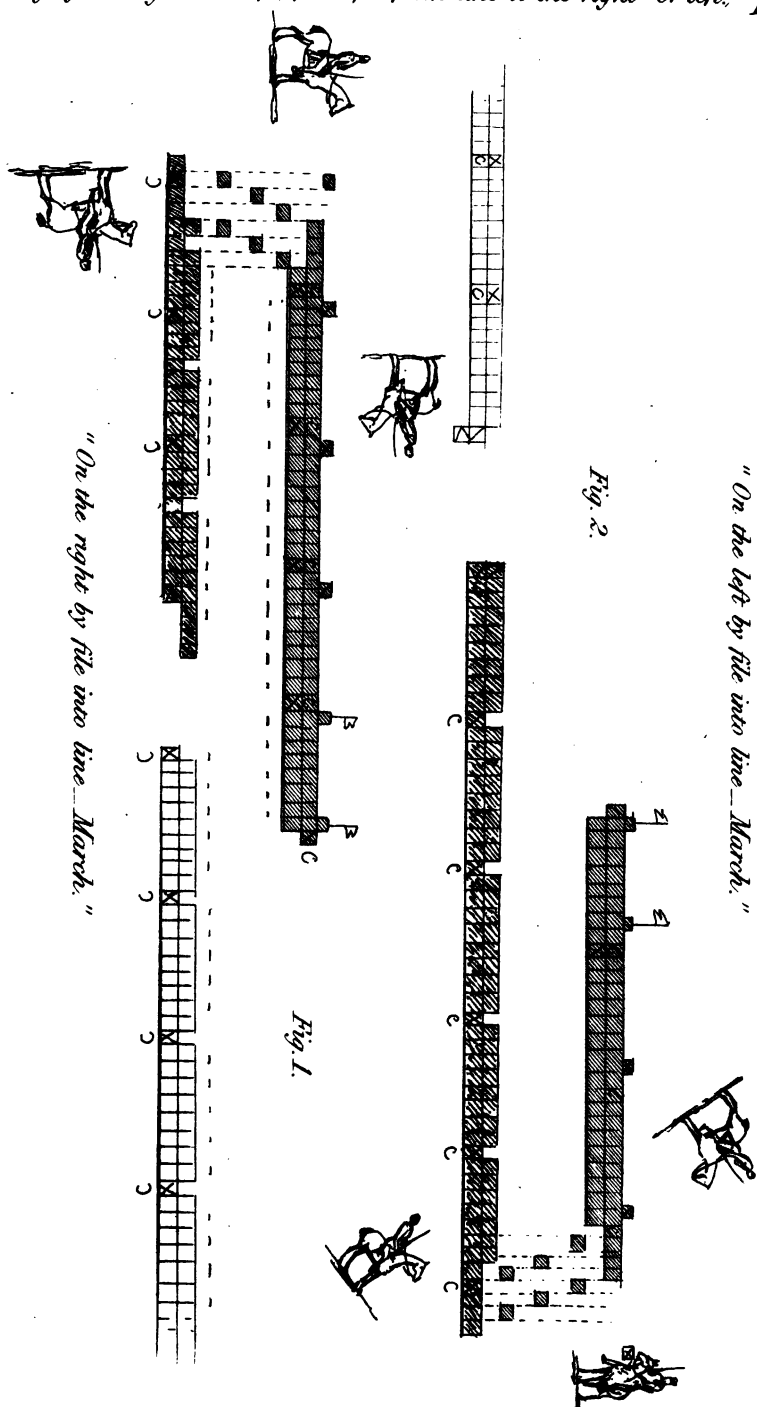


Fig. 2.

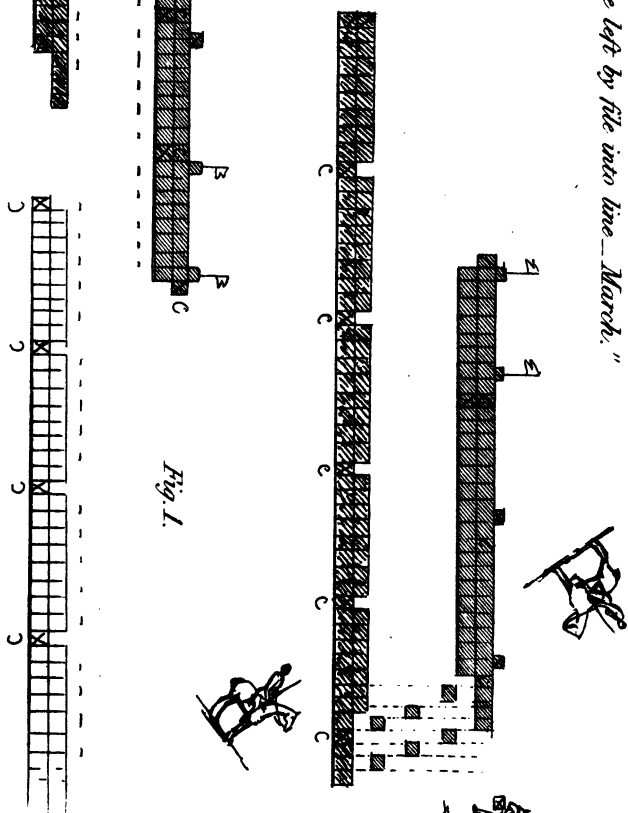


Fig. 1.

"Form square March."

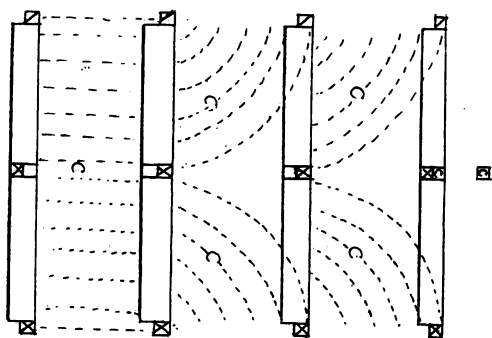


fig 2.

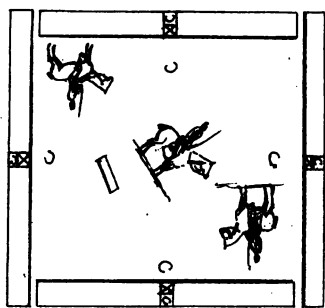


fig 3.

A Square formed.

"Form grand divisions."

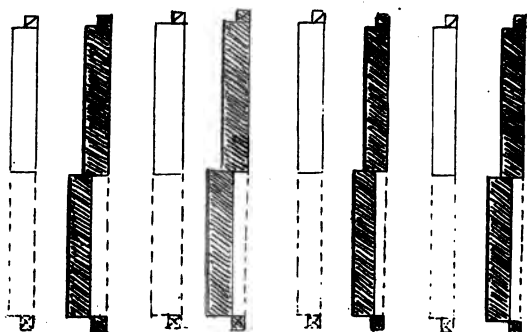
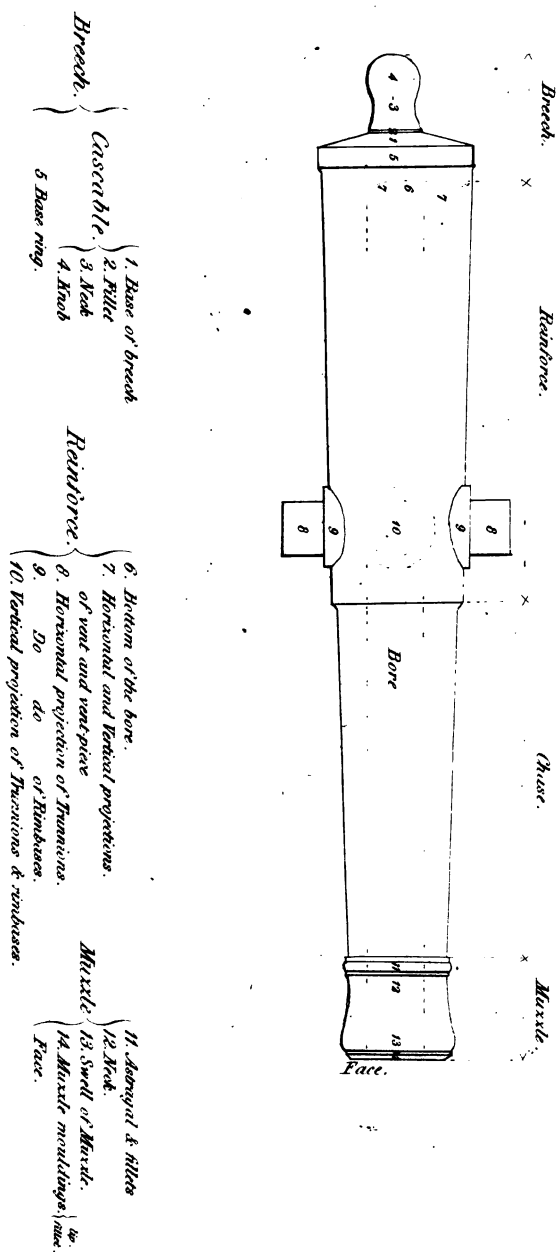


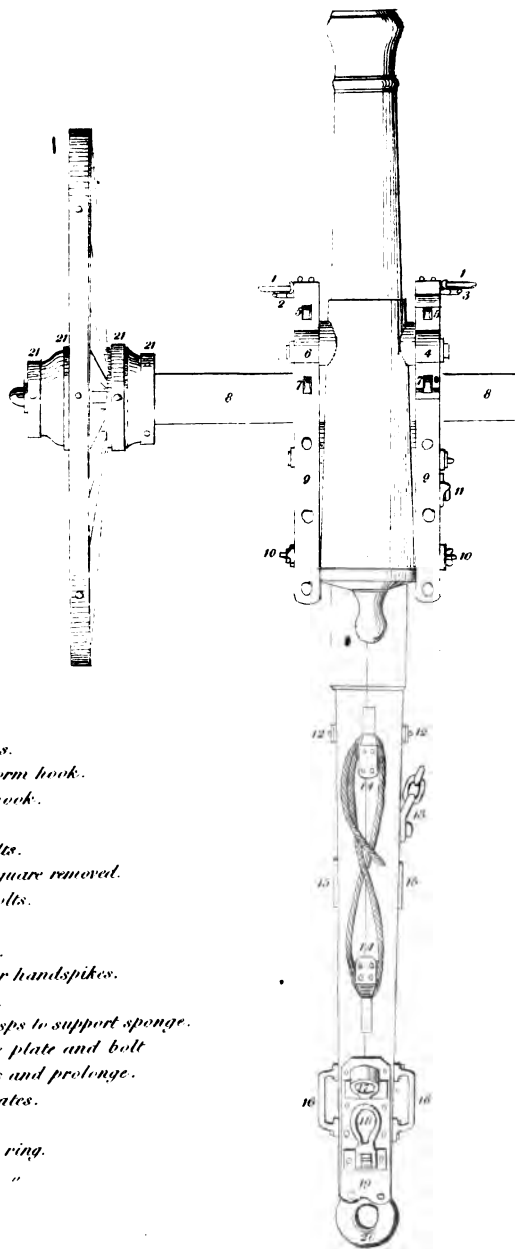
fig 1

PART III.

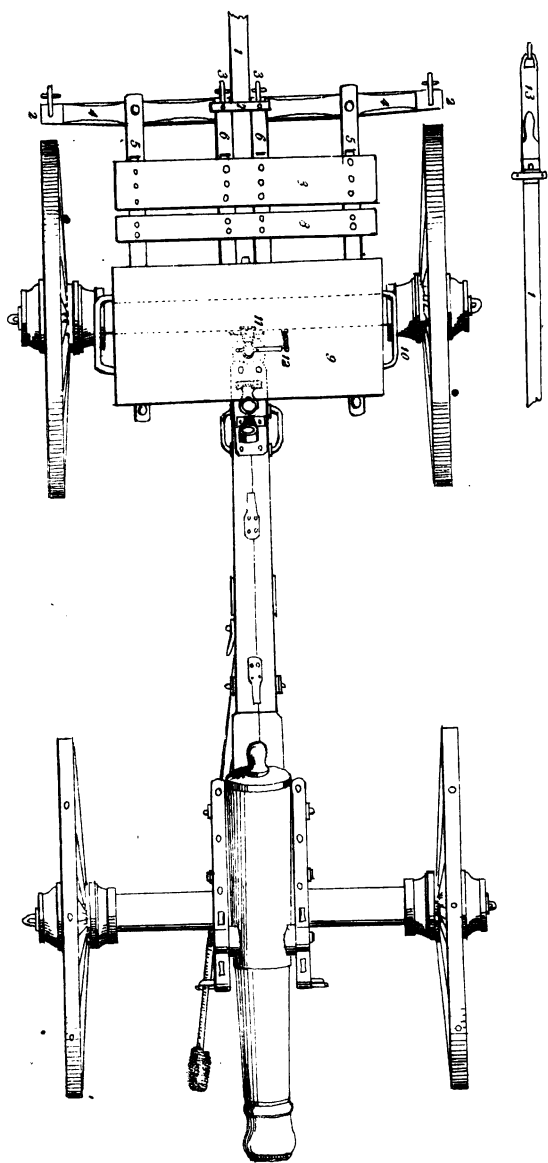
FIELD ARTILLERY WITHOUT HORSE.



Horizontal Projection of a 6 Pdr. Gun carriage Pl. 62.



1. Hand spike rings.
2. Sponge and worm hook.
3. Right sponge hook.
4. Cap square.
5. Head of key bolts.
6. Transom cap square removed.
7. Head of chin bolts.
8. Arle body.
9. Transom plates.
10. Washer hook for handspikes.
11. Linstock socket.
12. Eye plates & hasps to support sponge.
13. Lock chain Eye plate and bolt.
14. Prolonge hooks and prolonge.
15. Wheel guard plates.
16. Trail handles.
17. Small pointing ring.
18. Large. " "
19. Trail plate.
20. Lance.
21. Nave bands.



- | | | |
|---------------------------------|------------------|----------------------------|
| 1. Pole. | 4. Splinter bar. | 9. Ammunition chest. |
| 2. End hands of splinter bar | 5. Hounds. | 10. Handles of amm. chest. |
| and butt hooks. | 6. Fork. | 11. Fiddle hook. |
| 3. Middle hands of splinter bar | 7. Fork strap. | 12. Fiddle hook key. |
| and butt hooks. | 8. Foot boards. | 13. Pole strap. |

FIELD ARTILLERY.

EXERCISES WITH THE SINGLE PIECE.

I. FORMING.

THE crew falls in two deep, in close order, as in the following table. Of these, nine, including the two captains of the gun and the powder boy, are required for the manual of the piece. The others assist in moving the piece, and replace disabled men.

The officer acting as *chief of the piece*, who would usually be a warrant officer, or at his order the 1st captain of the gun, tells off the crew from the right as follows:—

FRONT RANK.

2d captain of the gun.
1st loader.
1st port-fireman.
1st shot and wadman.
2d loader.
2d port-fireman.
1st supernumerary.

REAR RANK.

1st captain of the gun.
1st sponger.
1st ventman.
2d shot and wadman.
2d sponger.
2d ventman.
2d supernumerary.

Powder boy.

The officer acting as *chief of the piece* takes his station in front of and opposite the centre of the crew, distant two paces.

The crew is brought two yards in front of the tongue of the limber *limbered up*, and is then said to be formed *in line in front*; or it may be, two yards in rear of the muzzle, termed *in line in rear*; in either case facing these points and having the centre directly opposite thereto.

TO FORM THE ORDER OF MARCH.

1st. THE CREW BEING IN LINE IN FRONT. The officer acting as chief commands:

Crew to your stations.

The front rank faces to the left, and the rear rank to the right.

MARCH.

The ranks led by the 1st and 2d captains respectively, file to the right and left, and march to their stations; each man halting at his station as given in Art. II.

2d. THE CREW BEING IN LINE IN REAR. The officer acting as chief gives the same commands, but the ranks face to the right and left and file to the left and right respectively.

TO FORM LINE.

1st. From the ORDER OF MARCH to IN LINE IN REAR.

Crew to the rear—MARCH.

The ranks face to the rear, and form in rear of the muzzle in order as before.

2d. From the ORDER OF MARCH to IN LINE IN FRONT.

Crew to the front—MARCH.

The ranks face to the front, and form before the tongue.

3d. From IN LINE IN FRONT to IN LINE IN REAR.

Crew to the rear—MARCH.

The ranks face to the left and right and file to the right and left respectively, and marching on their respective sides of the piece from in rear.

4th. From IN LINE IN REAR to IN LINE IN FRONT.

Crew to the front—MARCH.

The ranks face to the right and left and file to the left and right respectively, and marching on their respective sides of the piece form in front.

II. STATIONS OF THE CREW.

1st. WITH THE PIECE LIMBERED.

1st sponger on the left	{	of, and opposite to the muzzle, facing it and two feet outside the wheels.
1st loader on the right		
1st ventman on the left	{	of, and opposite the knob of the cascable, dressing on 1st sponger and 1st loader.
1st port-fireman on the right		
1st captain of the gun on the left	{	of, and opposite the rear of the limber wheels, dressing on 1st sponger and 1st loader.
2d captain of the gun on the right		
1st shot and wadman on the left	{	of, and opposite the front of the limber wheels.
2d shot and wadman on the right		
2d sponger	{	of, and arranged along the tongue in the order in which their names stand; all dressing on the 1st sponger and 1st loader.
2d ventman		
1st supernumerary		
Powder boy		
2d loader	{	on the right
2d port-fireman		
2d supernumerary		

The officer acting as *chief* takes station on the left of, and opposite to the end of the tongue or pole.

2d. WITH THE PIECE UNLIMBERED.

1st sponger on the right	{	of, and opposite the muzzle, two feet outside the rim of the wheel.
1st loader on the left		
1st ventman on the right	{	of, and opposite the knob of the cascable; dressing on 1st sponger and 1st loader.
1st port-fireman on the left		

1st captain of the gun at the end of the trail handspike.

2d captain of the gun on the left of, and opposite to the middle of the handspike, dressing on 1st loader.

Powder boy on the left and half way between the piece and limber, dressing on 1st loader.

1st shot and wadman on the right { and in rear of the ammunition
 2d shot and wadman on the left { box of the limber.

The officer acting as *chief* in rear of the piece, half way between the piece and limber, or elsewhere if required.

2d sponger	}	on the left of and along side the tongue.
2d ventman		
1st supernumerary		
2d loader	}	on the right of and along side the tongue.
2d fireman		
2d supernumerary		

Should there be a caisson with the piece, one or more of the supernumeraries will be sent to it, and will assist in keeping up the supply of ammunition.

NOTE.—With the piece limbered, the *front* is towards the *tongue*.
 With the piece unlimbered, the *front* is towards the *muzzle*.

III. DISTRIBUTION OF EQUIPMENTS.

The 1st and 2d captains distribute the equipments at the command from the officer acting as chief, *Take equipments*; and replace them at the command, *Replace equipments*.

The 1st *ventman* takes the tube box, which he buckles about his waist; he puts the thumb-stall on his left thumb, and his right thumb through the ring of the priming wire, or hangs it on his right wrist.

1st *port-fireman* takes the port-fire case, if one is used, which he hangs from the right shoulder to the left side.

1st shot and wadman,	}	each take a passing-box.
2d shot and wadman,		
Powder boy,		

The 2d *captain* wears the notched sight about his neck.

When *bricoles* are used, they are worn from the left shoulder to the right side over the other equipments by all except the 1st and 2d *captains*, 1st and 2d *shot and wadmen* and *powder boy*, and such supernumeraries as may be at the caisson.

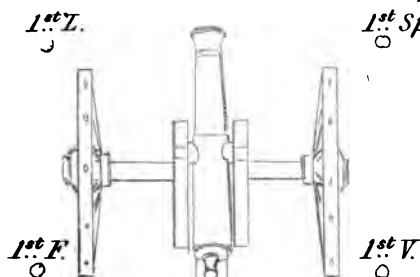


fig 2.
Unlimbered.

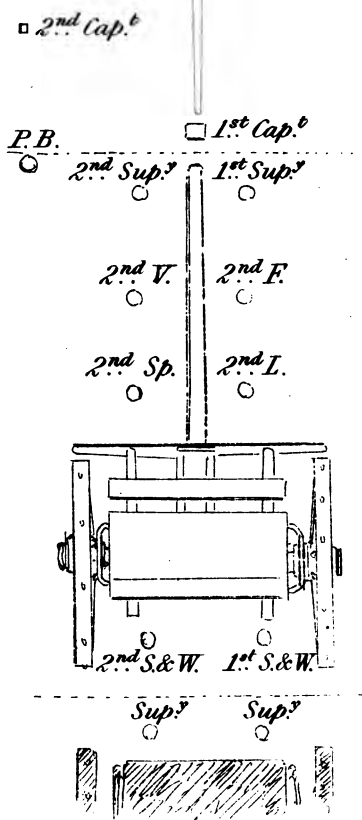
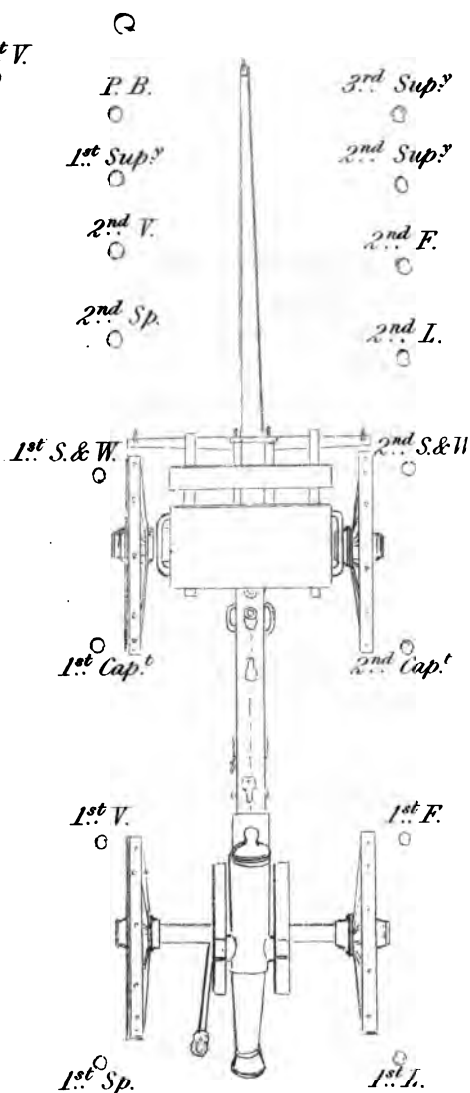


fig 1.
Limbered.



Drag ropes, when used, are carried by the supernumeraries, or such other spare men as may be designated by the officer acting as chief of the gun.

IV. UNLIMBERING AND COMING INTO ACTION. [Pl. 66.]

1. TO THE FRONT. [Fig. 1.]

The officer acting as the chief commands

Action—FRONT.

1st captain unkeys, and assisted by the 2d captain, raises the trail from the pintle, and then commands, FORWARD. 1st and 2d shot and wadmen at the end of the tongue, assisted by the auxiliaries, move the limber to the left about, then to the rear, slightly inclining to the right, then again to the left about, and bring it directly in rear of the piece, the tongue towards the gun, and distant six yards from the end of the trail handspike. At the same time that the limber is carried off, the 1st sponger and 1st loader bear down on the muzzle, the 1st and 2d captains raise the trail by the handles, and the 1st ventman and 1st port-fireman seize the wheels next them. Thus manned, the right wheel is turned back, and the left forward, and the piece is carried about with the muzzle to the front.

As soon as it is brought about, the trail is lowered. The 1st port-fireman removes the handspike from its rings and passes it to the 1st captain, by whom it is fixed in the trail.

The 2d captain levels the gun; 1st loader takes out the tompion; 1st ventman lays off the apron, uncoils the lanyard, and cleans out the vent. All then take their stations.

2. TO THE REAR. [Fig. 2.]

The officer acting as chief commands

In—BATTERY.

At this command the piece is unlimbered as before, but the limber without first going about is carried to the rear inclining to the right,

and brought to the left about with the tongue towards the piece. The piece remains in its place, and the handspike is fixed.

3. TO THE RIGHT OR LEFT. [Figs. 3 and 4.]

The officer acting as chief commands:—

Action—RIGHT (or LEFT).

The piece is unlimbered, and placed in the required direction, whilst the limber wheels to the *left* (or *right*), and takes its place in rear by reversion to the *left* (or *right*).

CAISSON.

In action front, the caisson goes to the left about, moves to the rear, and at the proper distance comes again to the left about.

In action to the rear, it passes the piece by the right, moves on to its proper distance, and comes to the left about.

In action right (or left), it wheels to the left (or right), moves on and takes up its proper position by coming to the left about.

REMARKS.—Unlimbered, the tongue (or leading horse) of the caisson is eleven yards from the limber box.

In each of the above cases, so soon as the piece is unlimbered, the handspike is entered by the 1st captain, and the 2d captain removes the apron and levels the gun.

V. LIMBERING. [Pl. 67.]

1. TO THE FRONT. [Fig. 1.]

The officer acting as chief commands

Limber to the front—LIMBER UP.

The piece is brought about as in *unlimbering in action front*: the handspike is then removed by the 1st captain of the gun, and passed to the 1st port-fireman, who puts it up.

fig 1.

"Action front."

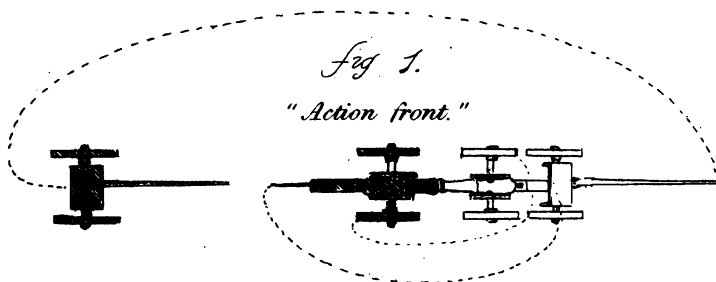


fig 2. "Action rear"
"Unlimber."



fig 3.
"Action right."

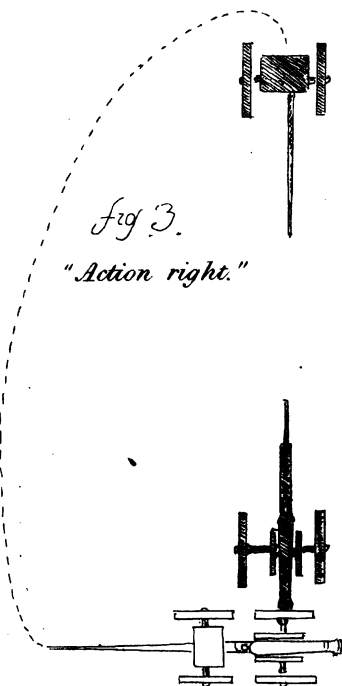


fig 4.
"Action left."

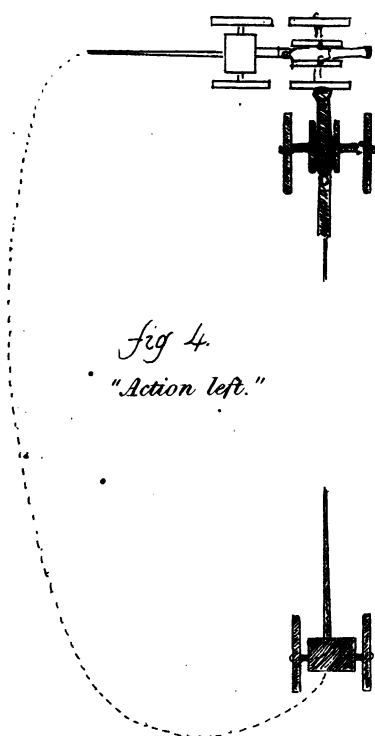


Fig 1.

"Limber to the front—limber up."

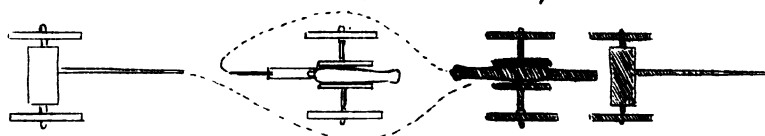


Fig. 2.

Limber to the rear—limber up."

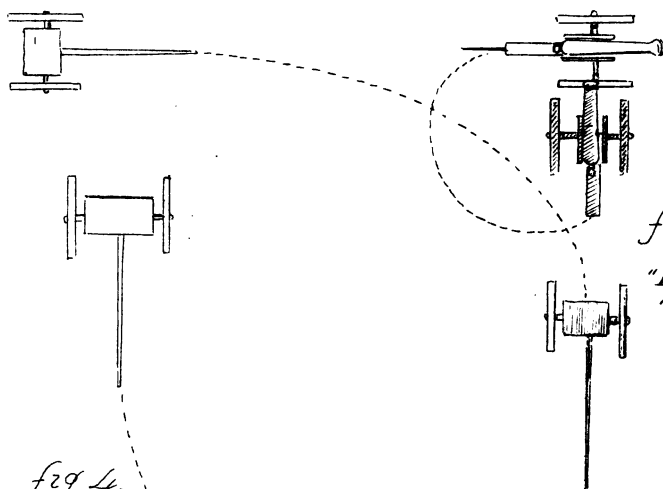
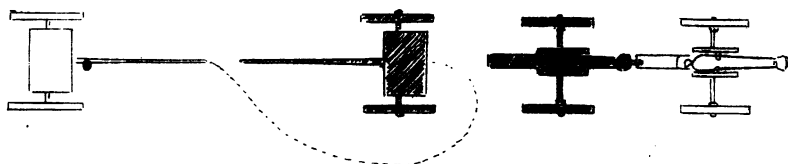
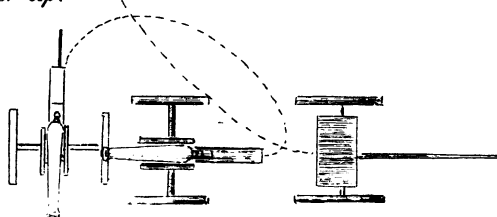


fig 3.

"Limber right."
"Limber up."

fig 4.

"Limber left—"
"Limber up."



The limber, manned as in unlimbering, passes the piece by the right, inclines to the left, and is brought in front of the piece, backing if necessary.

When the limber is at its proper position, the 1st captain commands HALT—LIMBER UP—upon which the limber halts; 1st and 2d captains raise the trail by the handles, assisted by the 1st sponger and 1st loader, who bear down at the muzzle; 1st ventman and 1st port-fireman at the wheels, together with the 1st and 2d captains, 1st sponger and 1st loader, run the piece forward and throw the lunette over the pintle bolt; 2d captain keys; and all take their proper stations at the piece limbered up.

2. TO THE REAR. [Fig. 2.]

The officer acting as chief commands

Limber to the rear—LIMBER UP.

The piece is not moved, but the handspike is taken out and put up. The limber is brought on the right side, then wheeled to the left about and backed up to the trail. The piece is then limbered up as before.

3. TO THE RIGHT (or LEFT). [Figs. 3 and 4.]

The trail is thrown to the right (or left), and the limber brought in front of it, after which the handspike being put up, the piece is limbered up as before.

CAISSON.

In limbering to the front, the caisson closes up to half distance.

In limbering to the rear, it stands fast unless ordered to move, or to go about.

In limbering to the right (or left), it advances, wheels to the left or right and establishes itself at the proper distance in rear of its piece.

VI. SERVICE OF FIELD ORDNANCE.

For the instruction of new men, the loading and firing should be executed by detail, the leading features of which are the same as in the general service of field ordnance. The officer acting as chief of the piece gives the commands, and superintends their execution.

1. TO LOAD BY DETAIL.

Load by detail—

PREPARE TO LOAD.

1st sponger obliques first to the right and then to the left, and brings his person just opposite the muzzle and half way between the piece and the wheel. He now takes the sponge from its hooks, and holds it in both hands, sponge head inward, handle horizontal, right hand up, left down. He carries the right foot thirty inches to the right, bends the right knee, raises both hands until the handle of the sponge is as high as the bore of the piece, and slips the left hand up to the rammer head. [Pl. 68, fig. 1.] He brings the sponge head to the face of the muzzle and stands ready to enter it, with the back of the right hand up, that of the left down.

1st loader obliques first to the left and then to the right, and takes his station just abreast the muzzle, half way between it and the wheel.

1st ventman steps up between the breech and wheel, unkeys the rammer, and holding the priming wire in the right hand, cleanses out the vent. After this he wipes off the vent field with the ball of his left thumb, which is covered with a thumb-stall, and then securely closes the vent with that thumb. In executing these duties, in order not to incommode the captains of the gun, he holds his elbow up and his fingers on the left of the piece. [Pl. 68, fig. 2.]

1st port-fireman takes the slow match from its socket, sticks it in the ground to his right and rear; then takes the port-fire stock from its socket with his right hand, and seizing the lighted end of the slow match with his left, blows the match.

If locks are used, he lays back the hammer, uncoils the lan-

Prepare to Load.

Pl. 68.

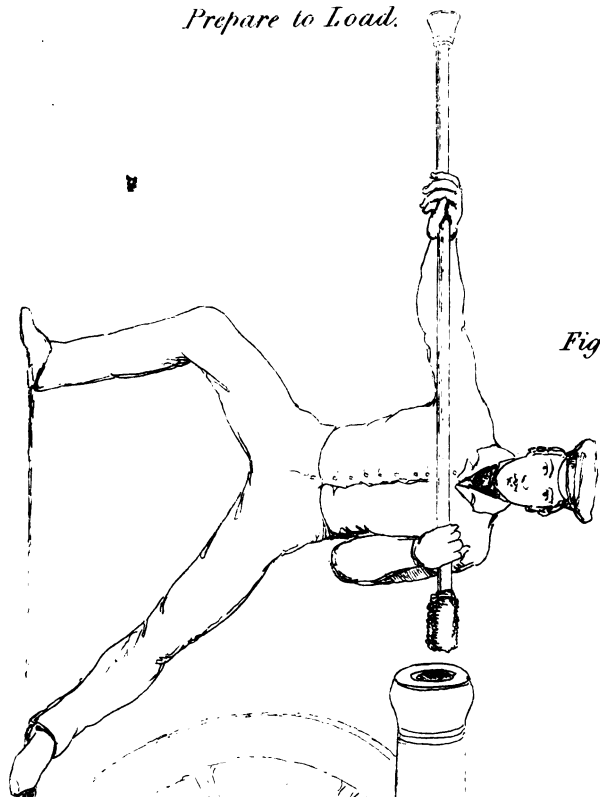


Fig. 1.

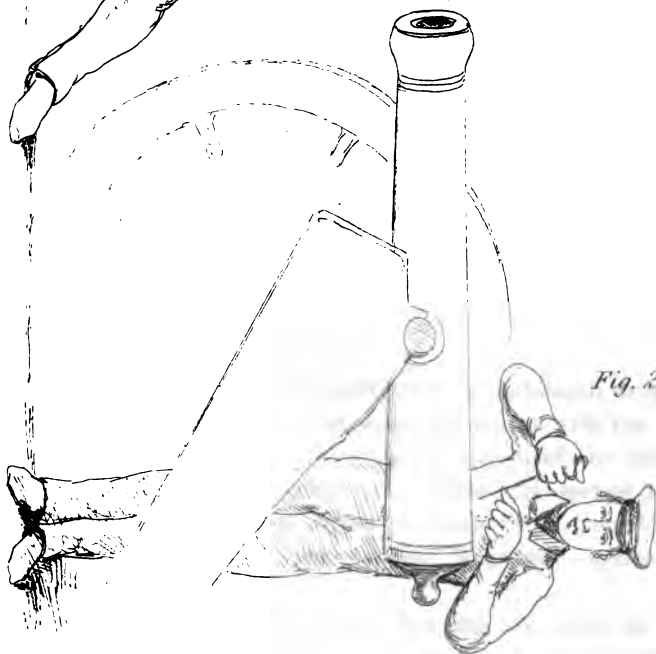


Fig. 2.

yard and handles it. If friction primers are used, he prepares the hook and string.

[Pl. 69, fig. 1.] *1st captain of the gun* places himself on the left of the handspike, seizes it at the end with the right hand, and supporting himself with the left hand at the centre, bends the right knee, looks over the top of the piece along the line of sights, directs the 2d captain to "elevate," or "depress," and moves the trail to the right or left till he brings the piece to bear.

[Pl. 69, fig. 2.] *2d captain of the gun* springs to the left side of the breech, and if quarter sights are used, places the left thumb nail on the proper notch; if tangent sights, puts the sight to the proper notch. To familiarize the men to the range and elevation he should name both. He next seizes a handle of the elevating screw with his right hand, draws back his right foot, bends his left knee, and elevates or depresses, as directed by the 1st captain, until the line of sights bears on the object.

Powder boy advances to meet the shot and wadmen, from whom he receives a passing-box with the proper charge, giving his own in exchange. If the ball is not fixed, it will be carried in the hand. He moves in a trot, and places himself in rear of the 1st loader.

1st and 2d shot and wadmen busy themselves in getting ammunition into the passing-boxes, and passing it to the powder boy. If there be a caisson, the supply will be kept up from it, by them and such supernumeraries as may be attached to it. Great care must be taken by them to keep the lid of the ammunition and passing-boxes open as short a time as possible.

Sponge.

[Pl. 70, fig. 1.] *1st sponger* inserts the sponge head, drops his left hand behind his thigh, holds his shoulders square with the piece, straightens his right knee, and throwing the weight of the body on the left leg, the knee of which is bent, forces the sponge to the bottom of the bore. He gives it two or more turns from him or with the worm, at the same time keeping it pressed against the bottom of the bore.

Next straightening the left leg and bending the right, he withdraws the sponge, seizes the staff near the sponge head with the left hand, the back of that hand up, and bringing the hands together

near the middle of the staff, giving it a cant at the same time, throws the sponge head over. The sponge is now held with the rammer head next the piece, the hands extended to the ends of the staff, the back of the left up, that of the right down.

Remaining in this position until the 1st loader has inserted the charge, he follows it with the rammer head, and carries the left hand to the right.

1st loader faces from the piece and takes the ammunition from the powder boy; then faces towards the piece, holding the powder behind him beyond the reach of sparks, and watches the withdrawal of the sponge. When the sponge is clear of the bore, he enters the ammunition entire, and stands ready to assist the 1st sponger if necessary.

[Pl. 70, fig. 2.] *1st ventman* keeps the vent securely closed until the sponge is fairly withdrawn, then uncovers, clears the vent with his priming wire, and again closes it.

1st port-fireman lights his port-fire. When this is accomplished, he faces towards the breech and holds the port-fire firmly in the right hand, nails up, port-fire stock touching the tire of the wheel, flame near the ground.

1st and 2d captains of the gun continue carefully to give the piece the proper elevation and direction.

Powder boy, standing near the 1st loader with the passing-box under his right arm, removes the cover with his left hand, so that the ammunition may be removed. When it is removed he returns to meet the shot and wadmen; striking the box, now held inverted, on the bottom, as he passes along, to remove such sparks as may have lodged there. Having received the full box, he returns to his station.

Shot and wadmen prepare other ammunition, and keep up the supply for the limber-box from the caisson. One of them advances at the proper time to meet the powder boy, with whom he exchanges a full box for the empty one.

LOAD.

1st sponger throws the weight of his body with the rammer, bends the left leg and rams home. The charge is pushed, but not driven violently to the bottom of the bore.

[Pl. 71, fig. 1.] Straightening the left leg he jerks out the rammer with his right hand, allowing it to slide through the hand to the



Fig. 1.

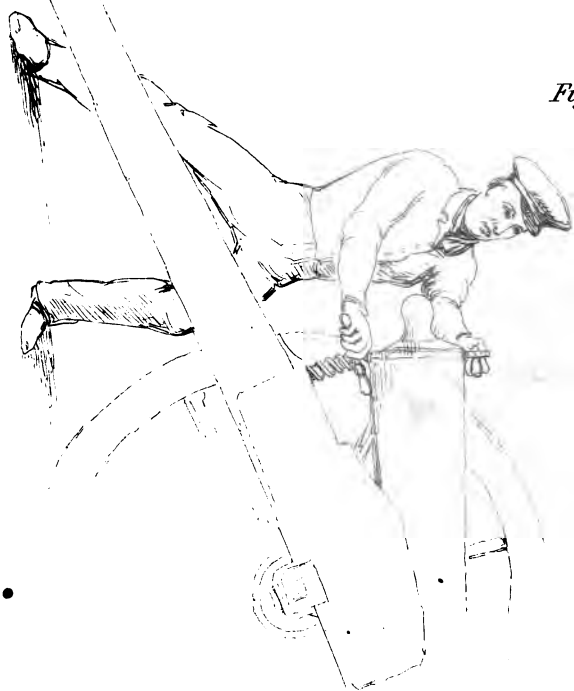
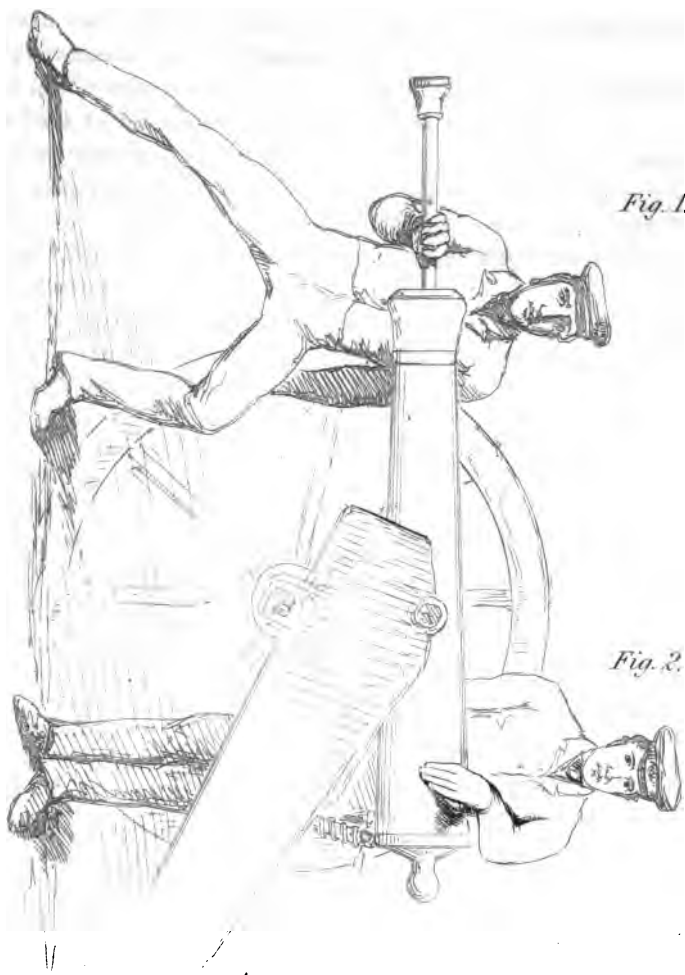


Fig. 2.



middle of the staff; then grasps it firmly with that hand, and seizes it close to the rammer head with the left, back of the left hand up; he places the rammer head just over the face of the muzzle, above the bore, and stands in that position until the 1st ventman feels for the charge. Should the 1st ventman call "*Home*," the 1st sponger gives the sponge head a cant with the right hand, at the same time quitting hold of the staff with the left, grasps the staff firmly with the right, holds it from him, and stepping back to his station, brings the rammer head down on his right toe. Should the 1st ventman call "*Ram home*," the rammer is again introduced, the charge rammed, and the rammer withdrawn, as before.

1st loader stands ready to assist the 1st sponger, if necessary, and steps back to his station at the same time with him.

1st ventman keeps the vent securely closed until the rammer is fairly withdrawn; then uncovers and feels for the charge. [Pl. 71, fig. 2.] Should he feel it, he calls "*Home*," and steps back to the station. Should he not feel the charge, he calls "*Ram home*," and again closes the vent.

After returning to his station, he opens the tube-box with the left hand, takes out a tube or primer with the right, and again closes the box with the left, holding the tube between the thumb and fore-finger of the right.

1st captain,	}	complete the duties assigned under the head <i>Sponge</i> , if not already executed.
2d captain,		
Powder boy,		
1st and 2d shot and wadmen,		
1st port-fireman,		

READY.

1st sponger,	}	stand fast.
1st loader,		
Powder boy,		
1st shot and wadman,		
2d shot and wadman,		

1st ventman steps up to the breech, passing the tube or primer into the left hand; he pricks with the right, and enters the tube or primer with the left hand, then places the left hand flat upon it.

1st *port-fireman* stands ready with the lighted port-fire. If a lock or hammer is used, he steps back with the right foot, until the lanyard is brought taut, it being led clear of the wheel.

1st *captain of the gun* springs to windward, or where he can have the best view of the effects of the fire.

2d *captain* takes his proper station.

FIRE. [Pl. 72.]

1st <i>sponger</i>	}	remain as in <i>Ready</i> .
1st <i>loader</i>		
2d <i>captain</i>		
<i>Powder boy</i>		
1st and 2d <i>shot and wadmen</i>		

1st *ventman* removes his hand from the vent and resumes his station.

1st *port-fireman* slowly raises his hand clear of the wheel, keeps the back of the hand down, brings the port-fire rather in front of the vent, and as soon as the 1st ventman is clear of the wheel applies the flame to the primer. He then lowers the port-fire and resumes his station.

When using a lanyard, he pulls strongly on it, as soon as the 1st ventman is clear of the wheel, and resumes his station.

1st *captain*, as soon as he shall have observed the effects of the fire, returns to his station, and (if ordered) runs up the piece to its former position. In this the other men at the gun will assist by laying hold of the wheels.

To continue the loading by detail, the command *Prepare to load* is given, on which the exercise goes on as before.

2. TO LOAD AND FIRE WITHOUT DETAIL.

The officer acting as chief of the piece commands

LOAD.

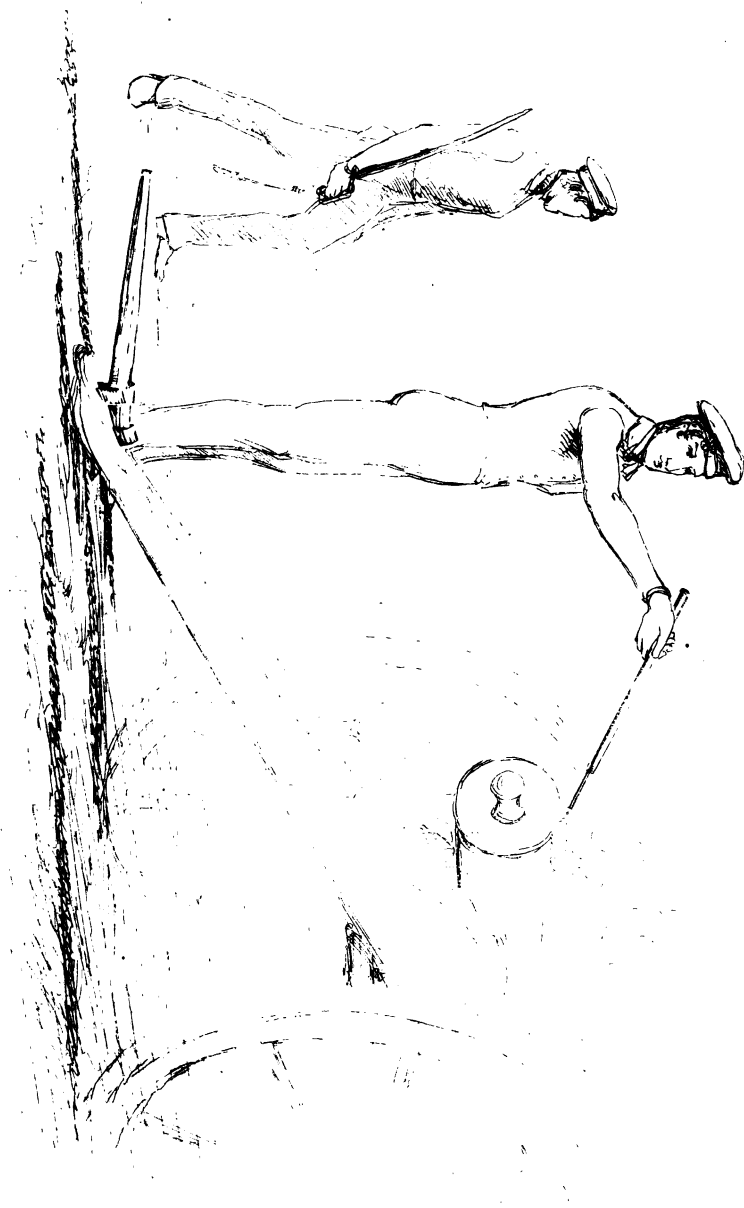
Which the 1st captain of the gun repeats. All the duties down to *Ready* are executed without further directions.

The 1st captain takes position to the right or left, to observe the effects of the fire, and commands



"Home" or "Ram Home."





READY.

Which being executed, the officer acting as chief, commands

FIRE.

3. TO LOAD AND FIRE IN ACTION.

The officer acting as chief of the piece commands

LOAD.

Which the 1st captain of the gun repeats. All the duties to *Ready* are performed as before.

The officer acting as chief of the piece, at the proper moment, commands

Commence—FIRING.

At which the 1st captain of the gun commands

READY—

FIRE.

As soon as the discharge of the piece is observed, the men step into their places and reload the gun without further orders, except, perhaps, as to the elevation by the 1st captain. The piece should be run up to its place after each discharge, if thought necessary by the chief.

The gun reloaded, the 1st captain, as before, commands

READY—

FIRE.

Should the officer acting as chief command *Commence firing* before *Load*, the 1st captain of the gun commands

LOAD.

And afterwards

READY—

FIRE.

In both cases, to suspend the firing, the officer acting as chief commands

Cease—FIRING.

Except when retiring with fixed prolonge, the piece, if loaded, should always be discharged after the command *Cease firing*, unless orders to the contrary are given. In no case should a piece be limbered up or dismounted without discharging it, or withdrawing the charge. Afterwards, to put up the implements.

1st *sponger* steps in between the muzzle and wheel, turns the staff so as to bring the rammer head to the rear, and places the sponge on its hooks; 1st *ventman* securing it in rear.

Should the sponging have begun before the command *Cease firing* is given, it is finished before the sponge is put up.

1st *loader*, should he have ammunition in his hands, delivers it to the powder boy who comes for it.

1st *ventman* receives the rammer head from 1st *sponger* and keys it.

1st *port-fireman* shifts the port-fire stock into his left hand, cuts off the lighted end, and replaces the stock in the socket. He also puts up the slow-match. If locks are used, he half-cocks or lets down the hammer, coils the lanyard around it, or unhooks it and carries it in his hand, as the mode of using it may require.

1st and 2d *captains* repeat the order, *Cease firing*.

Powder boy delivers the passing-box in his possession to the shot and wadmen.

Shot and wadmen return the ammunition in the passing-boxes to the limber-box, and secure the lid. They hang the boxes over the limber.

All return to their stations, as in Art. II. 2.

4. CHANGE OF PARTS AND STATIONS.

The officer acting as chief of the piece commands

Change Stations.

At which the men remove their equipments and lay them at their feet.

MARCH.

<i>1st sponger</i> takes the station and equipments of the <i>1st ventman</i> .			
<i>1st ventman</i>	"	"	<i>1st shot and wadman</i> .
<i>1st shot and wadman</i>	"	"	<i>2d shot and wadman</i> .
<i>2d shot and wadman</i>	"	"	<i>1st port-fireman</i> .
<i>1st port-fireman</i>	"	"	<i>1st loader</i> .

The 1st and 2d captains may be changed with each other, or with any of the men by special order.

The 1st and 2d parts may be changed by special order, and supernumeraries may be ordered to change with any of these parts.

5. SERVICE AND EXERCISE WITH REDUCED CREWS.

The second parts replace the first as fast as these last are disabled, the places thus left vacant being filled by supernumeraries, if there be any. When all the supernumeraries are exhausted, vacancies among the 1st parts are supplied by such 2d parts as may not have been required for the crew proper. When, finally, all the parts not enumerated in the service of the piece are exhausted, the distribution of duties is as follows:—

The 1st man disabled is replaced by the 2d shot and wadman, whose duties are added to those of the 1st.

The 2d man disabled is replaced by the 1st shot and wadman, the powder boy taking the ammunition from the limber-box and passing it to the 1st loader, who leaves his station and advances to meet the powder boy.

The 3d man disabled is replaced by the 1st port-fireman, whose duties are added to those of the 2d captain.

The 4th man disabled is replaced by the 2d captain; the 1st captain doing his own duties and those of the 2d captain and 1st port-fireman.

The 5th man disabled is replaced by the 1st ventman; the vent is now served by the 1st captain from the left side of the breech. The 1st captain also performs his own duties and those of the 2d captain. The port-fire or lock-string is passed to the right side of

the breech, and the 1st sponger having loaded the piece, lays the sponge head against the knob of the wheel, and fires off the piece.

The 6th man disabled is replaced by the 1st captain, whose three-fold duties are performed by the officer acting as chief of the piece.

Should all the men on one side of the piece be disabled at the same moment, every alternate man on the opposite side will pass over until some other means can be taken to fill the vacancies. Should it be found that the duties of powder boy and 1st loader cannot be filled by one individual, the chief of the piece will assist in the supply of ammunition, as in no case must the supply fail.

VII. TO MOVE THE PIECE BY HAND. [Pl. 73.]

1. TO THE FRONT—PIECE LIMBERED. [Fig. 1.]

The officer acting as chief commands

By hand—FORWARD.

1st shot and wadman advances to the end of the pole and forms a loop with the fore chains, the *2d shot and wadman* takes a handspike from the rings and passes it through this loop; both stand behind the handspike ready to guide the tongue.

1st and 2d captains place themselves at the chase.

1st and 2d spongers seize the spokes of the left hind wheel with both hands.

1st and 2d loaders seize the spokes of the right hind wheel with both hands.

1st and 2d ventmen seize the spokes of the left fore wheel with both hands.

1st and 2d port-firemen seize the spokes of the right fore wheel with both hands.

Supernumeraries seize hold of the pole and trace hooks.

Powder boy stands outside and on the left of the head of the pole, or, if so ordered, in advance of the pole.

MARCH.

All acting together, urge forward the piece.

2. TO THE FRONT—PIECE UNLIMBERED. [Fig. 2.]

By hand—ADVANCE.

1st and 2d captains stand ready to seize the end of the handspike.

<i>1st sponger and 1st ventman</i>	}	lay hold of the spokes of the wheels.
on the right		
<i>1st loader and 1st port-fireman</i>		
on the left		

2d sponger and 2d loader lay hold of the breast hooks.

2d ventman and 2d port-fireman stand at the breech ready to push.

1st and 2d shot and wadmen advance to the end of the pole and raise it.

Supernumeraries lay hold of the pole and trace hooks.

Powder boy stands in rear of the limber-box.

MARCH.

Acting together, all urge forward the piece. The limber follows at its proper distance. The trail is not raised unless necessity requires it.

3. TO THE REAR—PIECE UNLIMBERED. [Fig. 3.]

By hand—IN RETREAT.

1st and 2d captains facing to the rear, stand ready to raise the trail.

<i>1st and 2d ventmen</i> on the right,	}	facing towards the rear, lay hold of the spokes.
<i>1st and 2d port-firemen</i> on the left,		

<i>1st and 2d sponger</i> on the right,	}	stand ready to urge at the head of the carriage and at the chase.
<i>1st and 2d loader</i> on the right,		

1st and 2d shot and wadmen advance to the end of the pole, and carry the limber to the left about.

Supernumeraries at the pole and trace hooks.

Powder boy places himself in the rear of the limber-box.

MARCH.

The limber and piece move to the rear with the proper distance between. The trail is now kept clear of the ground.

In moving the piece by hand, either limbered or unlimbered, all halt and resume their stations at the command

HALT.

In *moving to the rear—piece unlimbered*, the limber remains faced to the rear, unless the command, *In battery*, follows that of *Halt*.

VIII. TO MOVE THE PIECE WITH BRICOLES.**[Pl. 74.]**

Bricoles, or drag-ropes, are used when the piece is to be moved without horses, to such distances, and over such grounds, that it cannot be done conveniently by hand. This should, if possible, be done by the 2d parts and supernumeraries only, so as not to fatigue the men that actually serve the piece. Not less than four supernumeraries are required for 6 pdr. guns and 12 pdr. howitzers, and eight for 12 pdr. guns and 24 pdr. howitzers, when the 1st parts do not assist in moving them.

Those that are to use the bricoles, wear them over their other equipments, from the left shoulder to the right side, neatly done up, with the hook outwards, and so that the knot will draw out when the bricole is hooked on and hauled taut upon.

NOTE.—This exercise is drawn up on the presumption that the 1st as well as the 2d parts have bricoles and assist in moving the piece. Should the 1st parts *not* be required for this service, four supernumeraries should have bricoles, and should hook on at the places herein laid down for the 2d sponger, 2d loader, 2d ventman, and 2d port-fireman, who, instead of doubling on the 1st parts respectively, will hook on with bricoles at full length.

To move the piece by hand.

Fig. 1. To the front - piece limbered.
"By hand" - "Forward" - "March".

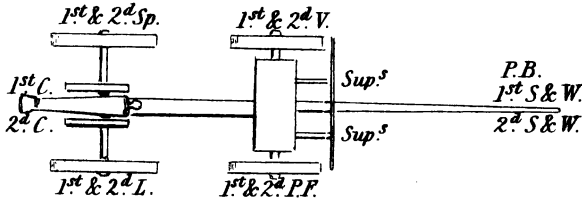


Fig. 2.

To the front - piece unlimbered.
"By hand" - "Advance" - "March".

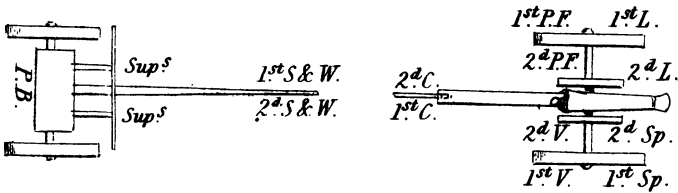
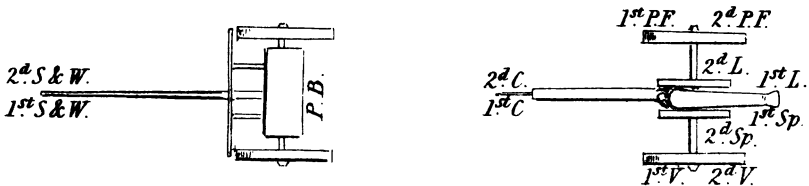


Fig. 3.

To the rear - piece unlimbered.
"By hand" - "In retreat" - "March".



1. FORWARD—PIECE LIMBERED. [Fig. 1.]

With bricoles—FORWARD.

1st sponger hooks on at the washer-hook of the left hind wheel.
1st loader hooks on at the washer-hook of the right hind wheel.
2d sponger doubles on *1st sponger* } having the bricole shortened
2d loader doubles on *1st loader* } one-half.
1st ventman hooks on at the washer-hook of the left fore wheel.
1st port-fireman hooks on at the washer-hook of the right fore wheel.

2d ventman doubles on *1st ventman* } having the bricole
2d port-fireman doubles on *1st port-fireman* } shortened one-half.
1st captain places himself at the left side of the chase.
2d captain places himself at the right side of the chase.
1st shot and wadman forms a loop with the forechains.
2d shot and wadman detaches a handspike. They pass the handspike through the loop and place themselves behind it, *1st shot and wadman* on the left, *2d* on the right side.

Supernumeraries hook on at the trace hooks or lay hold at the pole: *1st*, *3d*, &c. on the left side; *2d*, *4th*, &c. on the right.

Powder boy takes his station as guide.

The bricole is hooked and held taut by the hand next the piece.

MARCH.

All act together and urge the piece onward. The shot and wadmen direct the tongue, and are governed by the movements of the guide.

HALT.

All stand fast with taut bricoles.

TO YOUR STATIONS.

Those with bricoles face outwards, unhook with the hand next the piece, resume their stations, and do up their bricoles. *2d shot and wadman* replaces the handspike.

All resume their stations.

2. FORWARD—PIECE UNLIMBERED. [Fig. 2.]

With bricoles—ADVANCE.

1st sponger	}	hook on at the breast-hooks.
1st loader		
2d sponger	}	double on 1st sponger and 1st loader.
2d loader		
1st ventman	}	hook on at the washer-hooks.
1st port-fireman		
2d ventman	}	double on 1st ventman and 1st port-fireman.
2d port-fireman		
1st captain	}	stand at the handspike.
2d captain		
1st shot and wadman	}	advance to the end of the pole.
2d shot and wadman		
Supernumeraries	}	hook on at the trace-hooks or lay hold of the pole.
Powder boy		
		in rear of the ammunition chest.

MARCH.

All urge the piece and limber forward, keeping the latter at its proper distance.

HALT.

All stand fast with taut bricoles.

TO YOUR STATIONS.

As in the former case.

3. TO THE REAR—PIECE UNLIMBERED.

With bricoles—IN RETREAT.

1st sponger	}	hook on to the washer-hooks.
1st loader		
2d sponger	}	double on them.
2d loader		
1st ventman	}	hook on to the handles of the trail.
1st port-fireman		

<i>2d ventman</i>	}	double on them.
<i>2d port-fireman</i>		
<i>1st captain</i>	}	go to the chase.
<i>2d captain</i>		
<i>1st shot and wadman</i>	}	advance to the end of the pole and
<i>2d shot and wadman</i>		
<i>Supernumeraries</i>	}	hook on at the trace hooks, or lay
		hold of the pole. They assist in
		carrying the limber about.
<i>Powder boy</i>	}	takes station in rear of the am- munition box.

MARCH.

All urge the piece and limber in retreat, keeping the former at the proper distance from the latter. The captains guide the trail by bearing down at and pressing against the chase.

HALT.

All stand fast with taut bricoles.

TO YOUR STATIONS.

As in the other cases.

If the word *Halt* is followed by *In battery*, the limber is carried about, after which, *To your stations* is given.

4. TO SUPPORT IN RETREAT.

This is necessary when the piece, limbered or unlimbered, has to pass down a declivity.

1st sponger and 1st loader (or *spongers and loaders*)—SUPPORT IN RETREAT.

The men designated take the bricoles from their shoulders and unhook, then hook on at the breast-hooks, if the piece is moving forward or in advance. If to the rear, the ventmen and port-firemen should be designated for this duty, who hook on at the trail-handles. In both cases, the bricole is held in the hands.

To bring them up to their stations—

1st loader and 1st sponger (or spongers and loaders)—STATIONS.

At which the men supporting, in the descent, unhook, replace their bricoles, and again hook on at their proper hooks.

IX. TO MOVE THE PIECE WITH DRAG-ROPE.

[Pl. 75.]

The drag-ropes are carried, hooked on, and led out by the supernumeraries, or, if there be no supernumeraries, by such of the 2d parts as may be designated.

1. FORWARD—PIECE LIMBERED. [Fig. 1.]

With drag-ropes—FORWARD.

The drag-ropes are hooked on to the outer trace hooks and led out.

The supernumeraries man the inside of these ropes, standing between them and the pole. If there be no supernumeraries, the 2d parts occupy these positions. The 1st parts lay hold at those outside handles that are nearest the wheel. The 2d parts lay hold on the outside or inside, as may be required to make the number equal on both sides the rope.

The captains, shot and wadmen, and powder boy, take the same stations as in moving the piece forward with bricoles.

MARCH.

All urge forward the piece.

HALT.

All stand fast but keep hold of the ropes.

TO YOUR STATIONS.

All go to their stations. The supernumeraries first unhook and coil the ropes.

To move with bricoles.

Pl. 74.

Fig. 1. "With bricoles - Forward - March."

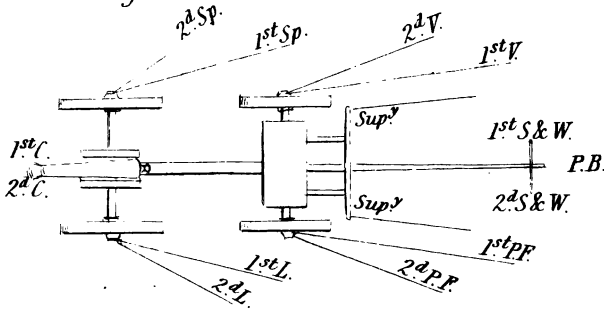


Fig. 2. Forward, piece unlimbered.
"With bricoles - Advance - March."

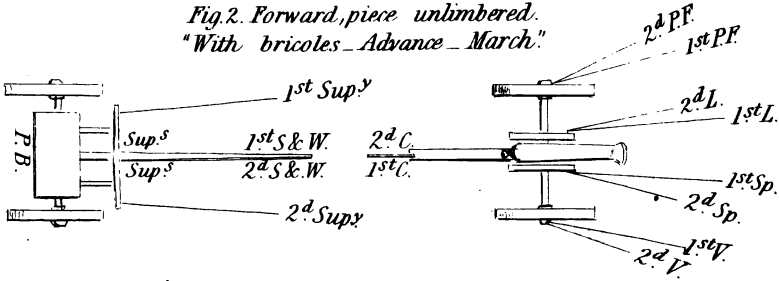


Fig. 3. "With bricoles - In retreat - March."

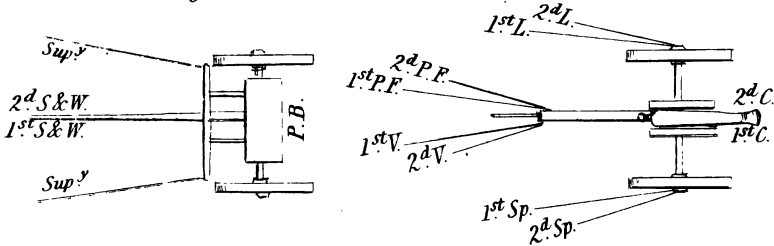
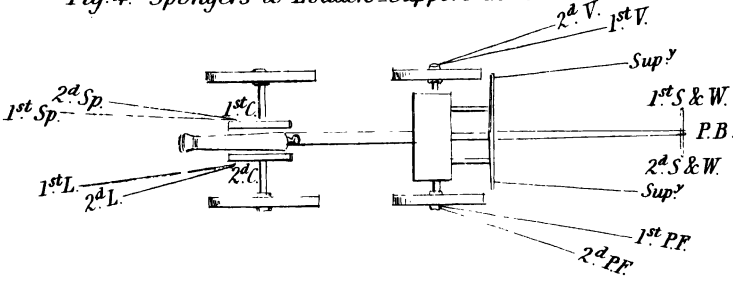


Fig. 4. "Spongers & Loaders" - "Support in retreat."



2. ADVANCE—PIECE UNLIMBERED. [Fig. 2.]

With drag-ropes—ADVANCE.

Drag-ropes are hooked on to the breast-hooks, and, being led forward, are manned as before.

1st and 2d captains at the handspike.

1st and 2d shot and wadmen at the pole.

Powder boy in rear of the limber.

MARCH.

HALT.

TO YOUR STATIONS.

Executed as before.

3. RETREAT—PIECE UNLIMBERED. [Fig. 3.]

With drag-ropes—IN RETREAT.

The drag-ropes are hooked on to the washer-hooks, led to the rear, and then manned as before.

1st and 2d captains at the handspike.

1st and 2d shot and wadmen carry the limber to the left about.

Powder boy in rear of the limber box.

MARCH.

HALT.

TO YOUR STATIONS.

Executed as before. If the order *in battery* follows the order *halt*, the limber is carried to the left about.

Should the crew be sufficiently strong to move the piece with facility without the aid of the 1st parts, these do not pull at the ropes but walk alongside the piece.

X. MOVING AND FIRING WITH THE PROLONGE FIXED. [Pl. 76.]

1. PIECE UNLIMBERED, TO FIRE RETIRING, WITH FIXED PROLONGE. [Fig. 1.]

FIX PROLONGE TO FIRE RETIRING.

1st and 2d shot and wadmen man the pole, carry the limber to the right, then to the left about, and back it up to within four yards of the trail.

2d captain uncoils the prolonge and passes the toggle to the 1st captain, who fixes it in the trail by passing it upwards through the lunette, and again through the second ring of the prolonge. The 2d captain attaches the other end to the limber by passing the ring over the pintle bolt and keying it.

If drag-ropes are used, they are hooked on to the outer trace-hooks, and manned by the 2d parts and supernumeraries. If bricoles are used, 2d sponger and 2d loader hook on to the washer-hooks of the limber, 2d ventman and 2d port-fireman to the outer trace-hooks. Of the supernumeraries, some hook to the inner trace-hooks, and others double on those before named.

RETIRE.

Those at the piece face towards the limber and march at their respective places; 1st and 2d captains by the side of the trail, to lift, if necessary.

Should it be found necessary, 1st sponger and 1st loader hook on at the washer-hooks, and 1st ventman and 1st port-fireman at the trail-handles. Without bricoles, 1st sponger and 1st loader will, if necessary, push at the chase, and 1st ventman and 1st port-fireman man the wheels.

HALT.

The firing is resumed without further orders. Those at the ropes remain steadfast.

Should the piece be loaded at the command *retire*, 1st ventman

To move with drag ropes.

Pl. 75.

Fig. 1.

"With drag ropes - Forward March."

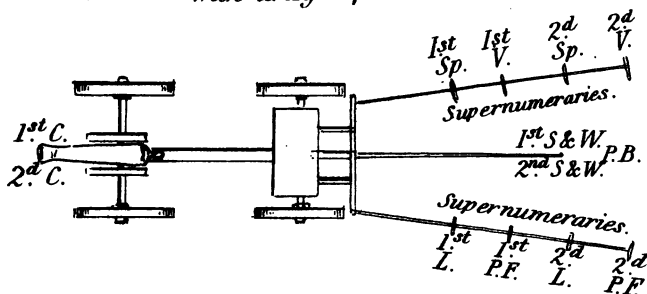


Fig. 2.

"With drag ropes - Advance - March."

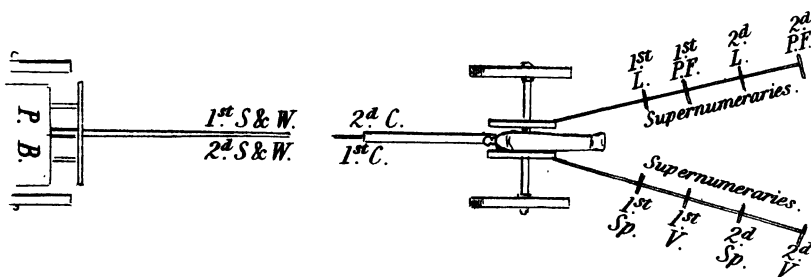
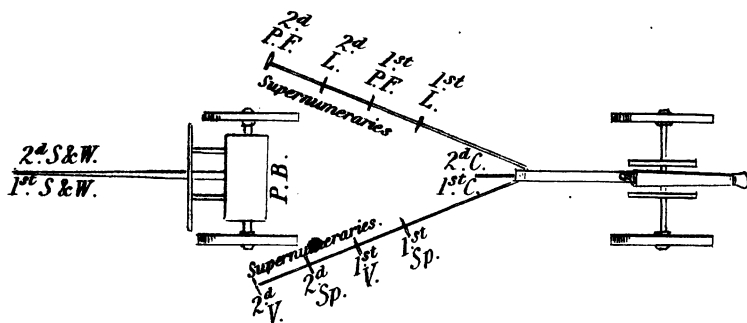


Fig. 3.

"With drag ropes - In retreat March."



puts in his priming-wire to keep the charge in its place; at the word *halt* he removes it, and 1st sponger rams home.

Should the command *load* be given while the piece is in motion, the powder boy puts in the charge, and the 1st loader serves the vent, receiving the necessary implements from the 1st ventman.

2. PIECE UNLIMBERED, TO FIX PROLONGE TO FIRE ADVANCING.

[Fig. 2.]

FIX PROLONGE TO FIRE ADVANCING.

The limber passes the piece by the right, and is backed up to within four yards of the muzzle and then manned as before. 1st sponger and 1st ventman avoid the limber as it passes, by stepping between the wheel and piece.

2d captain uncoils the prolonge, brings it to the front, passes the ring over the pintle and keys. 1st captain, to whom the 2d captain has passed the toggle, passes it through the lunette of the axle-strap and the second ring of the prolonge. They then take their stations at the handspike to guide the piece.

1st sponger, 1st loader, 1st ventman and 1st port-fireman remain at their stations and march abreast the piece.

ADVANCE.

All move on. Should it become necessary, 1st sponger and 1st loader hook on at the breast-hooks, and 1st ventman and 1st port-fireman at the washer-hooks.

HALT.

All remain steady.

TO YOUR STATIONS.

1st loader takes the toggle from the lunette and orders *FORWARD*, at which those at the limber carry it to its place in rear of the piece. All resume their stations.

The firing is now resumed without delay.

3. TO FIX PROLONGE FOR PASSING A DITCH, [Fig. 3.]

or for any other purpose that does not involve immediate firing, command

FIX PROLONGE.

At which it is fixed to the trail or to the axle-strap, as before, except that in this case the prolonge is fixed to its full extent by simply passing the toggle through the lunette; the handspike is removed. When moving in retreat, the 1st sponger, 1st loader, 1st ventman and 1st port-fireman always hook in passing a ditch.

In moving with the prolonge fixed, the captains attend the trail and are careful to circle it round in time to prevent the prolonge from chafing against the wheels. If necessary, the 2d captain bears off the prolonge from the limber wheels in retiring, and the 1st loader in advancing.

In wheeling about, the limber should first back a little and then turn short, keeping the rope slack until the wheel is fairly made by the limber.

TO DETACH THE PROLONGE FROM THE LIMBER AND COIL IT UP.

(ADAPTED TO EITHER OF THE THREE CASES.)

COIL PROLONGE.

The 1st captain takes out the toggle, and the 2d captain takes off the ring. They then coil the prolonge, first passing the end ring over the upper prolonge hook.

Retiring, to coil the prolonge and limber to the rear.

COIL PROLONGE—LIMBER UP.

Prolonge coiled as before, limber backed and trail thrown on.

Advancing, to coil prolonge and limber to the front.

COIL PROLONGE—LIMBER TO THE FRONT.

Prolonge detached by 1st and 2d captains, piece brought about by the 1st loader, 1st sponger, 1st ventman, and 1st port-fireman. Prolonge coiled as before, limber backed and trail thrown on.

Advancing or retiring, to coil prolonge and limber to the right or left.

COIL PROLONGE—LIMBER RIGHT (or LEFT).

Prolonge detached and coiled as before, limber carried to the right (or left) side, trail carried around to meet it and thrown on.

Fig. 1.

"Fix prolonge—to fire retiring—"Retire."

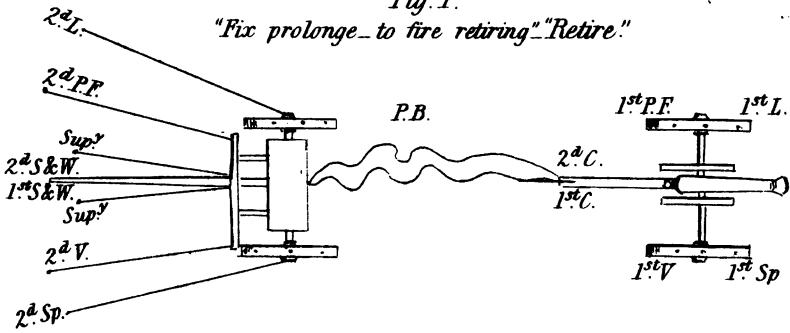


Fig. 2.

"Fix prolonge—to fire advancing—"Advance."

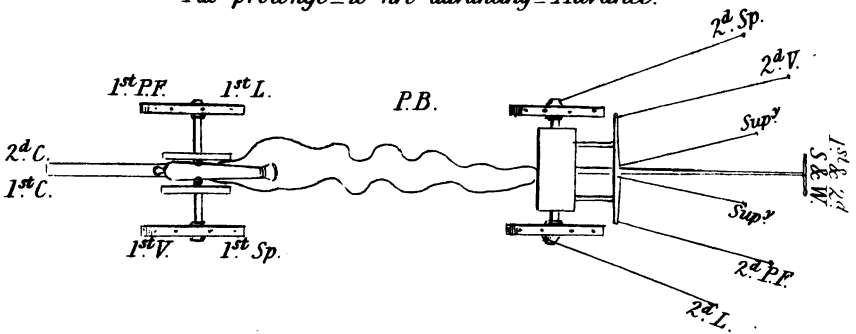
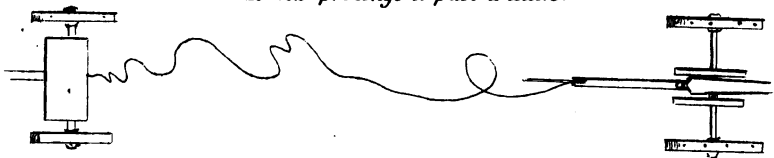


Fig. 3.

To fix prolonge to pass a ditch.



NOTE.—The prolonge should always be fixed when advancing or retiring before the enemy, and generally when moving and firing rapidly succeed each other.

XI. CHANGING WHEELS.

First detach the limber from the piece, if not already detached, then, in order to change the right wheel, command

Prepare to change the right wheel.

The 2d ventman and 2d sponger dismount the spare wheel and bring it near the disabled one, the 2d sponger keeping it upright after bringing it, supernumeraries assisting if required; 1st sponger and 1st ventman, assisted by supernumeraries if necessary, place a handspike under the axle near the disabled wheel. The 1st captain and 2d ventman man the disabled wheel, 1st captain having first removed the linchpin and washer.

CHANGE THE WHEEL.

The carriage is raised, the old wheel removed, and the new one put on by the parts designated. 1st captain restores the linchpin and washer, and 2d sponger runs back the old wheel. 1st ventman replaces the handspike.

TO CHANGE THE LEFT WHEEL is performed in a manner nearly identical, by the 1st and 2d loaders, 1st and 2d port-firemen, and 2d captain.

If necessary, one end of the prolonge or drag rope may be attached to the axle-tree near the disabled wheel, led over the other, and manned by the parts not otherwise engaged.

For heavy pieces it will be necessary to use a pole (that of the limber will do) instead of a handspike, which all the supernumeraries and other disengaged men man. Should no pole be available, the weight may be removed by passing handspikes into the muzzle and across the breech, and manning them.

When there is no way of replacing a wheel, it must be supported with a spar some ten or twelve feet long, which, resting on the ground and under the axle-tree, is fastened to the trail by lashings. In all cases, weak wheels must be as much relieved of the weight as possible. A weak or partially disabled wheel of the piece may be changed with one at the caisson or limber.

XII. TO DISMOUNT THE PIECE.

The piece must be unlimbered.

PREPARE TO DISMOUNT THE PIECE.

1st sponger puts the sponge in his rear.

1st ventman puts the bucket and spare handspike in his rear.

1st loader puts the worm and spare sponge in his rear.

1st port-fireman receiving the handspike from the *1st captain*, puts it in his rear.

1st and 2d sponger and *1st and 2d loader* then press down on the muzzle.

1st ventman and *1st port-fireman* remove the cap squares, then, with one hand on the knob of the cascable, and the other on the wheel, prepare to raise the breech.

2d captain raises the screw to its highest point.

1st and 2d captains seize the trail handles, and with *2d ventman* and *2d port-fireman* stand ready to raise the trail.

1st and 2d shot and *wadmen* stand at the wheels to steady them.

DISMOUNT THE PIECE.

1st and 2d spongers and *1st and 2d loaders* press down hard on the muzzle; afterwards steady the breech.

1st ventman and *1st port-fireman* bear up at the cascable.

1st and 2d captains raise up the trail, and seize hold of the chains to prevent it from falling over.

The piece being vertical, *1st ventman* and *1st port-fireman* pass round to assist in steadying it.

The trail is lowered, carriage run back, and the piece lowered to the ground vent upwards.

1st sponger, 1st loader, 1st ventman, 1st port-fireman, and 1st and 2d captains then replace the implements, and all return to their stations.

1st ventman and 1st port-fireman lay back the cap squares.

Longer and heavier pieces are dismounted in the same way, except that more men are applied to the muzzle and trail, and sometimes a hole is dug to receive the muzzle.

A rope may be used to haul up the gun and steady it; 1st ventman and 1st port-fireman attach the rope to the knob of the cascable, pass it to 1st sponger and 1st loader, and, going round, man it with such supernumeraries and 2d parts as may be designated.

Though certain supernumeraries and 2d parts only are designated, others will be called and attached if required.

XIII. TO CARRY THE PIECE.

Piece on the ground, vent upwards.

PREPARE TO CARRY THE PIECE.

1st and 2d shot and wadmen and others at the limber back the limber over the breech, till the pintle hook is just above the trunnions.

1st loader inserts a handspike into the bore of the piece, and with 2d loader and 1st and 2d sponger stands ready to assist in raising up the muzzle.

1st and 2d captains pass the ring of the prolonge through the handles, and after taking a turn around the pintle hook, pass it again through the handles, and put it over the pintle. If there are no handles, they pass the prolonge around the piece, in front and rear of the trunnions, the muzzle of the piece being raised for that purpose. The pole is then raised, and also the muzzle of the piece; the 1st captain tightens the prolonge, pulling on the free end, which he passes over the pintle hook and under the limber to the 2d captain, who receives it at the splinter bar, and makes it fast around the fork. The pole is then lowered, and the muzzle pressed on in order to raise

the breech, which is then lashed by the knob of the cascable to the splinter bar, with the spare end of the prolonge. The gun should be slung horizontally.

FORWARD.

1st and 2d spongers and 1st and 2d loaders hook on at the washer-hooks.

1st and 2d ventmen and 1st and 2d port-firemen to the outer trace-hooks.

Supernumeraries at the inner hooks.

Powder boy and other supernumeraries push from the boxes.

MARCH.

Move the limber to the front.

The carriage may also be lashed on the limber in parts, though the limber is too weak to convey both gun and carriage far.

When the limber is disabled, the trail of the carriage may be attached to the rear of another carriage.

XIV. TO DISMOUNT THE CARRIAGE.

The piece being dismantled and implements off,

PREPARE TO DISMOUNT CARRIAGE.

1st ventman and 1st port-fireman remove the linchpins and washers.

1st and 2d spongers and 1st and 2d loaders in front, and 2d ventman and 2d port-fireman in rear, prepare to raise the carriage at the axle-tree and cheeks.

DISMOUNT THE CARRIAGE.

Those at the carriage lift.

1st captain and 1st ventman remove the right wheel.

2d captain and 1st port-fireman remove the left wheel.

The wheels are laid with the flare downward.

To DISMOUNT THE LIMBER the supernumeraries remove the box while

the shot and wadmen take out the linchpins; 2d sponger, 2d loader, 2d ventman, and 2d port-fireman raise the carriage; the 1st shot and wadman removes one wheel, and the 2d shot and wadman the other.

If dismounted simultaneously with the carriage, the men just named do not go to the piece. But the 1st captain and 2d captain each remove a wheel, 1st sponger and 1st ventman raising on the right hand side, and 1st loader and 1st port-fireman on the left.

MOUNTING CARRIAGE

so nearly corresponds to dismounting, that a statement of the detailed duties is deemed unnecessary.

XV. TO MOUNT THE PIECE.

Piece on the ground, vent upwards.

PREPARE TO MOUNT THE PIECE.

1st sponger puts the sponge in his rear.

1st ventman puts the bucket in his rear, passes the spare handspike to 1st loader, and takes off a cap square.

1st loader puts the worm and spare sponge in his rear.

1st port-fireman removes a cap square.

1st loader puts the handspike in the bore and raises the chase, 1st and 2d spongers and 2d loader assisting.

1st and *2d captains* then put the spare handspike under the piece in rear of the trunnions, and assisted by 1st ventman and 1st port-fireman, man it.

The handspike is now withdrawn from the bore, and placed under the knob of the cascable.

If necessary, supernumeraries, and others not employed, bring a rope and attach it to the knob of the cascable, lead it aft, and man it.

When everything is ready, 1st captain commands **HEAVE**, at which the piece is raised upright, and steadied by 1st and 2d spongers and 1st and 2d loaders; 1st and 2d captains and 1st and 2d shot and wadmen go to the trail and run the carriage within a foot of the piece.

1st ventman and 1st port-fireman scotch the wheels, and remain at them.

MOUNT THE PIECE.

Those at the trail raise it; 2d captain takes hold of the lock chains to prevent the trail from falling over to the front. Those at the wheels and breech gently bring the trunnions into their holes.

The trail is then lowered, wheels unscotched, implements replaced, and cap squares secured.

When the piece does not fall exactly into the trunnion holes, the prolonge is passed around under the cheeks, to secure the breech to the carriage; the trail is then lowered, and the trunnions slid into their beds.

XVI. TO RIGHT AN OVERTURNED CARRIAGE.

It is better to disengage the piece, right the carriage, and remount. The piece may be disengaged by supporting the breech, raising the muzzle, and taking off the cap squares.

Both carriage and piece may be righted together. To do this, detach the limber, secure the cap squares, and lash the knob of the cascable to the stock; place the middle of a rope over the nave of one wheel, pass the ends downwards between the lower spokes of that wheel, then under the carriage and through the corresponding spokes of the other wheel, and then upwards over the wheel and across the carriage, to the side where first attached. Man the ends, as also the opposite wheel, and draw the carriage over. Two men must steady the trail.

Or thus: Detach the limber; dig a hole under the muzzle, oblong and $2\frac{1}{2}$ feet deep; chock the wheels; attach two prolonges or ropes to the trail, pass the ends over towards the muzzle; man these and raise the trail, and pull on the ropes at the same time.

EXERCISE OF SEVERAL PIECES, MANŒVRING AS A BATTERY.

XVII. ORGANIZATION OF A BATTERY.

A battery is usually composed of six field pieces, or four guns and two howitzers, with their caissons, and the officers and men required for their service. Though six is the proper number, yet four or eight might be employed and exercised as a battery.

The officers are as follows :

One *captain*, who commands the battery.

Four *lieutenants*, of which the highest in rank commands the right section, the second the third section, and the lowest in rank the line of caissons.

Six *warrant* or *non-commissioned officers* in charge of pieces.

Twelve *petty officers* acting as 1st and 2d captains of gun.

Five 1st *parts* and five 2d *parts*, a *powder boy*, and a convenient number of *supernumeraries* to each gun. If horses are used, the *supernumeraries* and some of the 2d *parts* may be spared.

For the exercise of several pieces, or a battery, the men are drawn up by crews in order ; captains on the right ; chiefs in front.

Chiefs of sections take their places in front of, and opposite the centres of sections. The captain opposite the centre of the battery.

The captain brings the command in columns of crews opposite to and in front of their respective pieces, which stand in line limbered up.

Approaching the pieces, he commands

CREWS OPPOSITE YOUR PIECES.

Each crew is halted by its chief, when opposite its piece.

They may be ordered to their stations, or brought in line in front, and then formed, in order of march, to their stations, by commands from the captain.

To leave the battery, crews, formed in line in front (or rear), are brought into column, closed to proper distance, and marched away.

XVIII. BATTERY FORMATIONS

Are of three orders.

1. *Order in Column* $\left\{ \begin{array}{l} \text{of sections.} \\ \text{of pieces.} \end{array} \right.$
2. *Order in Line.*
3. *Order in Battery.*

1. ORDER IN COLUMN OF SECTIONS. [Pl. 77, fig. 1.]

The battery stands with one section covering another; the carriages in two lines, and each piece following or preceding its caisson.

The *captain*, though he may go wherever his presence may be necessary, is generally 14 yards on the left of and opposite to the centre.

Chiefs of sections abreast their sections, and midway between them.

The *chief of caissons* 4 yards on the left of, and opposite to the centre of the column.

Chiefs of pieces on the left of, and abreast their pieces.

The *trumpeter* follows the captain.

The interval between the pieces in sections, is 10 yards. The distance from the rear of one carriage to the head of the next following, 2 yards.

ORDER IN COLUMN OF PIECES. [Pl. 77, fig. 2.]

Captain opposite to and on the left of the centre, 14 yards distant, though elsewhere if necessary.

Chief of caissons on the left and opposite the centre, 4 yards distant.

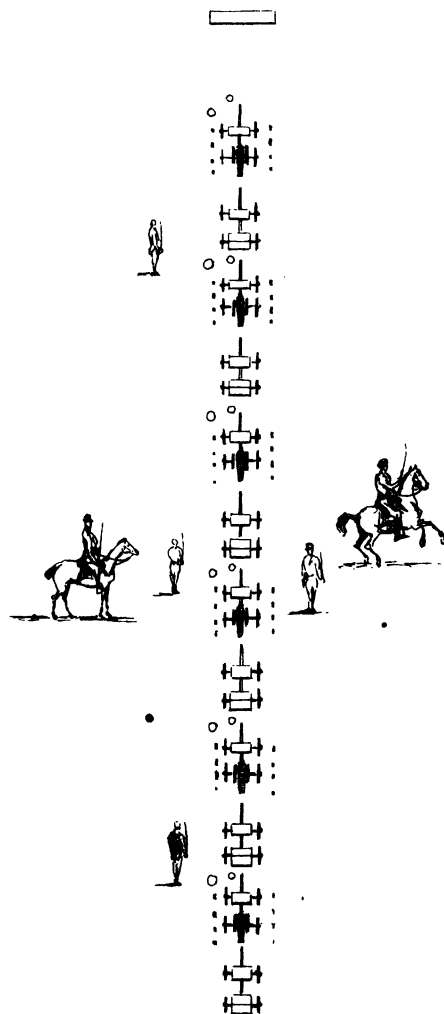
Chiefs of sections on the left, opposite the centre of sections, and 4 yards distant.

Chiefs of pieces on the left, and abreast their pieces.

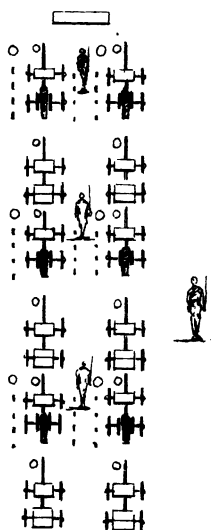
Trumpeter follows the captain.

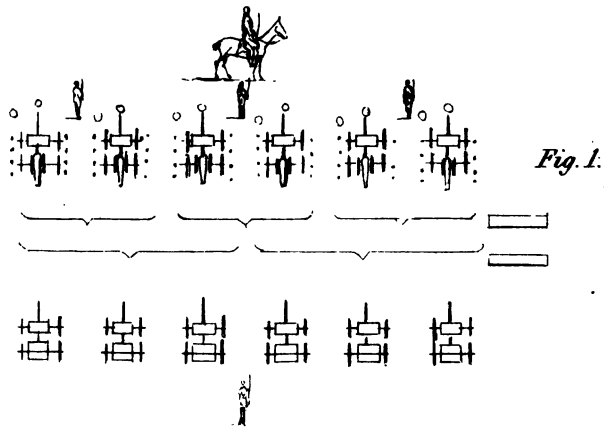
The distance from the rear of one carriage to the head of the next following, 2 yards.

*Fig. 1.
Of pieces.*

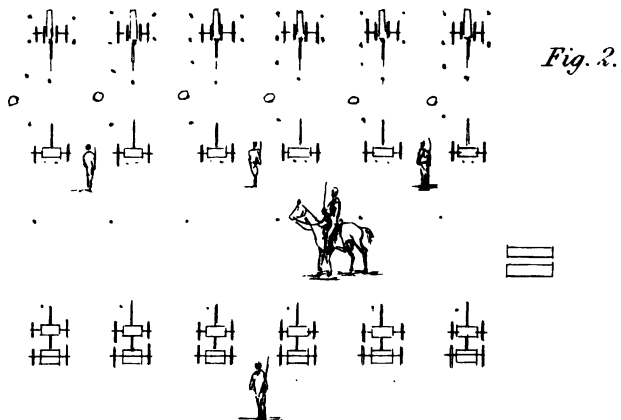


*Fig. 1.
Of Sections.*





Order in Battery.



2. ORDER IN LINE. [Pl. 78, fig. 1.]

The carriages of the pieces form the front line; the caissons the rear, all limbered and having their tongues towards the front.

The *captain* is 4 yards in front of, and opposite to the centre of the line of pieces, but may go elsewhere if required.

Chiefs of sections midway between the head of pieces, and dressing on them.

Chief of caissons opposite the centre, and 4 yards behind the rear line of carriages.

Each *chief of piece* on the left and near the head of his piece.

Trumpeter, when not required to follow the captain, 4 yards from the right flank, dressing on the heads of pieces. *Music* on his right.

Interval between the carriages, 10 yards.

Distance between the lines, 8 yards.

3. ORDER IN BATTERY, [Pl. 78, fig. 2.]

Is that in which the pieces are prepared for action; the muzzles of the pieces and the tongues of the limbers and caissons being turned towards the enemy, and forming three parallel lines.

The *captain* is generally at the centre, midway between the limber and piece, but may go elsewhere if necessary.

Each *chief of section*, in the centre of his section, midway between the lines of pieces and limbers; he may, however, change his place if necessary.

The *chief of caissons* opposite the centre, four yards in rear of the line of caissons.

Each *chief of piece* midway between his piece and limber.

Interval between the pieces, 10 yards.

Distance from end of handspike to head of limber, 6 yards.

Distance from rear of limber to head of caisson, 11 yards.

REMARKS.—These formations should be always preserved in the manœuvres. But on the field of battle, the front in battery would be, commonly, more extended; the pieces being so posted as to obtain the greatest advantages from the nature of the ground, and the caissons sheltered as much as possible.

When the battery retires firing, the limbers and caissons remain

faced to the rear, after the first retrograde movement, that they may be ready to continue it.

Although the caisson usually follows the piece, it may, if necessity requires, precede it.

During the manœuvres, the trumpeter must not leave the captain. On receiving orders from the captain, he takes the place assigned him in the formations.

Should the caissons be detached, the intervals and distances are kept up to afford room for wheeling. The length of caisson and tongue is eight yards.

The double column is a particular case of formation in column, with a front of two pieces. It is formed on the centre pieces, the pieces being arranged in column of pieces in rear of these.

Trumpet and bugle calls are used when the commands cannot otherwise be heard. Chiefs of sections always repeat the commands of captain. And chiefs of pieces those of chiefs of sections.

The powder boys act as guides; the alignment is made on the head of pieces, except in battery, when it is made on the hind wheels.

The command *attention*, is given by the captain at the commencement, and on each renewal of exercise, but afterwards only when he thinks it necessary to fix attention.

The front of a battery, in the order in battery, is the front of the line of pieces. In all other formations it is in the direction of the head of pieces, in other words, towards the pole. When the proper front is preserved, the first piece will always be on the right.

The term half battery, right and left, has the same extent as half battalion or wing.

All passages of carriages are by the right, and all going about by the left.

When it is necessary to move a carriage along a slope, where a small jerk may overturn it, a drag rope should be fastened to the lowest side of the carriage, passed over the top of it, and held by two or three men marching on the upper side of the slope: a small effort, by these means, will prevent a carriage from overturning on a very steep slope.

If the roads be difficult, from ascents or other causes, a portion of the carriages should be halted, and the whole strength applied to the others. These, in turn, assist the first.

In descents, the men must hold back, for which purpose a rope may be passed round the tulip and secured with long ends to hang on by. In holding back with bricoles, always remove them from the shoulders. It may be necessary also to lock the wheels.

In passing ditches, fix prolonge and remove the handspike.

The prolonge should always be used when artillery is retiring slowly in action.

In passing bridges or defiles, where the enemy is expected on the other side, the pieces alone should pass: the caissons following afterwards.

Pieces may be fired down slopes by fixing prolonge, running the piece down the slope, chocking the wheels, or, if necessary, locking and digging a trench along the slope for the wheels to rest in.

A caisson must remain with a disabled piece, but not so a piece with a disabled caisson.

Great care should be paid to the preservation of distances and intervals.

Officers commanding pieces will give the necessary commands for holding back, without waiting for orders. Officers of pieces will designate those who are to hold back; those nearest the muzzle, or farthest in rear are generally designated.

Intelligent officers, or others, should be kept in advance of artillery, to reconnoitre the ground and advise as to the best road.

Artificers employed with batteries should not labor on the march, but reserve their energies for duty at its close.

XIX. BATTERY IN LINE, TO FORM A COLUMN OF PIECES.

- 1st. *To the front.*
2d. *To the right or left.*
3d. *To the right (or left) to march
to the left (or right).*
4th. *In retreat.*

1. TO THE FRONT. [Pl. 79, fig. 1.]

Attention. On the 1st piece—Front into column.

Chief of the line of caissons commands: *Caissons, forward trot march.* At which the caissons close upon their pieces.*

Chief 1st piece commands, 1st piece forward—

Other chiefs of pieces command—*piece right oblique*—

MARCH.

1st piece moves forward and the others oblique to the right into the column, each piece being followed by its caisson.

2. TO THE RIGHT (or LEFT). [Pl. 79, fig. 2.]

Column of pieces to the right.

Chiefs of pieces command—*piece right wheel—*

MARCH.

The pieces wheel to the right; the leading piece, followed by its caisson, moves off in that direction; afterwards the others in succession, as the caisson of the preceding piece is established in column.

3. FROM THE RIGHT TO MOVE TOWARDS THE LEFT (or THE REVERSE). [Pl. 80, fig. 1.]

By pieces—Break from the right to move towards the left.

Chief of 1st piece, 1st *piece forward.*

Other chiefs—*piece stand fast.*

* This command and movement, with regard to the line of caissons, is general whenever a change of order from line to column takes place.

Fig. 1.
"On 1st piece front into column—March."

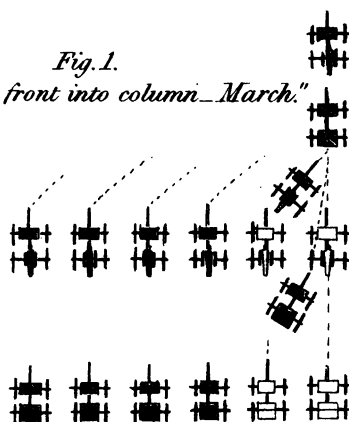
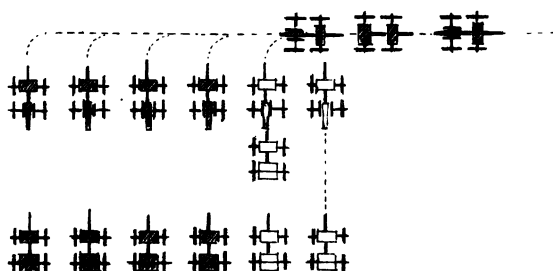


Fig. 2.
"Column of pieces to the right—March."



MARCH.

1st piece and caisson move forward their length, then wheel to the left, and move off in that direction. When the 1st piece is abreast of the 2d, that piece and caisson move forward and wheel to the left in rear of the preceding. The remaining pieces and caissons follow in order.

4. IN RETREAT. [Pl. 80, fig. 2.]

Pieces and caissons—Left about wheel—MARCH.

This being executed

On 6th piece in retreat into column,

Pieces close on their caissons.

Chief of the 6th piece then commands: *6th piece in retreat—*

Other chiefs of pieces—*piece right oblique—*

MARCH.

The 6th piece, preceded by its caisson, moves directly to the rear; the other pieces, preceded by their caissons, oblique into the column and follow.

GENERAL REMARKS ON THE FORMATION IN COLUMN.

1. Formations corresponding to the 1st, 2d, and 3d may be made by the left flank; and to the 4th, by the right flank.

2. When the space in front or rear of a portion of the line will not permit the pieces to oblique into the column, the leading piece and caisson move to the front or rear, and the others wheel to the right or left, as the case may demand, and file in after the leading piece. The command, *on 1st piece, front into column*, or *on 6th piece, retreat into column*, would now be followed by *pieces right wheel*.

3. A column of pieces to the front, or in retreat, may be formed on an interior piece—say the third. In this case the 3d moves forward or to the rear, while the others oblique into the column in order, right or left in front, as may be ordered. The pieces that enter the column in advance of the 3d, quicken the pace; those that follow in rear shorten the pace.

4. A column of sections, or a column of half-batteries, is formed the same manner as a column of pieces. But here the sections or in half-batteries wheel, oblique, &c., as such, and by commands of the chiefs of sections. A column of sections or half-batteries requires the guide (right or left) to be given. In the formation of half-batteries into column, the chief of the 1st section commands the right half-battery and the chief of the 3d the left half-battery. The chief of the 2d section remains with the right half-battery.

5. A column of sections is formed from a column of pieces by the commands, *Attention—Form sections—MARCH*. If the right is in front, the 2d, 4th, and 6th pieces oblique to the left until abreast of the 1st, 3d, and 5th respectively. If the left is in front, the 1st, 3d, and 5th oblique to the right until abreast the 2d, 4th, and 6th respectively. In either case the rear sections quicken the march and close up.

6. Half-batteries may be formed from sections right in front, by obliqueing the 3d piece to the left until abreast the 1st section, and bringing the 4th, 5th, and 6th pieces in rear of the caissons of the 1st, 2d, and 3d respectively. Caissons open the distance from their pieces equal to the length of the piece.

7. A column, whether of pieces, sections, or half batteries, is put in motion, halted, and the direction changed, by the same commands as for a column of infantry. As a rule, the guide will be right when the left is in front, left when the right is in front.

[Pl. 81, fig. 1.]—8. To form a column of sections to the front on the centre section command, *On centre section front into column*. The centre section advances, and the pieces of the flank sections form a double column of pieces in rear of them.

To form the same column in retreat, command, *On centre section—Retreat into column—Pieces and caissons—Left-about wheel—MARCH*. All wheel to the left about; the centre pieces, preceded by their caissons, move to the rear, and the flank pieces, preceded by their caissons, oblique in column behind the centre ones.

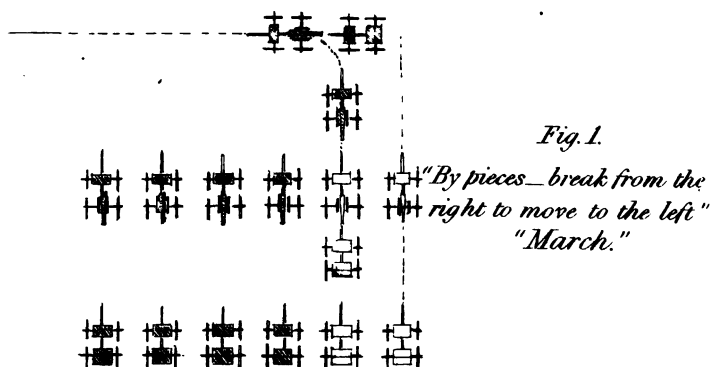


Fig. 1.

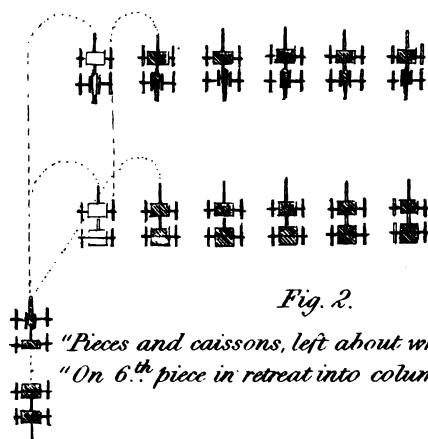
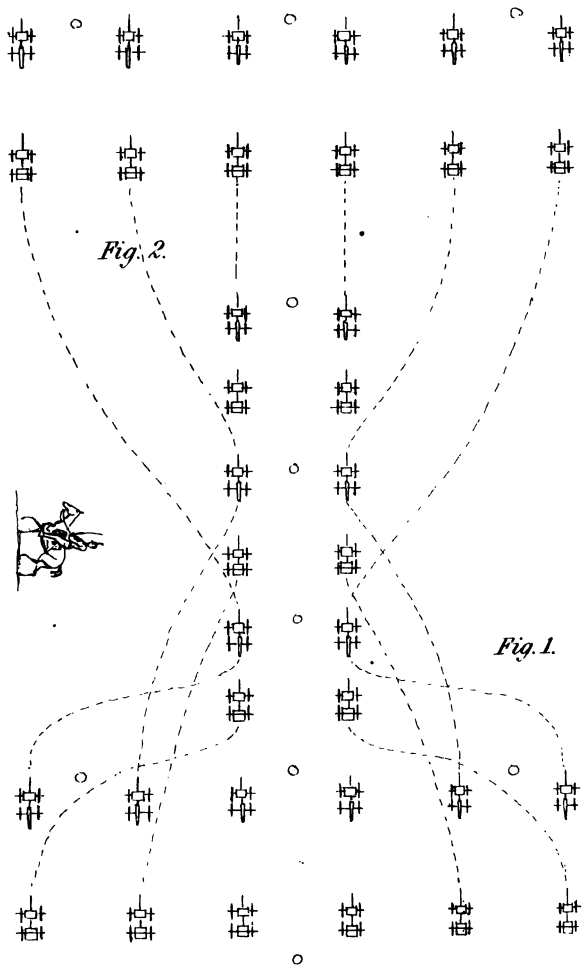


Fig. 2.

"Pieces and caissons, left about wheel—March."

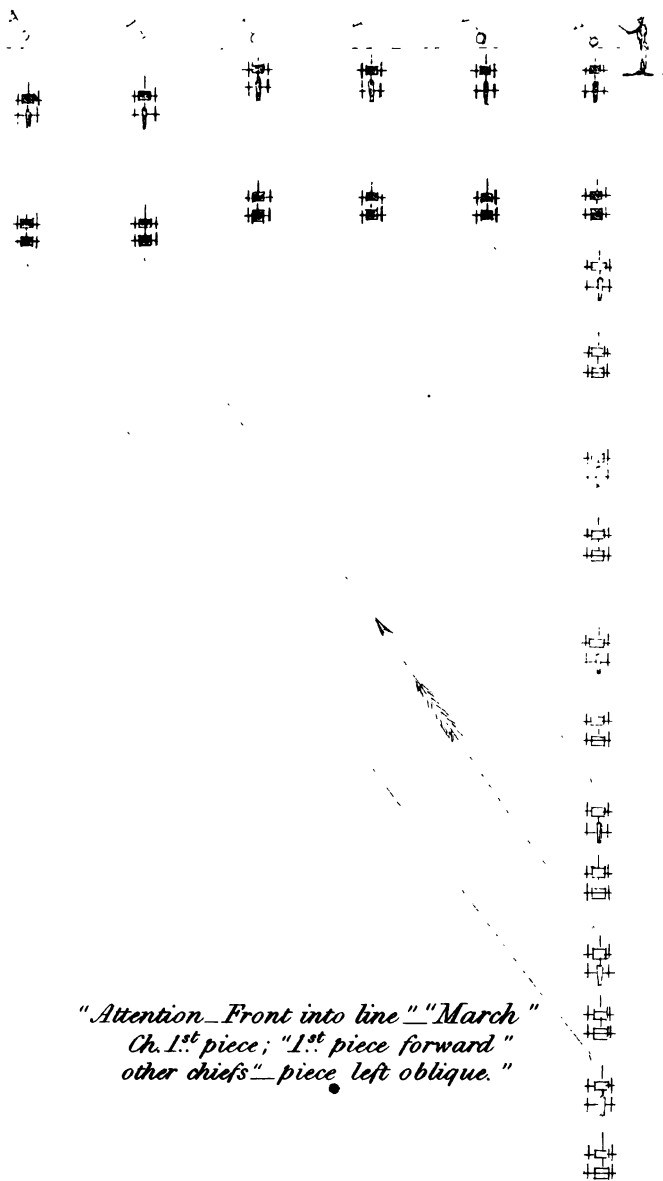
"On 6.th piece in retreat into column—March."

To form column on the centre section and deploy it into line. Pl. 81.



To form line to the front.

Pl. 82.



XX. TO FORM A COLUMN OF PIECES INTO LINE.

- 1st. *To the front.* 3d. *To the left (or right).*
 2d. *To the rear.* 4th. *On the right (or left).*
 5th. *To deploy a column formed on centre section.*

1. TO THE FRONT. [Pl. 82.]

Attention—Front into line—

Chief 1st piece, 1st *piece—Forward—*

Chiefs of the other pieces—*piece—Left oblique—*

MARCH.

1st piece continues on directly to the front, while the others, with quickened pace, oblique to the left and form up abreast of the leading piece at proper intervals from each other. As each piece comes up abreast, its chief commands—*piece—Forward—MARCH.*

When all are up, the chief commands,

Battery—Guide—RIGHT (or LEFT).

Or, *Battery—HALT—Right—DRESS.*

All the caissons, the first excepted, also oblique with their pieces and form the line of caissons at the proper distance in rear.

When a column of pieces, left in front, forms line to the front, all the pieces, except the leading piece, oblique to the right.

A column of sections, or of half-batteries, forms line to the front in the same general manner.

2. FACED TO THE REAR. [Pl. 83.]

Attention—Into line, faced to the rear—

Chief 1st piece, 1st *piece—Forward—*

Chiefs of the other pieces—*piece—Right oblique.*

MARCH.

1st piece moves forward a distance equal to its length and halts until the next piece is abreast of it, then wheels to the left about and stands fast. Each of the other pieces obliques to the right and comes up until abreast of the preceding piece, then halts until the piece following comes up abreast, then wheels to the left about and dresses on the leading piece. While each piece remains at a halt before going about, its caisson passes it by the right; and at proper distance beyond, wheels to the left about, halts, and dresses.

The corresponding manœuvres with the left in front and also with a column of sections or half-batteries do not differ in principle from the foregoing.

3. TO THE LEFT. [Pl. 84.]

Attention—To the left into line—

Chiefs of all the pieces—*piece—Left wheel—*

MARCH.

Each piece wheels short to the left and, followed by its caisson at proper distance, moves at right angles to its former direction, taking interval and guide from the leading piece. The captain of the battery commands

Battery—Guide right (or left).

Or, *Battery—HALT—Right (or left) dress.*

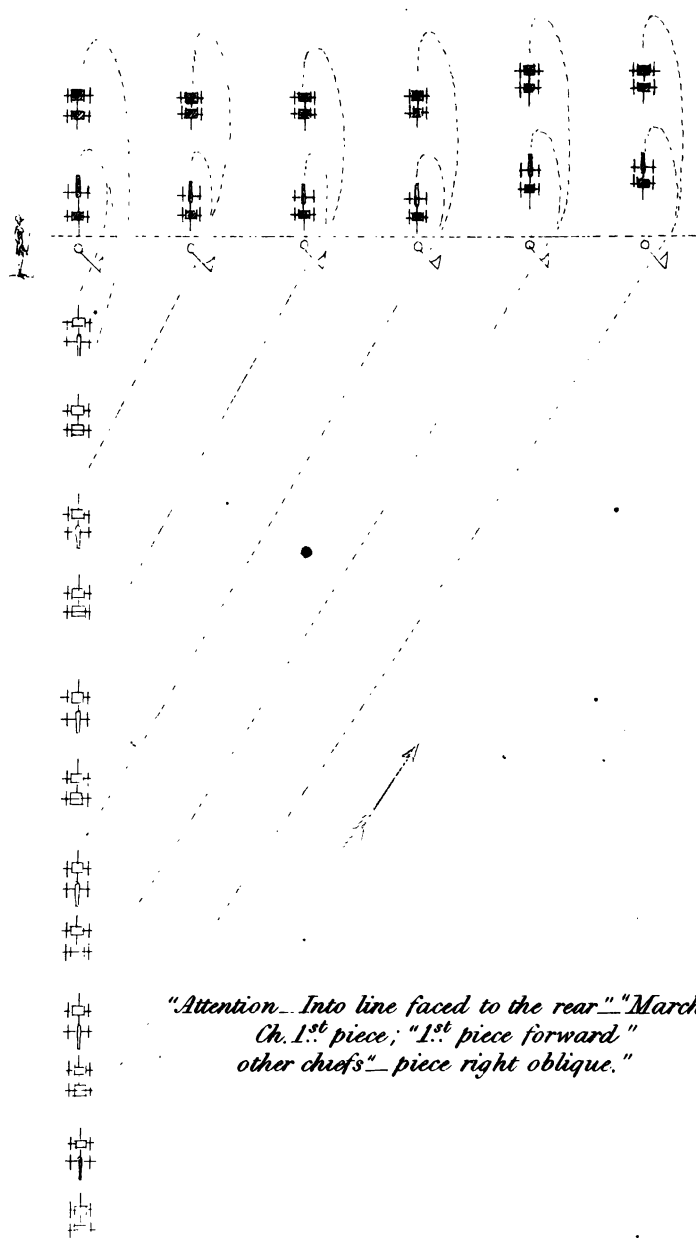
A column of pieces, left in front, forms into line to the right in precisely the same manner by each piece and caisson wheeling to the right.

Columns of sections or half-batteries perform this manœuvre in the same general manner, the sections and half-batteries wheeling as such.

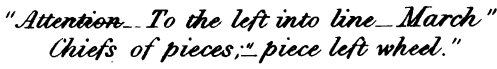
4. ON THE RIGHT. [Pl. 85.]

Attention—On the right into line.

Chief of the 1st piece, *1st piece—Right wheel—*

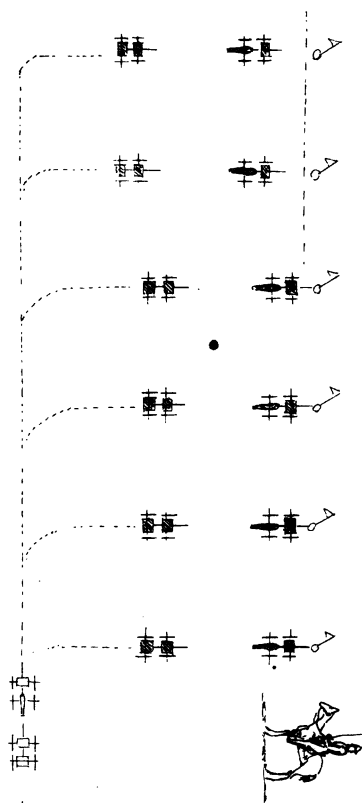


Pl. 84.

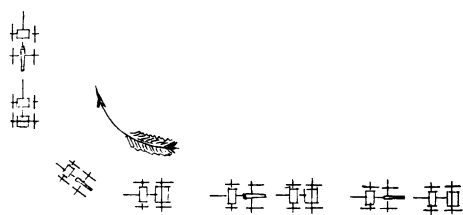


On the right into line.

Pl. 85.



"Attention—On the right into line—March"
Ch. 1st piece; "1st piece right wheel."



MARCH.

1st piece, followed by its caisson, wheels to the right, and moves on at right angles to its former direction with a slackened pace. The other pieces continue, with increased speed, the march in column, pass the piece which has already wheeled to the right, and when respectively opposite their proper positions in line, wheel to the right, and come up in their proper order and with their proper intervals abreast and on the left of the preceding piece.

Should the captain wish to continue the march in line, he commands

Battery—Guide right (or left).

Should he wish to halt and dress the line, he commands

Battery—HALT—Right (or left) dress.

Moving in column with the left in front, *on left into line* is executed in the same manner. A column of sections or half-batteries perform these manœuvres as a column of pieces, except that they wheel into line by sections or half-batteries.

5. TO DEPLOY A COLUMN FORMED ON THE CENTRE SECTION.

I. TO THE FRONT. [Pl. 81, fig. 2.]

The centre pieces advance with slackened pace, while those in the rear oblique to the right and left and come up abreast of them and at proper intervals.

II. TO THE REAR.

Can be executed only by inversion. The pieces form as before, the caissons pass their pieces, and all the pieces and caissons wheel to the left about.

III. TO THE RIGHT.

Right half-battery executes *to the right into line*, and the left half-battery executes *on the right into line*.

IV. TO THE LEFT.

Left half-battery executes *to the left into line*, and the right half-battery executes *on the left into line*.

XXI. TO FORM A COLUMN OF PIECES INTO BATTERY.

- | | |
|-----------------------------------|----------------------------------|
| 1st. <i>To fire to the front.</i> | 3d. <i>To fire to the right.</i> |
| 2d. <i>To fire to the rear.</i> | 4th. <i>To fire to the left.</i> |

The column is supposed to be right in front; corresponding manœuvres with the left in front do not differ in principle.

1. TO FIRE TO THE FRONT.

Attention—Front into battery—MARCH.

The movement is identical with that of *front into line* (Art. XX. 1st), except that the 1st piece halts and unlimbers in *action front*, and that the others form up abreast on the left and do likewise.

2. TO FIRE TO THE REAR.

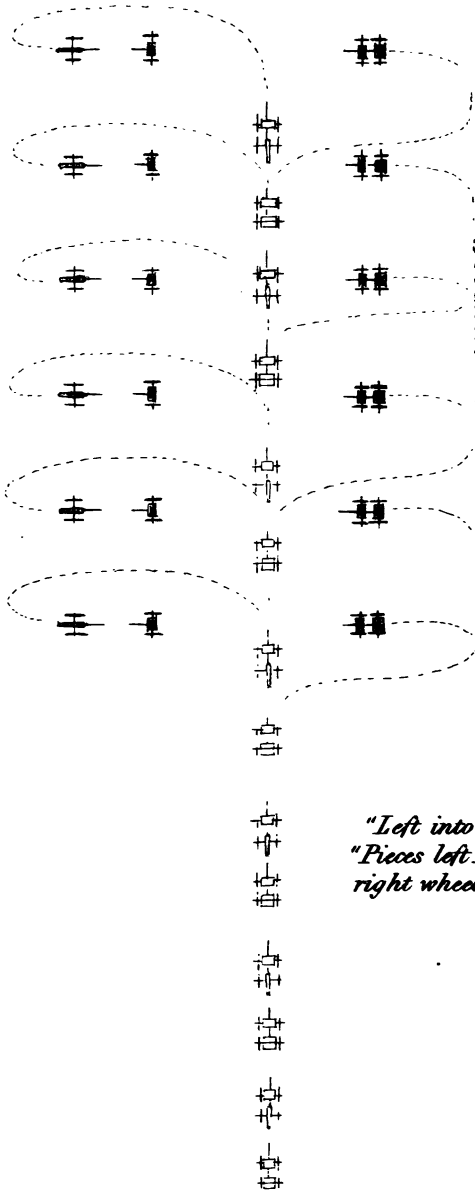
Attention—Into battery, to fire to the rear—MARCH.

Execution identical with that of *to the rear into line* (Art. XX. 2d), except that the pieces do not wheel to the left about, but *unlimber in battery*, as they come up abreast of the leading piece.

3. TO FIRE TO THE RIGHT.

Attention—On the right into battery—MARCH.

Execution identical with that of *on the right into line* (Art. XX. 4th), except that the caissons do not wheel with their pieces but in the opposite direction, then move their length to the left, wheel about, and dress up to the proper distance; and that the pieces halt after moving a length beyond the wheeling point and perform *action front*.



4. TO FIRE TO THE LEFT. [Pl. 86.]

*Attention—To the left into battery—pieces left, caissons right wheel—
MARCH.*

Execution identical with that of *to the left into line* (Art. XX. 3d), with the same exceptions as the foregoing.

NOTE.—In the 1st, 3d, and 4th cases, it may be recommended, with strong crews, instead of halting in line and performing *action front*, to wheel to the left about before unlimbering and then *unlimber in battery*.

XXII. CHANGE OF FRONT.

Changes of front are usually made when *in battery*, and may be reduced to the three following cases:—

- 1st. *Forward on the right (or left) piece.*
- 2d. *To the rear on the right (or left) piece.*
- 3d. *To the right (or left) on an interior piece.*

1. FORWARD ON THE RIGHT PIECE. [Pl. 87.]

Attention—change front forward on the right piece.

Chief of the 1st piece, *1st piece—right wheel—*

Other chiefs—*piece—Right oblique—*

MARCH.

The trail of the 1st piece is thrown to the left at right angles to its former position; its limber wheels to the left, and takes position in rear of its piece. The other pieces followed by their limbers advance obliquely to the right and, by passing over the shortest line, are brought successively to the left of the piece or pieces already established on the new line. The pieces may, if necessary, be *limbered up to the front*, and afterwards *unlimber action front*.

The line of caissons wheels to the left, the left caisson advancing to the front; all follow the left caisson in column, until opposite their respective pieces, then severally wheel to the right, and close up to the proper distance in rear of the line of pieces.

The corresponding change of front on the left piece does not differ in principle.

2. TO THE REAR, ON THE RIGHT PIECE. [Pl. 88.]

Attention—Change front to the rear, on the right piece—

Pieces and caissons left about wheel—

Chief 1st piece, *1st piece left wheel—*

MARCH.

All the limbers, except the first, and all the caissons, wheel to the left about. The trail of the 1st piece is thrown to the right, and its limber brought to its rear. The limbers of the other pieces preceding, these pieces are brought *in retreat*, over the diagonal, to their places on the left of the piece or pieces already established on the new line. The pieces may, if necessary, *limber up to the rear*, and after reaching their places be *unlimbered in battery*.

The line of caissons moves one-half its length to the rear, wheels to the left into column, moves in that direction a distance somewhat greater than half the front of the line, and files to the left; when the several caissons are opposite their respective pieces, they wheel to the left and dress up to the proper distances in rear of the line of pieces.

A change of front to the rear on the left piece is made in the same general manner.

3. ON AN INTERIOR PIECE. [Pl. 89.]

Attention—Change front on the 3d piece—Left wing—Forward.

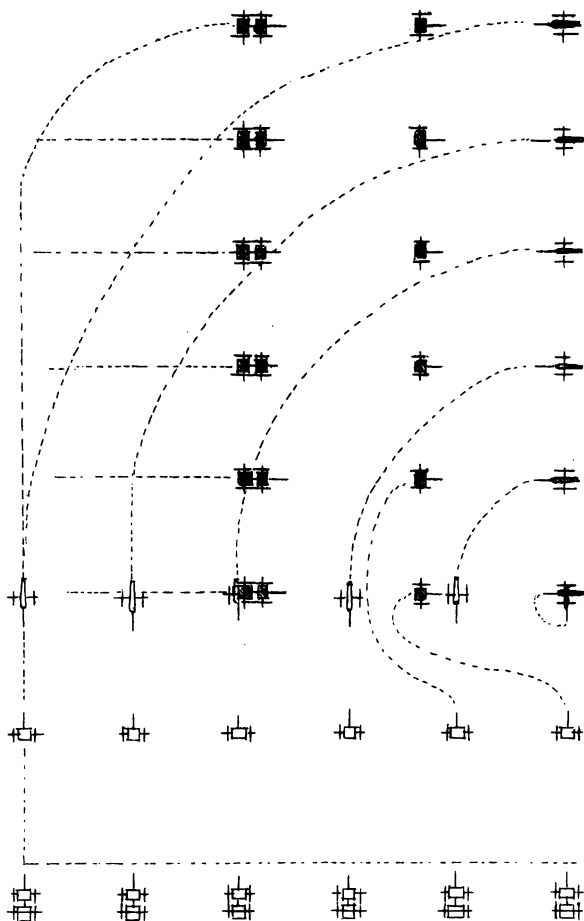
Chief 3d piece, *3d piece right wheel—*

Chiefs 1st and 2d pieces—*piece left about wheel—*

Chiefs 4th, 5th, and 6th pieces—*piece right oblique—*

Change of front—Forward on the right piece. Pl. 87.

*"Attention—change front forward on the right piece—
 Ch. 1st piece;—"1st piece—Right wheel."
 other chiefs of pieces;—"piece—Right oblique."
 "March."*



MARCH.

The trail of the 3d piece is thrown to the left, and its limber wheeled to the left, and brought in rear of it. The limbers of the 1st and 2d pieces wheel to the left about; these pieces and limbers then move *in retreat* obliquely to the right, until they find themselves on the new line, to the right of, and at proper distances from the 3d piece. The 4th, 5th, and 6th pieces move in *advance* obliquely to the right until they find themselves on the new line to the left of, and at proper intervals from, the 3d.

The caissons wheel to the left into column, file to the right, and when opposite their places respectively, wheel to the right and dress up to the proper interval in rear of the line of pieces.

The same method, or one very similar, applies when the left wing is thrown to the rear; and when the change of front is made on any other interior piece than the 3d.

NOTE.—Corresponding changes of front may be made with the battery *in line*. The commands are identical, and the execution differs only in detail.

XXIII. TO ADVANCE IN LINE, CHANGE DIRECTION, &c.

Battery forward—Guide right (or left)—MARCH.

Each piece, followed by its caisson at the proper distance in rear, moves forward, keeping the proper interval from and dress towards the directing flank.

Battery—Right (or left) wheel—MARCH.

Pivot gun executes the wheel with locked wheels, others oblique, observing the interval from the pivot, and dress on the directing flank, and regulating their speed by their relative positions, with respect to the latter. The line may be concave, but never convex. The guide must always be on the flank opposite to the change of direction. Line of caissons wheels on the same ground as the line of pieces.

Battery—Forward—MARCH.

Line of pieces move forward, leaving the line of caissons to complete the wheel. The latter in due time follows.

Battery—Right oblique—MARCH.

Each piece and caisson obliques as ordered, observing that the line shall remain parallel to itself, as in the corresponding infantry movement.

Battery—Forward—MARCH.

Pieces and caissons resume the direct march.

Pieces and caissons—Right wheel—MARCH.

Each line forms a separate column, and marches in the same direction, in parallel lines and at the proper distance.

Pieces and caissons—Left wheel—MARCH.

Each piece and caisson wheels to the front, thereby re-forming the order in line, and moves in that direction.

Battery—Guide right (or left).

The intervals and dress are kept from the directing flank.

*Battery—In retreat—Pieces and caissons—Left about wheel—***MARCH.**

Each piece and caisson wheels about and moves in retreat, regard being had to interval and dress.

*Pieces and caissons—Left about wheel—MARCH—Battery—HALT—
Right (or left)—DRESS.*

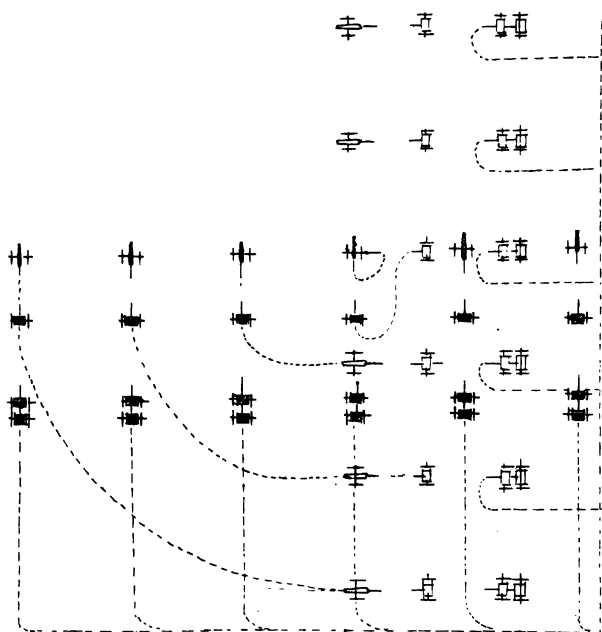
REMARK.—Corresponding movements with the pieces unlimbered, or *in battery*, may be made. In this case there are three lines instead of two as before. In retreating whilst *in battery*, the limbers and caissons alone go about, the pieces moving *in retreat*. The commands do not differ from the foregoing.

"Attention—change front on the 3rd piece—Left wing—forward—"

Ch. 3rd piece;—"3rd piece right wheel—"

Chiefs 1st and 2nd pieces;—"piece left about wheel—"

Chiefs 4th 5th and 6th pieces;—"piece right oblique—March."



XXIV. FIRING.

1. TO THE FRONT.

If the battery be advancing in column form *line to the front*, and then *action front*; or form *battery to the front* in the first instance. If the advancing column be formed on the centre section, *deploy* and form *action front*.

If the battery be retreating in column, form *into line faced to the rear* and *action front*, or simply *into battery faced to the rear*.

If the battery be advancing in line, form *action front*; if retreating in line, *unlimber in battery*.

2. TO THE REAR.

If advancing in column, form *into line faced to the rear*, and then *unlimber into battery*; or form simply *into battery to fire to the rear*. If retreating in column, form *front into line* and *action front*, or *front into battery*. If advancing in column on the centre section, *deploy* and *unlimber in battery*, in which case the caissons pass the pieces. If retreating, *front into battery* and *action front*.

If advancing in line, *unlimber in battery*. If retreating in line, *action front*; in both of which cases the caissons pass behind the pieces.

If advancing or retreating in battery, *halt* and command *fire to the rear*. [Pl. 90, fig. 1.]

3. TO THE RIGHT or LEFT.

If in column, form *on* or *to the right* or *left into battery* by the methods laid down in Art. XXI.; or if there be but little room, halt the column, and command *action right* (or *left*), as the case may require.

If in line, *change front* and form *action front*. If in battery, *change front* simply.

4. ECHELLON TO THE RIGHT or LEFT.

This method, by which the fire of an advancing battery, in line, or in battery, may be directed to the right or left, has the advantage of preserving the front, so that the line may be re-established by simply dressing forward the pieces in the rear.

By pieces, from the left—Front into echelon—MARCH. [Pl. 91.]

The entire battery, except the left piece, moves forward with the guide left. The left piece at once forms *action left*, and may open the fire. When the piece next to the left has fully uncovered the left piece, it halts and forms *action left* in like manner. When the 3d piece from the left has uncovered the 2d piece from the left, it halts and forms *action left*. And so in like manner each piece halts and forms *action left*, when it shall have uncovered the piece on its left.

If the pieces be in battery, at command *front into echelon*, they need not limber up, but may move forward, halt, and open a fire to the left at the proper moment.

A retreating battery could perform the same movement at the command—*By pieces—From the left in retreat into echelon.*

Whether retreating or advancing, the line would be reformed by the command—*Right dress.*

5. TO THE FRONT (or rear) AND BOTH FLANKS. [Pl. 90, fig. 2.]

Fire to the front, right and left—MARCH.

The right section forms *echelon to fire to the right*. The left section forms *echelon to fire to the left*. The centre section moves forward until it has uncovered the others and forms *action front*. The caissons do not advance.

With a battery of four pieces, the 1st and 4th would fire to the right and left, and the 2d and 3d to the front.

To fire to the rear and flanks all the caissons pass their pieces, and the centre pieces *unlimber in battery*.

If the battery be already *in battery*, the pieces are not limbered up, but take the positions assigned, and open the fire.

A fire to the right and left, or to the front and right (or left) could

Firing.
Fig. 1.
To the rear.

Pl. 90.

"Attention—Fire to the rear."

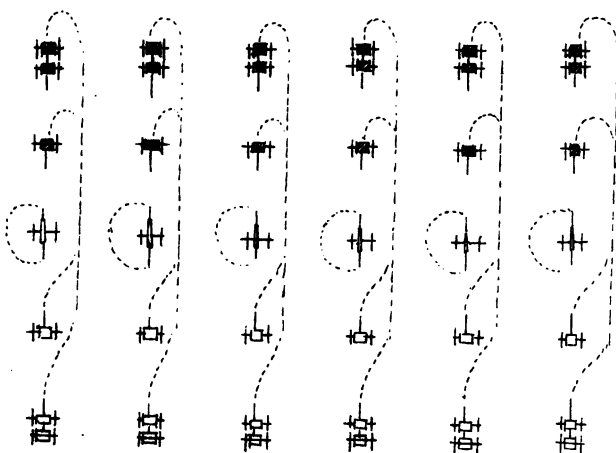
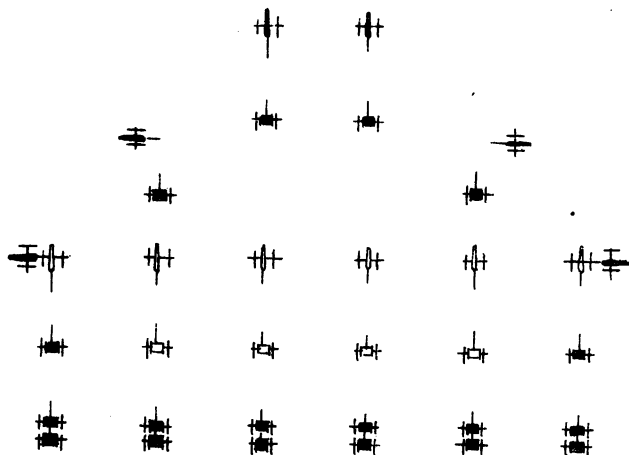
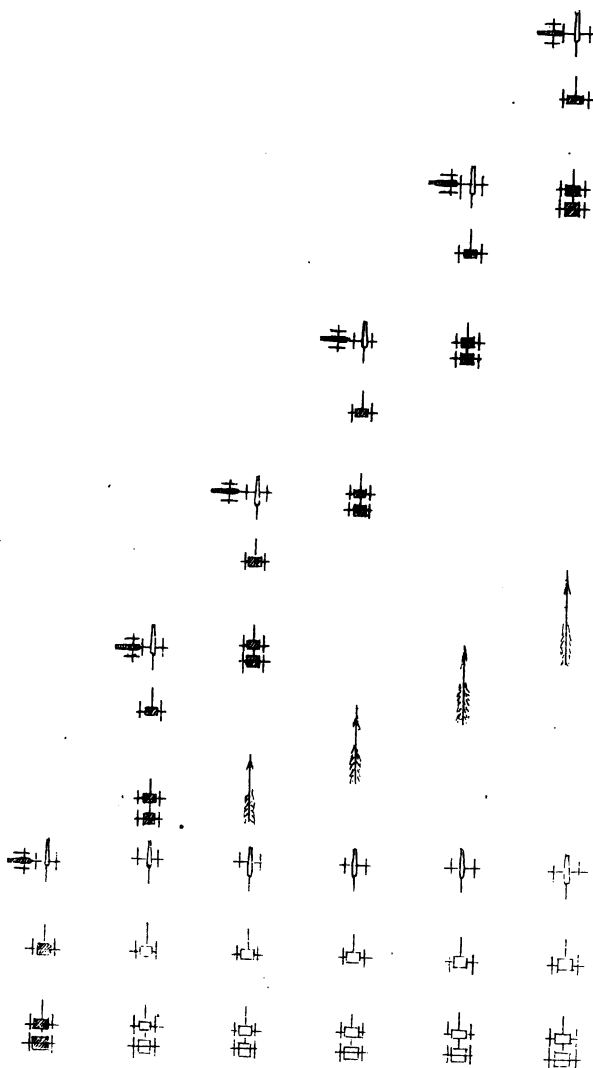


Fig. 2.
To the front and both flanks.
"Attention—Fire to the front, right and left."



*Firing
In echelon to the left (or right)
"Attention—By pieces from the left—
Front into echelon—March."*

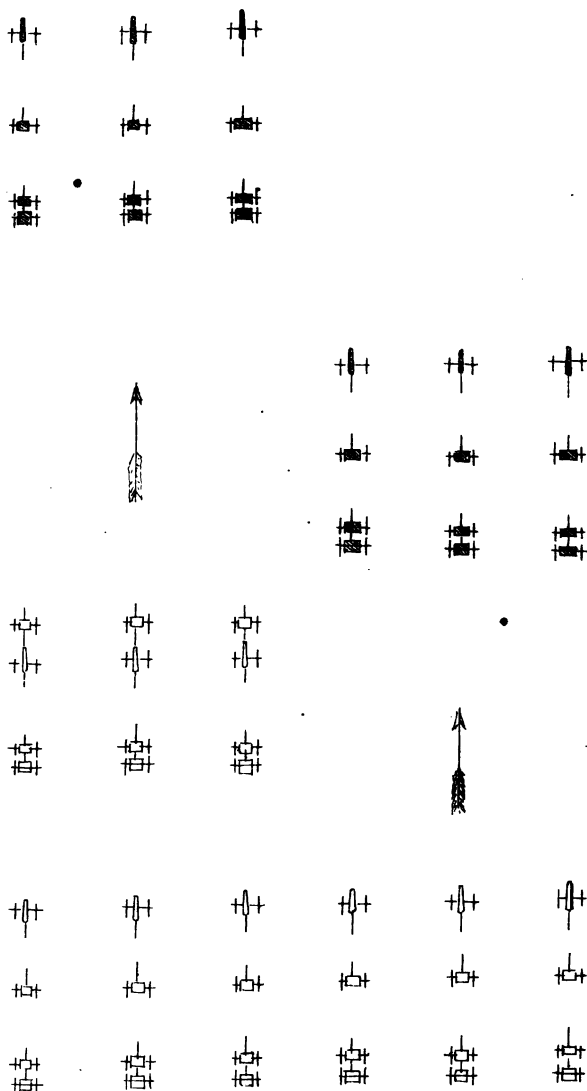
Pl. 91.



Firing.
Advancing by half batteries.

Pl. 92.

*"Attention—Fire advancing by half batteries—
"Right half battery—Advance."*



be opened by causing the half-batteries to form echelon towards their respective flanks; but in all these cases the line of caissons remains in line.

6. ADVANCING (or RETREATING) BY HALF-BATTERIES.

Fire advancing by half-batteries—[Pl. 92.]

Right half-battery—ADVANCE.

The right half-battery, if in action ceases firing (limbers up to the front, or remains unlimbered, as may be thought best), and advances to the new position pointed out by the chief of battery: then re-opens the fire.

The left half-battery, if in action, continues the fire during the advance, taking care to direct the fire in such a manner as not to endanger the half-battery in advance. When the right half-battery is established, and has reopened the fire, the left advances, passes the right, and opens a fire at such point in advance of the first as may be pointed out by the chief of battery.

The right half-battery again advances, and afterwards the left; and so on successively, until another disposition is indicated by the command—*Battery—Right (or left)*—DRESS.

TO FIRE RETIRING BY HALF-BATTERIES, is executed in a corresponding manner, by the commands

Fire, retiring by half-batteries—

Right half-battery—RETIRE.

A battery may be thrown forward, or in retreat, by sections, or even by pieces in manner corresponding, the commands being—

Fire advancing (or retiring) by sections (or pieces)—1st section (or 1st piece)—ADVANCE (or RETIRE).

The use of the prolonge in firing greatly facilitates the execution of these and other corresponding movements. It should be fixed whenever a battery is brought into action, with the probability that a change of position will be required.

PART IV.

SMALL AND BROADSWORD EXERCISES.

SMALLSWORD EXERCISE.

THE practice begins without the sword, with the—

I. BALANCE MOTIONS. [Pl. 93.]

ATTENTION.

Body erect, heels close, hands hanging down at ease, shoulders back, chest open, head erect.

First position—ONE.

Half face to the left, left hand grasping the right arm above the elbow, right supporting the left elbow in the hollow of the hand, head to the front, feet at right angles, heels together, right foot pointing front, shoulders square to the left, knees well together.

TWO.

Bend the knees, pressing them out, body erect, weight resting on left leg.

THREE.

Move right foot eight inches to the rear of left foot, toe lightly touching the ground, foot held vertically, knees well pressed out.

FOUR.

Move right foot smartly eighteen inches in advance of the left heel, heels in line, weight of body well on left leg.

REST.

Come up smartly to *one*.

These balance motions should be well practised in squad.

II. TAKE THE SWORD. [Pl. 94.]

THE SIMPLE PARADES.

The first practice should be in the four simple parades of *Carte*, *Tierce*, *Demi-circle*, and *Octave*.

CARTE—ON GUARD.

Step out smartly, eighteen inches, with the right foot, body well up, head erect, chest full, waist in, shoulders square to the left, weight well on left leg, knees pressed out, heels in line, feet square, sword held firmly but lightly in hand, wrist flexible, opposite the mark or nipple of the breast, elbow rather in; the left arm at an easy curve raised behind the head, hand open, fingers together; hold the sword with the two first fingers, the thumb along the handle, not too near the shell or guard, the points of the fingers up, the button of the sword opposite the hollow of the shoulder.

MARCH.

Right foot forward six inches, eye over the button and on your adversary's eye; follow with the left foot, same distance, and come to a steady guard. Not too fast, count one, two, or right, left.

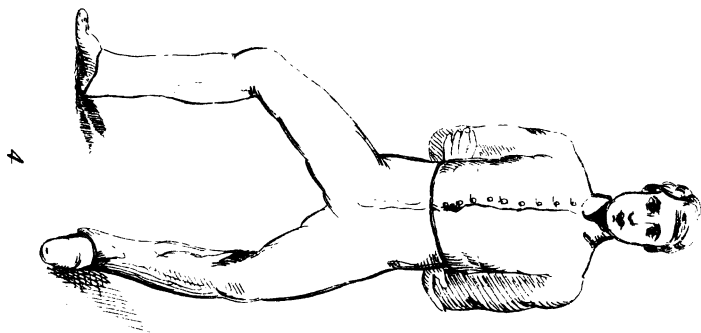
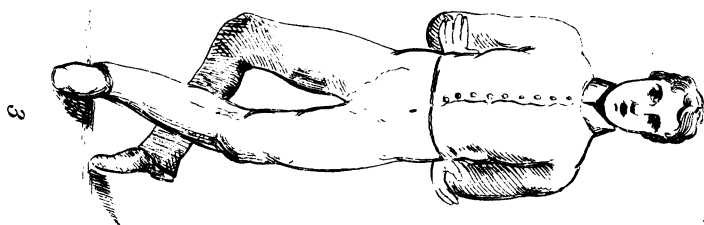
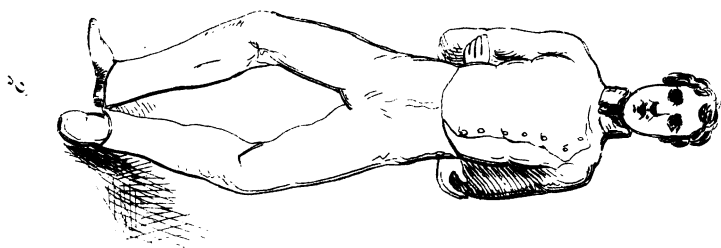
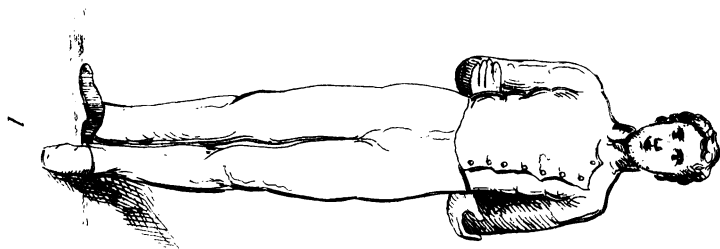
Practise this well, till you can march and not totter when coming on guard.

RETIRE.

Left foot back six inches, right foot follows. Come on a steady guard.

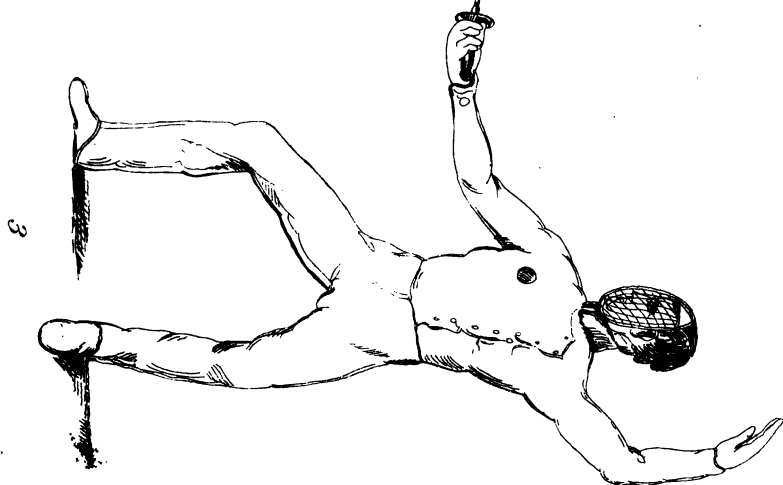
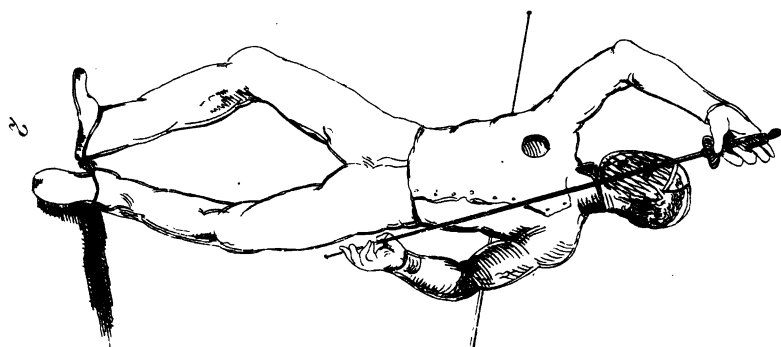
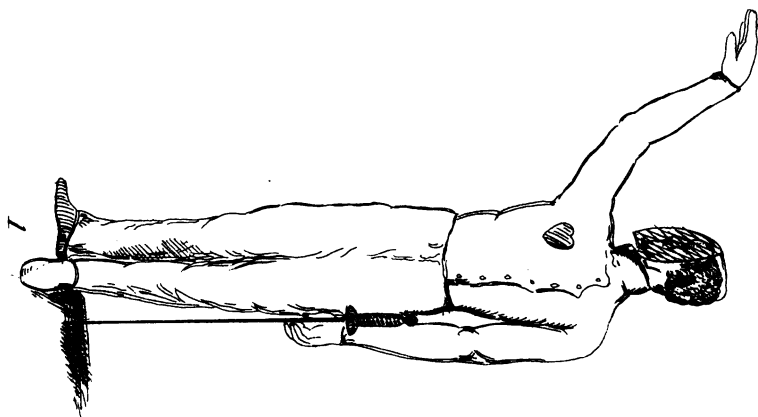
LONGE—CARTE. [Pl. 95, fig. 2.]

Step out thirty-six inches, knee quite perpendicular to the instep, left knee well straightened, left arm brought down along the left side



On guard.

Pl. 94.



but not touching, palm to the front, fingers straight, body well up, head erect, right hand higher than the head, fingers pointing up, button low as the shoulder, see over and outside the arm.

ON GUARD.

Come up without a jerk; steady on guard.

MARCH—LONGE—RETIRE—LONGE—ON GUARD.

CHANGE—TIERCE.

You were on guard in *Carte*. Drop your point close under your adversary's sword, and come up on the left side of his blade; turn your wrist, your thumb comes more to the top, your knuckles to the right, your fingers down, the sword held with a stronger grasp.

LONGE, [Pl. 96].

Out smartly, head well up, see your adversary inside of your arm.

ON GUARD—MARCH—CHANGE—LONGE CARTE—ON GUARD.

RETIRE—CHANGE—TIERCE—LONGE—ON GUARD.

REST.

Come to the first position, the sword button on the right foot, left arm by the side.

ON GUARD—IN CARTE.

CHANGE—DEMI-CIRCLE.

Extend your arm, hand high as the hollow of the shoulder, point below the mark, fingers up, opposition on the right of your adversary's blade.

CHANGE—OCTAVE.

Pass your sword over but close to his sword, the hand still *in carte*, but the blade opposed *in tierce*.

LONGE—OCTAVE.

Longe with the hand high as the chin, hit in the flank, rather above the hip.

ON GUARD—CHANGE—DEMI-CIRCLE.

Make your change close, keep a steady hand.

LONGE—DEMI-CIRCLE—ON GUARD. [Pl. 97.]

CARTE—LONGE—TIERCE—LONGE—DEMI-CIRCLE—LONGE—
OCTAVE—LONGE.

ON GUARD—CARTE—BEAT.

By a circular movement of the wrist, briskly engage his blade in the feeble with your forte, pass down with half circle, bringing your point toward his hand, but well up at the same time.

ON GUARD—IN CARTE—DISENGAGE—ONE.

Without changing your hand, drop your point under his blade ; by relaxing your grasp, bring it up closely on his left.

DISENGAGE—ONE, TWO.

Finding an opposition to your first disengagement by the same movement, drop your point and return to *carte*.

DISENGAGE—ONE, TWO, THREE.

Bring it back to the first disengagement.

DISENGAGE—ONE—LONGE—DISENGAGE—ONE, TWO—LONGE.

DISENGAGE—ONE, TWO, THREE—LONGE.

THE PARRIES.

PARRY—CARTE. [Pl. 95, fig. 1.]

When your adversary longes *in carte*, keep your point before you for a return, that by moving your hand inside, say six inches, you may carry his point clear of your left ear ; be careful not to move the whole blade, lest he makes a reprise or double thrust.

RIPOSTE.

Having made your parry, return your longe immediately ; but keep cool, do not flurry yourself, and come quickly on guard.

PARRY—TIERCE.

Keep your point well before you, contract the arm slightly and raise your hand, that you may throw his point clear of your right ear.

PARRY—DEMI-CIRCLE. [Pl. 97.]

Parry inside—your point in the centre, but lower than your hand.

PARRY—OCTAVE.

Parry outside, wrist bent toward the centre, point low.

LONGE—SECOND.

Your guard being *in tierce*, drop your point by a semi-circular movement, and longe at the flank.

PARRY—SECOND.

By the demi-circle parade.

PARRY—PRIME. [Pl. 96.]

A longe *in tierce* is made, draw your hand back *in tierce* as high as your brow, point low and obliquely to the left front.

RETURN—SECOND.

Requiring neatness in parry, but very sure return; the adversary will

PARRY DEMI-CIRCLE.

LONGE—QUINTE.

Your adversary holding a high guard *in carte*, drop your point to a horizontal, and longe in close under his hand; this parade, being very rarely successful, is seldom used.

FLANCONNADE.

Your adversary longes *tierce*; you engage his *feeble* with your *forte*, and, by a circular motion and strong wrist, throw him off, at the same moment making a flank longe. This is also done from *carte* engagements, but is seldom successful.

THE COUNTERS.

Your adversary disengages; at the same moment that he drops his point, follow over and oppose on the side he left. This should be constantly practised in the four simple parades.

Change from *counter-carte* to *tierce*, then

COUNTER—TIERCE.

Change to *demi-circle*.

COUNTER—DEMI-CIRCLE.

Change to *octave*.

COUNTER—OCTAVE.

Change to *carte*, and repeat. This is very good practice.

CUT OVER THE POINT.

Instead of disengaging under the sword, throw your sword back till it clears your adversary's point, and then longe when at *guard*.

CUT—ONE—TWO.

Finding opposition at the first cut, return back the same way and longe.

CUT—ONE—DISENGAGE.

But never disengage and then cut, it always exposes you in the attempt.

CUT—ONE—TWO—DISENGAGE.

Cut one, two—disengage one, and longe

DOUBLE.

Your adversary's point being low and he wary, pass your point in a complete circle round his point, and if he should follow close thrust immediately on arriving home; then—

DOUBLE—ONE—TWO.

Making two circles before you longe.

In all doubles and counters take care to keep your circle as small as possible, or you will expose yourself to a time-thrust.

III. SALUTE.

Being at *attention*, preparing for an assault, your sword by your side, held by the finger and thumb, three inches from the guard or shell, the blade along your leg, raise your hand very slowly till above your eye—so as to see your opponent below the palm—pass your hand over to the grip of your sword, draw it through your finger and thumb till it lays across your eye, and at the same time bend your knees; step out smartly, throw your point over, and come on *guard*; make a double beat with your foot, come to *attention* with your heels close, body erect, sword perpendicular, hand with the wrist turned inward, and as high as your mouth; bring the point down over your left ear, circling close to your body, and as you come up, change your hand from *tierce* to *carte*; spring to your position and be on *guard*, and remain steady prepared to receive your adversary's thrust.

POSITION OF THE SWORD OR SABRE UNDER ARMS.

THE CARRY.

The gripe in the right hand, which is supported against the right hip, the back of the blade against the shoulder.

TO SALUTE WITH THE SWORD OR SABRE.

Three times (or pauses).

ONE.

At the distance of six paces from the person to be saluted, raise the sword or sabre perpendicularly, the point up, the flat of the blade opposite to the right eye, the guard at the height of the shoulder and the elbow supported on the body.

Two.

Drop the point of the sword or sabre by extending the arm, so that the right hand may be brought to the side of the right thigh, and remain in that position until the person to whom the salute is rendered shall be passed, or shall have passed, six paces.

THREE.

Raise the sword or sabre smartly, and resume the position first prescribed.

NOTE.—On parade, the officer remains in the second position so long as the men are at a present.

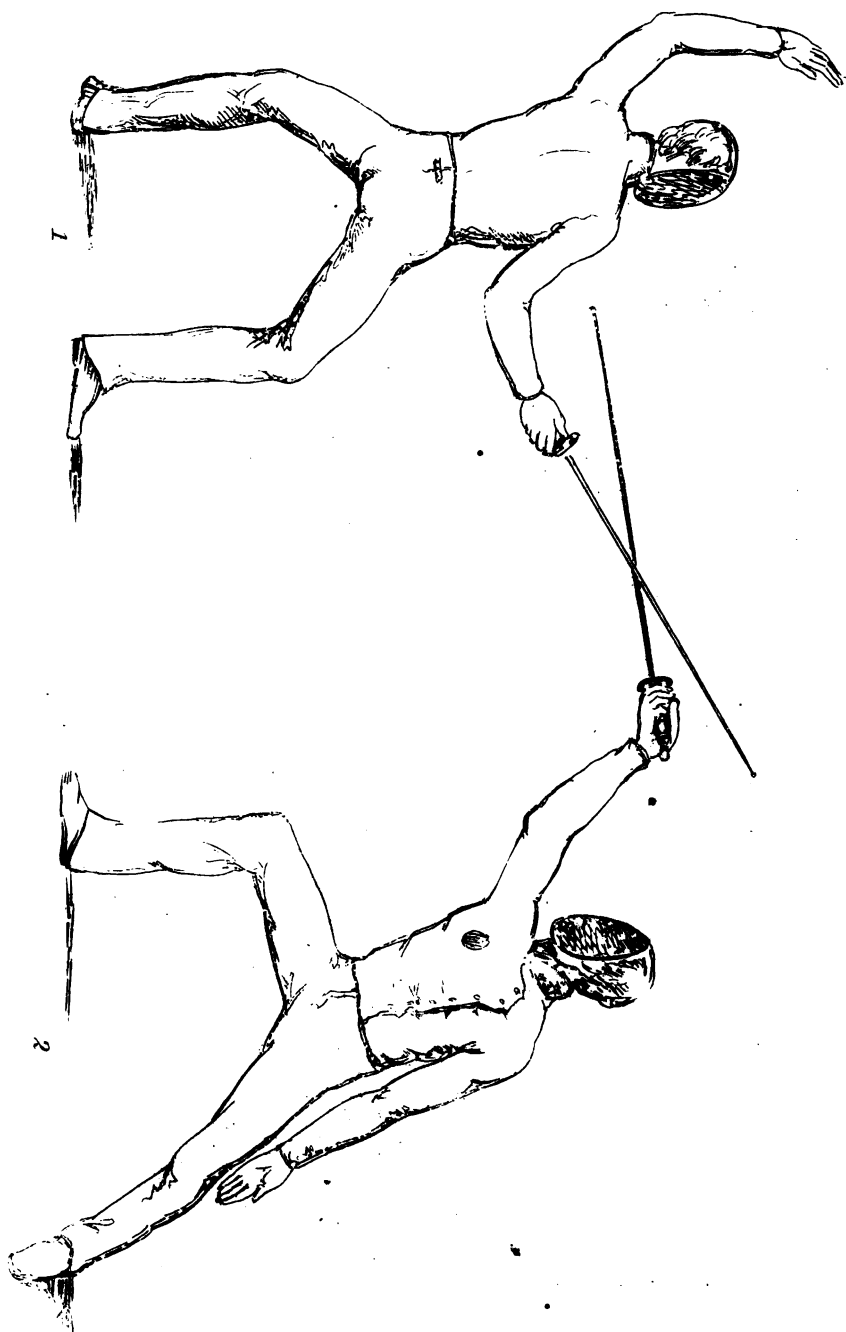
COLOR SALUTE.

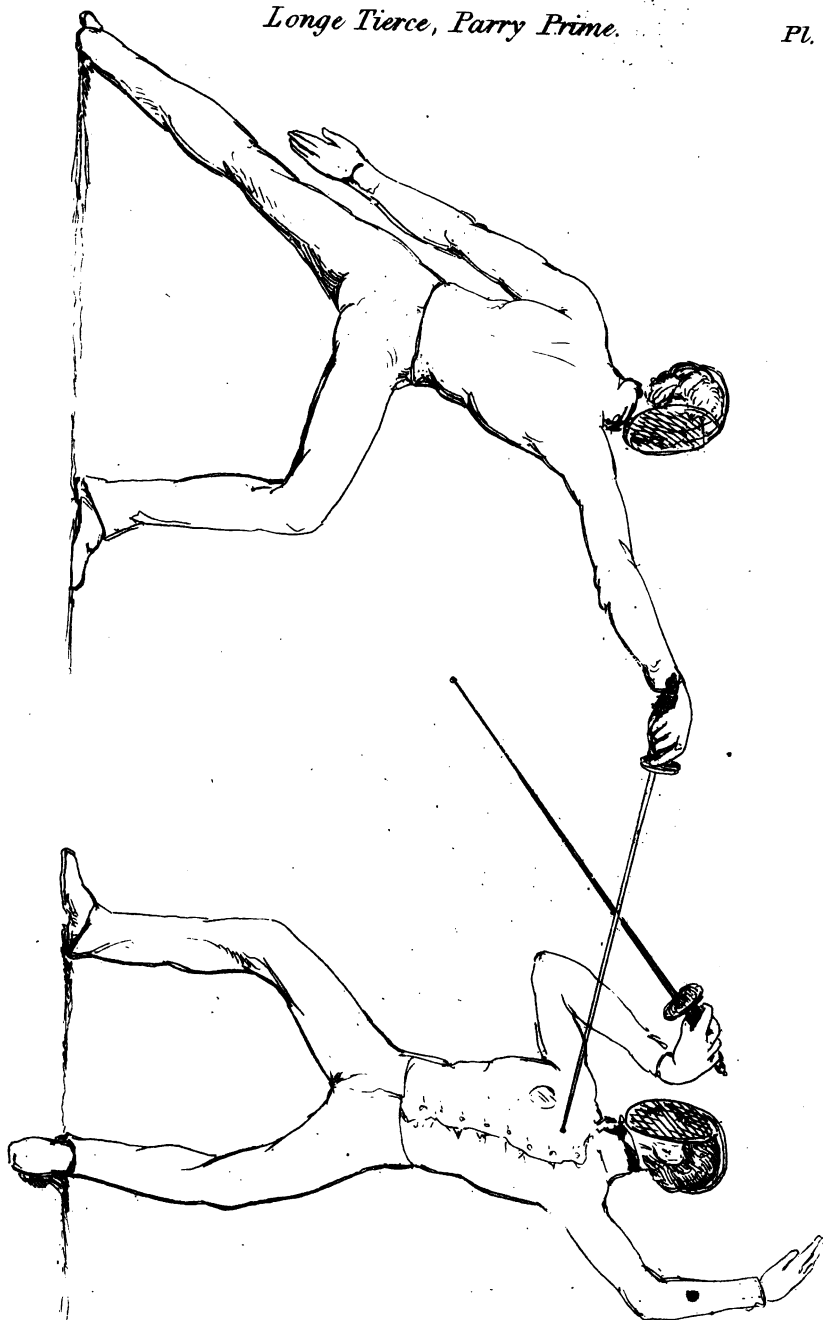
In the ranks, the color-bearer, whether at a halt or on a march, always carries the heel of the color-lance supported at the right hip, the right hand generally placed on the lance at the height of the shoulder, to hold it steady.

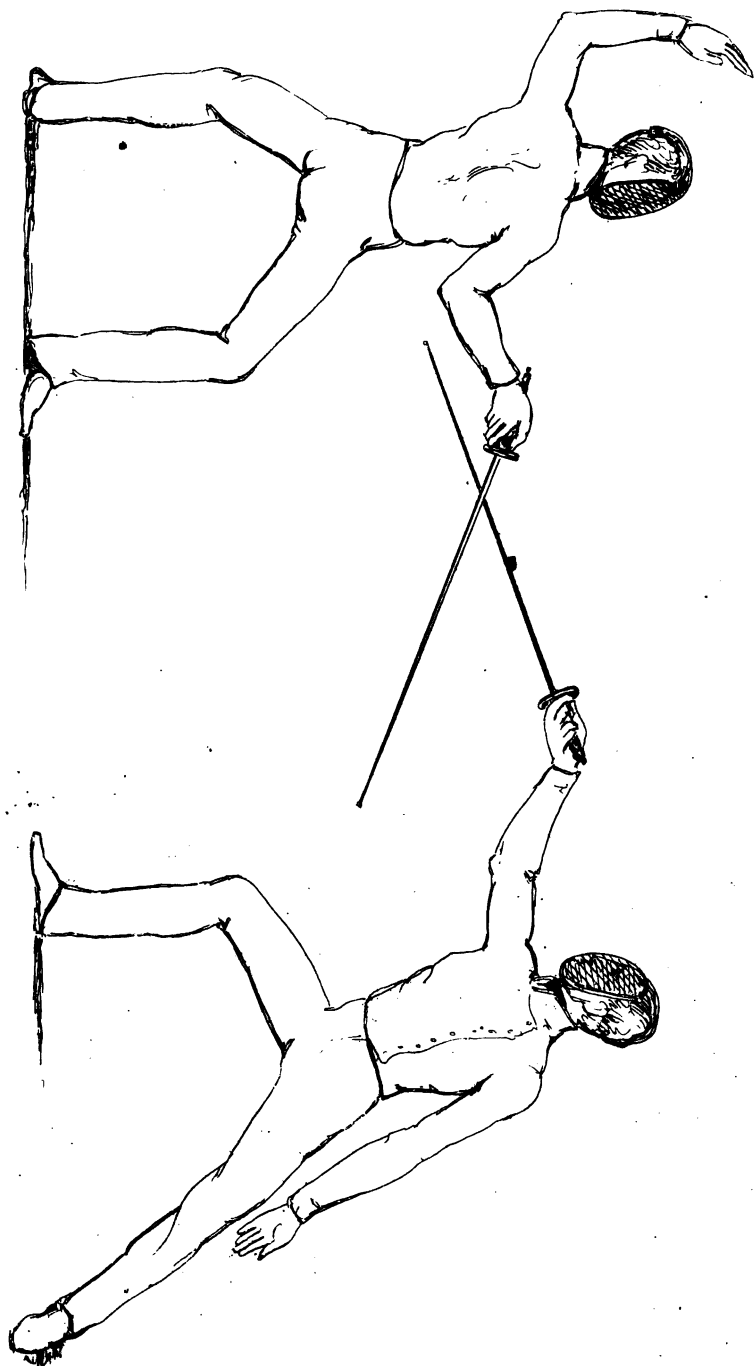
When the color has to render honors, the color-bearer salutes as follows :

At the distance of six paces slip the right hand along the lance to the height of the eye ; lower the lance by straightening the arm to its full extent, the heel of the lance remaining at the hip, and when the person saluted shall be passed, or shall have passed six paces, bring back the lance to the usual position.

NOTE.—The color, in bad or windy weather, except in saluting, will be borne furled and cased. The heel or ferrule of its lance ought to have, for support, a leather stirrup or socket, suspended from a belt, the latter buckled around the waist of the color-bearer.







BROADSWORD EXERCISE.

IV. POSITIONS.

FIRST POSITION—(*In two motions.*)

ONE.

Hands to the rear; right hand under the left elbow. The left hand grasps the right arm near and above the elbow.

TWO.

Half face to the left; head to the front. Feet at right angles; right heel in front of the left heel.

SECOND POSITION—(*In two motions.*)

ONE.

Knees bent and pressed outward; heels together; body erect.

TWO.

Step out twenty-two inches, and come smartly on guard.

CAUTION.—The guard requires the body to be erect, resting lightly on the left leg, with the knees well pressed out, the right knee being in a line perpendicular to the instep; head well up; chin brought rather in; chest open, breathing freely; shoulders square to the left and drawn back; the waist drawn in; the body well balanced on the hips, that the right foot may be freely advanced or drawn back at will.

For these preparatory positions, and the balance motions, the practice for the smallsword and for the broadsword is the same.

V. BALANCE MOTIONS.

ONE.

Being on guard, move the right foot to the rear and left, the toe resting on the ground eight inches from the left heel; the knees well bent.

TWO.

Extend the left leg.

THREE.

Bend the left leg, falling into number one.

FOUR.

Come on guard.

FIVE.

Come up to the first position.

CAUTION.—All these movements must be made with ease and grace; the body being well supported on the left leg; the right foot moving freely without changing the poise of the body.

ON GUARD—THIRD POSITION.

LONGE.

Step out smartly from guard, keeping the left foot firm; strongly straighten the left leg, placing the right foot thirty-six inches from the left (more or less according to size.) Right knee in a line perpendicular to the foot. Recover lightly to the first position.

FRONT—ATTENTION.

Drop the hands by the side; half turn to the right; feet at right angles; shoulders square to the front; head up; chest full.

FIRST POSITION.

Half face to the left.

SECOND POSITION.

On guard.

SINGLE ATTACK.

Appel, or give a smart beat with the heel and flat of the foot.
Body steady.

DOUBLE ATTACK.

Give a double beat of the foot.

CAUTION.—The use of the appel is to give yourself the assurance of a well-balanced body and steady guard. It is also used after the salute to show your opponent that you are ready for the assault.

Being well practised in the preparatory movement, the learner takes the sword and places himself opposite the target, the centre of which is at nearly the height of the shoulder.

VI. PRACTICE AT THE TARGET. [Pl. 98.]

Attention—DRAW—SWORDS.

At the word *draw*, pass the hand across the body, seize the sword-knot, passing the hand through the loop; give a couple of turns inwards to fasten it, and grasp the handle of the sword; draw it half. At the word *swords*, clear the scabbard; bring the hand back to the right hip, the elbow a little bent, the edge to the front.

SLOPE—SWORDS.

Let the point fall lightly against the shoulder.

CARRY—SWORDS.

Resume the grasp.

Prepare to perform sword exercise.

FIRST POSITION—RIGHT PROVE DISTANCE.

Extend the arm to the right; left shoulder square to the front; sword edge to the rear, the point clear of the shoulder of the right file.

SLOPE SWORD—FRONT PROVE DISTANCE.

Step out to the third position. Extend the arm; lower the point to the centre of the target. In both these movements, the sword is held with the pommel of the hilt in the palm of the hand, the thumb on the back, the fore-fingers stretched along the handle.

SLOPE SWORD—FIRST POSITION.

GUARD—SECOND POSITION. [Pl. 99.]

Elbow bent, the edge upwards, the hand high as the head and over the right foot, the point lowered and inclined to the front, forming an angle through which you look. Left shoulder rather forward.

INSIDE GUARD. [Pl. 99.]

Point to the front; edge to the left; hand as low as the elbow. *Make the single attack.*

OUTSIDE GUARD. [Pl. 99.]

Edge to the right, point to the front, hand outside and before the right hip. *Make the single attack.*

ASSAULT—FIRST POSITION.

Raise the hand to the front; the elbow bent rather toward the centre, the point resting on the shoulder, the edge inclined to the right.

CUT ONE. [Pl. 101.]

Sweep the sword diagonally down from No. 1 to No. 4 on the target, turning the knuckles as it descends so as to bring the point up to the rear of the left shoulder, on which it rests.

CUT TWO.

Sweep diagonally down from No. 2 to No. 3, turning the wrist till the sword is perpendicular, the arm extended on a line with the shoulder, the edge to the rear.

CUT THREE. [Pl. 102.]

Cut upwards from No. 3 to No. 2; bring the sword to the left shoulder, perpendicular, the edge to the rear.

CUT FOUR.

Sweep up from 4 to 1, the sword extended to the right, the hand high as the shoulder, the edge to the rear.

CUT FIVE. [Pl. 103.]

Cut horizontally; turn the wrist so as to bring the edge to the left and the point to the rear over the left shoulder.

CUT SIX.

Cut horizontally till the point comes to the rear over the head. Edge up.

CUT SEVEN. [Pl. 104.]

Cut vertically down to the centre of the target.

POINT.

Draw in the elbow close to the body, wrist high as the breast and the edge upwards and towards the left. Point to the centre of the target.

N. B.—There are two other points, from the head and from the hip; but they are mostly useful in cavalry charges. The use of the smallsword gives all the advantage in the practice of points in the broadsword.

GUARD ONE. [Pl. 101.]

Grasp the hilt; the edge to the left; the point well to the front; wrist as high as the elbow.

GUARD TWO.

Knuckles up; edge to the right; the point to the front; hand as high as the elbow, and held well outside the body.

GUARD THREE. [Pl. 102.]

Wrist and edge to the left and as high as the shoulder. Point down towards the front and centre.

GUARD FOUR.

Wrist and edge to the right. Point to the left, hand as high as the shoulder.

GUARD FIVE. [Pl. 103.]

Hand as high as the shoulder, sword perpendicular, point down, edge to the left.

GUARD SIX.

Edge to the right; sword perpendicular and clear of the body.

GUARD SEVEN. [Pl. 104.]

Hand high as the head; elbow raised; left shoulder brought forward; point oblique to the front.

LEFT PARRY. [See Pl. 100.]

Lower the wrist to the line of the shoulder, the thumb at the back of the grip; the edge to the right; the hips well pressed back; the sword perpendicular. By a turn of the wrist, drop the point to the rear, and form a circle from left to right.

RIGHT PARRY.

Drop the point to the rear in a circle from right to left of your body.

MOULINETES. [Pl. 100.]

An exercise in which the right and left parry, and left and right parry alternate. These give suppleness and strength to the wrist; and by attention and quickness form the best guard for bayonet or boarding-pike thrusts.

VII. PRACTICE IN THE ASSAULT.

FORM LINE—FRONT.

FROM THE RIGHT BY TWOS—CALL OFF—*One, two—One, two, &c.*

COVER BY THE RIGHT—DRESS.

DRAW SWORDS—HALF FACE TO THE LEFT.

SLOPE SWORDS.

CARRY SWORDS.

RIGHT PROVE DISTANCE.

FRONT PROVE DISTANCE—FIRST POSITION.

Extend the arm straight before you, letting your point touch your adversary's hilt; the pommel of the hilt in the palm, the thumb along the back of the grip; the edge to the right. Step back or forward so as to touch the shell of your adversary's hilt, without bending your body from the perpendicular.

SLOPE SWORDS—ENGAGE.

On guard. Inside and outside guard. The edge of your sword resting lightly against your adversary's edge, eight or ten inches from the point.

No. 1.

Cut one (in third position).

No. 2.

Parry one.—As No. 1 steps out to the third position, giving a quick cut at the same moment, you spring up to the *first* position, and receive the cut on the edge of your sword, on the forte or lower half of the blade. Always take the cuts on your forte, and deliver the cuts within eight inches of your point, so that you may clear your blade; give it a slightly sawing move towards you as you deliver your cut, so as to cut the dress and assist the blow; being at close quarters, this saves any jar to the hand, especially with a heavy sword, Roman sword, or cutlass.

No. 2 having parried, cuts *two*.

No. 1.

Parry *one*, and cut *three*.

No. 2.

Parry *three*, cut *four*.

No. 1.

Parry *four*, cut *five*.

No. 2.

Parry *five*, cut *six*.

No. 1.

Parry *six*, cut *seven*.

No. 2.

Parry *seven*, and *longe point*.

No. 1.

Left parry.

SLOPE SWORD—FIRST POSITION.

In the assault, it would be extremely dangerous to introduce the cuts of the target practice, although by them you learn the formation of the cuts. Your adversary constantly keeping your sword engaged, your cut is consequently confined to a more limited sweep. Practice, therefore, to give your cut with strength, from the forearm chiefly, so as to expose as little of your person as possible. So, also, in close fight it would be almost impossible to get up to the first position, to parry all his blows; still, keep your left foot firm, and let your right play freely in the *longe*, and in the *parry*. Keep your eye fixed on his eye; never look at his sword, or to a certainty you will miss your *parry*. Change your attack often, to baffle his guards. Cut *one, two* at the head, *three* at the wrist. Cut *one* at the right leg. Cut *five* at the neck, side or arm, as you see your opening; but always be ready to *parry*.

If your ground is rough or slippery, advance, retreat, or traverse.

RIGHT TRAVERSE.

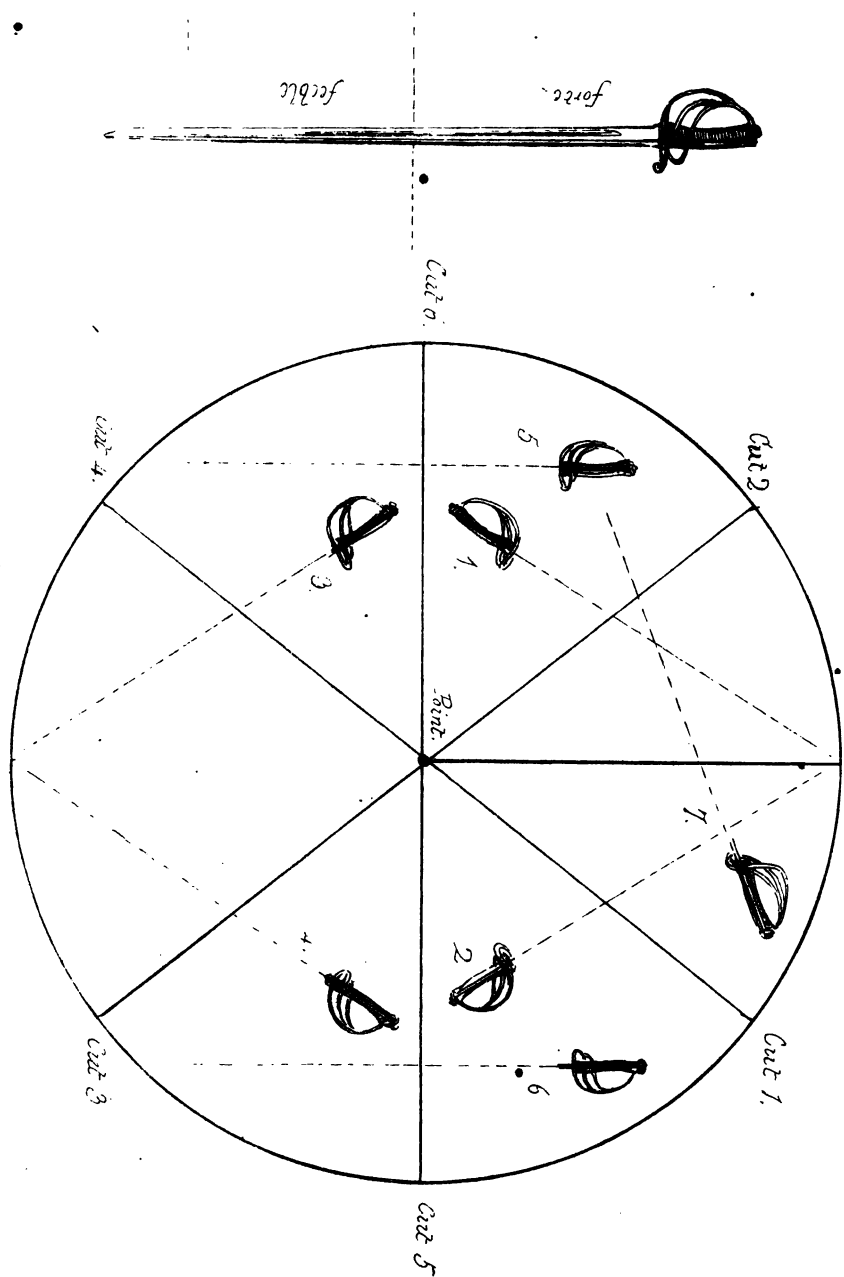
Step off with the *right foot* sideways, say twelve inches, and immediately follow with the left foot so as to come "on guard" as before you changed ground.

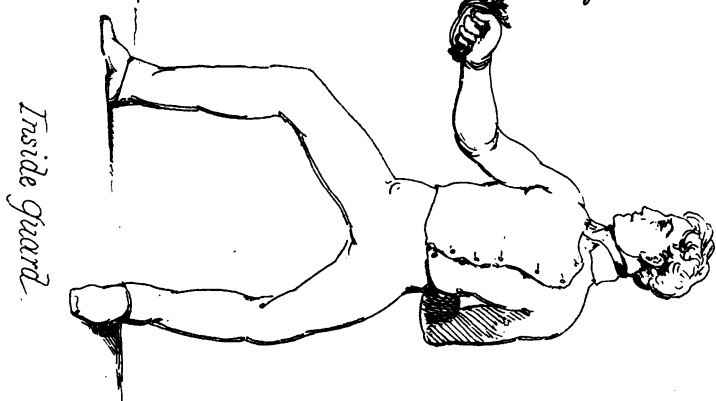
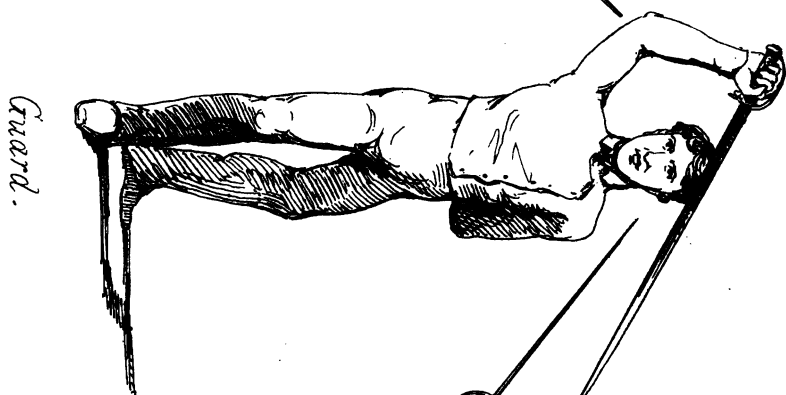
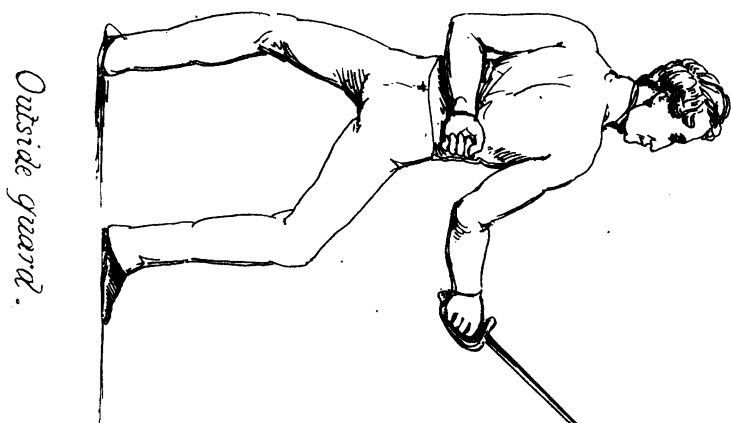
LEFT TRAVERSE.

Step off sideways to the left, with your *left foot*, and follow with your right foot, by which you force your adversary to change also, thus working a traverse in a circle, the centre of which will be half-way between your right foot and the right foot of your adversary.

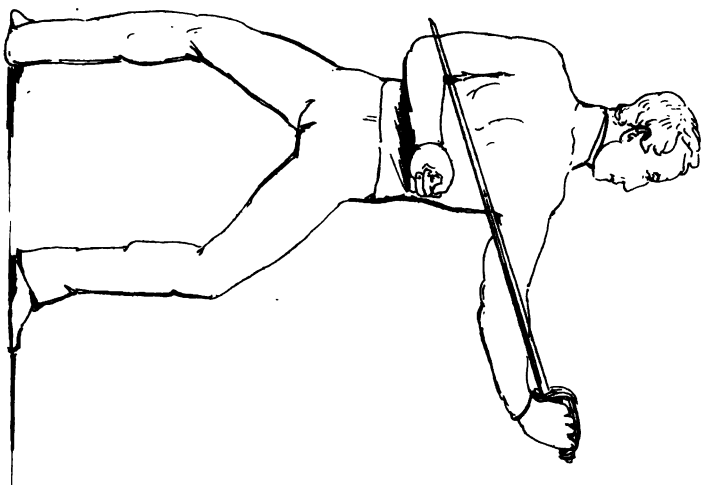
In the march to *retire*, is made in the same manner as in the smallsword.

In all this, hold your sword firmly, with a straight and flexible wrist; with your left foot well planted; and with a steady poise of the body. Nothing is so dangerous as a shuffling, uncertain guard.

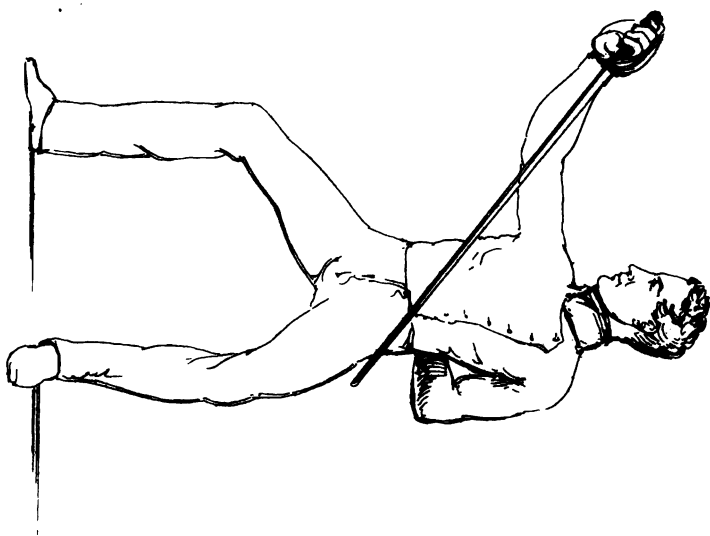




Right Moulinet.

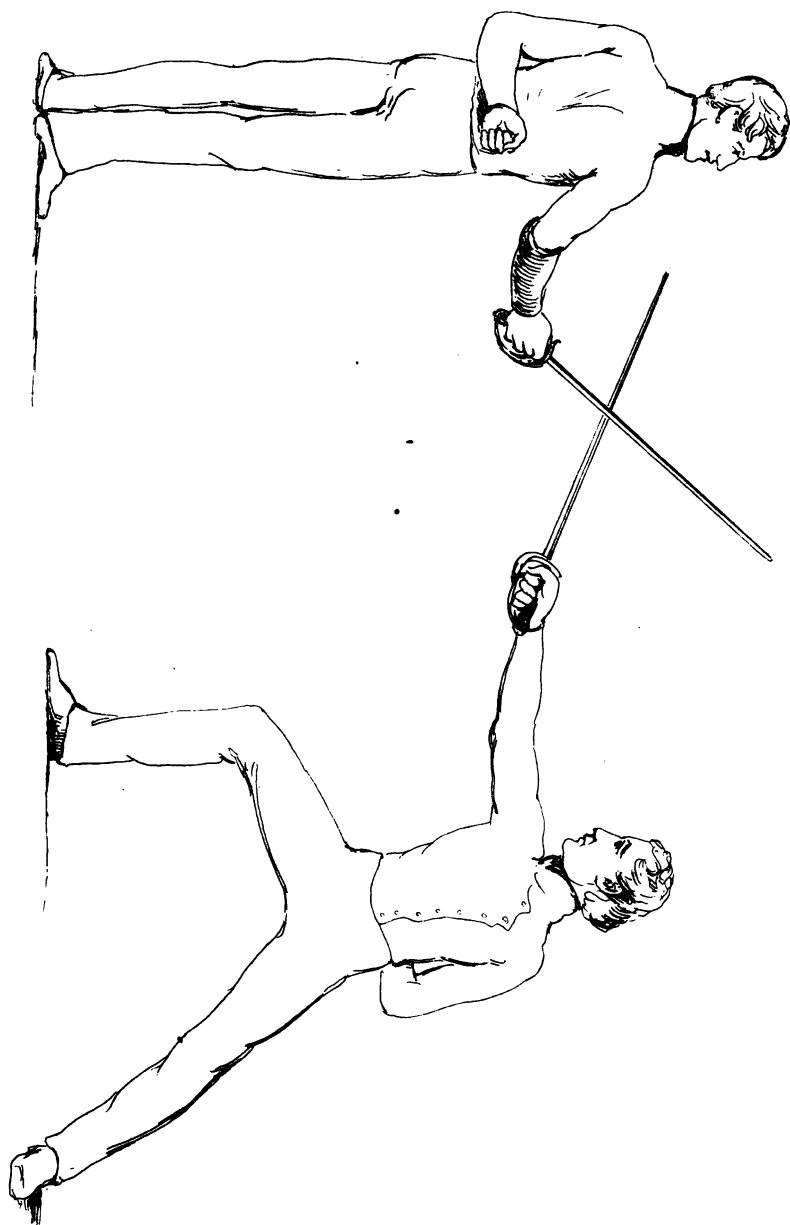


Left Moulinet.



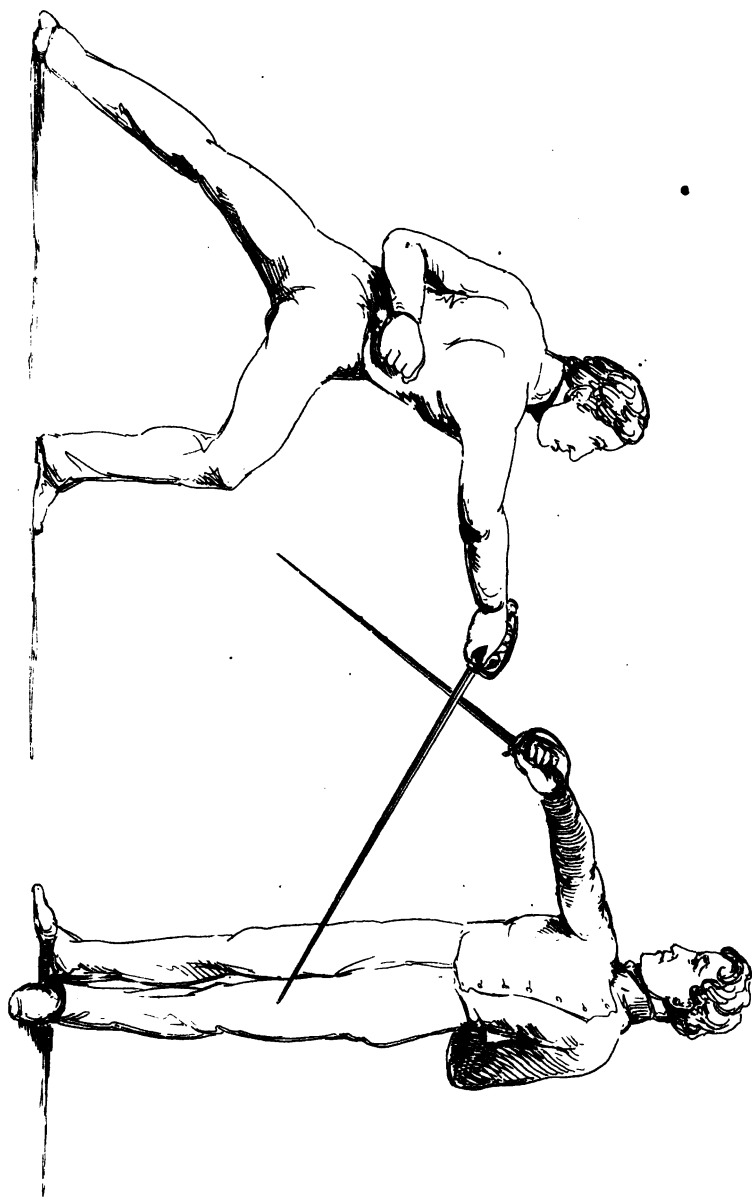
Cut One.
Parry One.

Pl. 101.



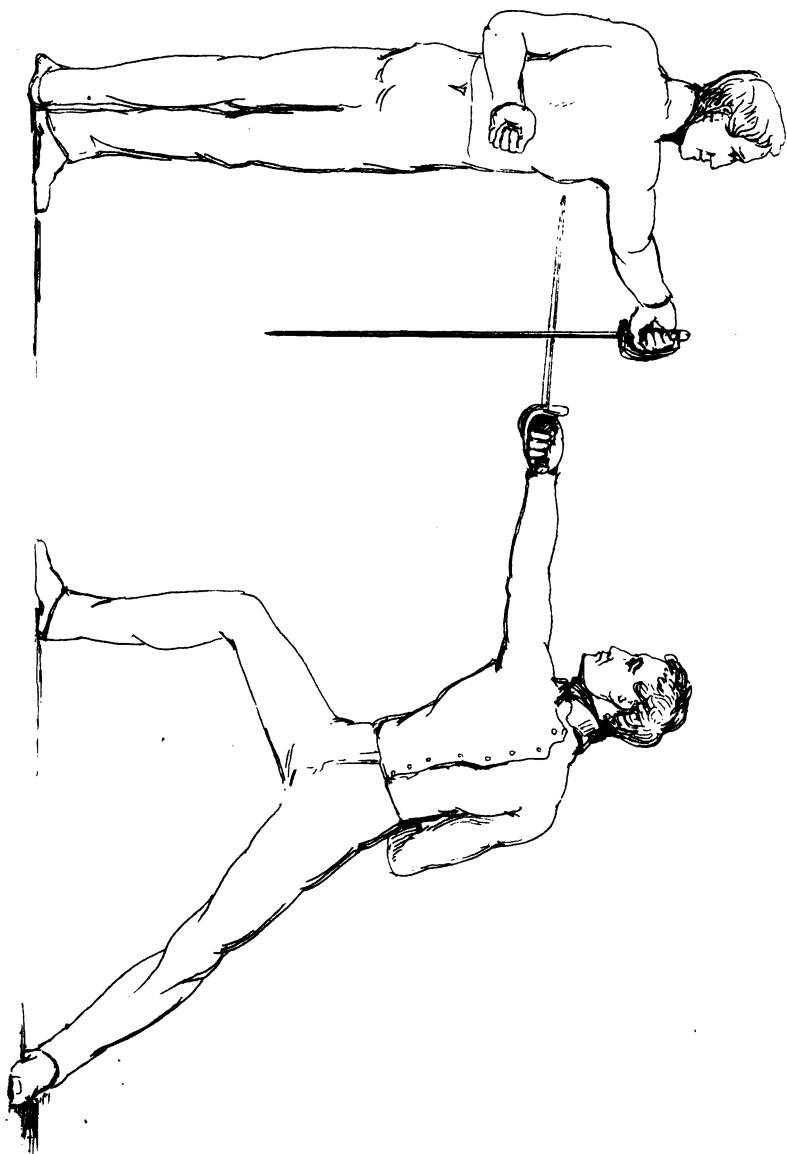
Cut Three.
Parry Three.

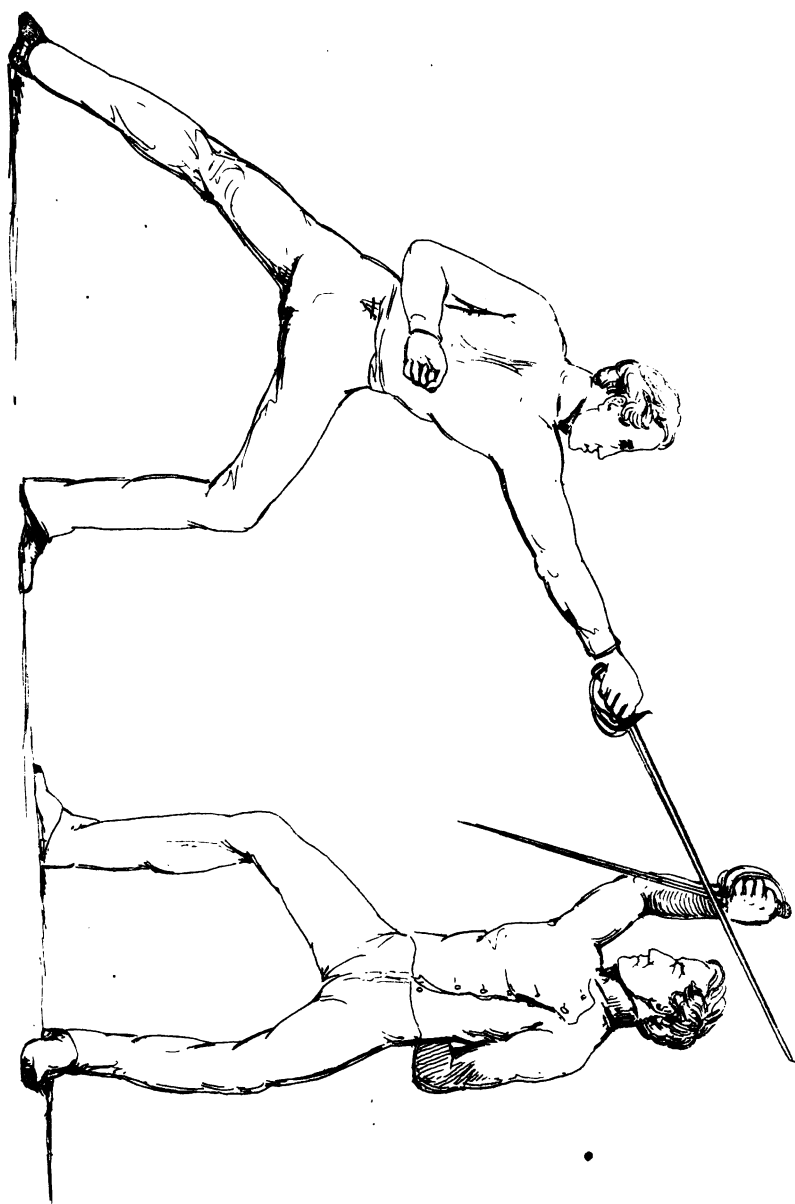
PLATE



Cut Five.
Parry Five.

Pl. 103.





FORM

OF

EXERCISE AND MANŒUVRE

FOR THE

BOAT-HOWITZERS OF THE U. S. NAVY.

John BY
LIEUT. J. A. DAHLGREN,
ASSISTANT INSPECTOR OF ORDNANCE.

PHILADELPHIA:
PRINTED BY A. HART,
128 CHESTNUT STREET.
1852.

NOMENCLATURE.

THE CASCABEL is the part of the gun in the rear of the base ring; it is composed of:—

- (a). The breech plate.
- (b). The knob.
- (c). The neck.

- (d). Base ring.
- (e). Cylinder.
- (f). Chase.
- (g). Loop, with hole for bolt.
- (h). Lock lugs.
- (i). Lip for elevator.
- (j). Muzzle-sight.
- (k). Mass for breech-sight.

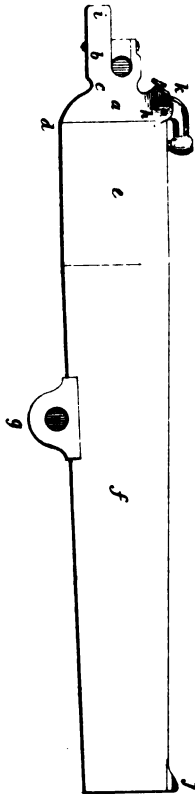
The BORE includes all the part bored out, viz.:—

Cylinder of bore.

Chamber.

These guns should not be rubbed bright, which might render it difficult to point them with a bright sun.

Boat Howitzer.
U.S. Navy.



P. S. Duval & Co. St. Louis, Mo. U.S.A.

BOAT-CARRIAGE.

- Bed.
- Slide.
- Compressor plate.
- “ bolts.
- “ handles.
- Lugs for loop.

FIELD-CARRIAGE.

- Axle.
- Trail.
- Braces.
- Lugs for loop.
- Trail wheel or runner.
- Bolt for do.
- Socket for handspike.
- Elevator.
- Disc of elevator.
- Box for elevator.

EXERCISE OF THE BOAT-HOWITZER.

WHILE preparations are in progress for clearing out the boats, the officer of the boat will see that the howitzer, and its various equipments, are also got in readiness. The junior officer or officers of the piece will attend to the gun itself and its carriages.

The quarter-gunner will have the ammunition got up from below ; also the lock, sights, sponges, spare fuzes, ammunition-pouches, primers, &c. (Breeching, if deemed necessary.)

This will be the proper occasion for charging the shrapnell and shells with powder, which should receive the particular attention of the officer who is to command the boat.

The captain of the gun will look after the traverses, tracks, pivot-plates, &c.

The coxswain will have ready the thwarts, oars, masts, sails, &c.

When the boat has been cleared for hoisting out, lay the thwarts and traverses, bolt the pivot-plates on the bows and quarters ; if the stem and stern pivot-plates interfere with the purchases, they can be secured after the boat is in the water. If the field-carriage is to accompany the gun, lay the wheel and trail tracks.

In a sea-way, it may be better also to place the howitzer in the launch, laying it athwart-ships, and bolting the two ends of the slide into the bow pivot-plates, which will hold it perfectly firm.

As a general rule, the howitzer is not to be handled separately from one of its carriages. It may be hoisted into the launch on either field or boat-carriage, as circumstances may dictate.

When the boat-carriage is preferred, sling it with a stout strap passed through the loop-lugs and brought up round the gun, into which hook the purchase ; previously shove the bed a little towards the rear end of the slide, so as to have the carriage hang square, and set the compressors tight.

When the boat has been hoisted out, the howitzer, its ammunition and equipments, will be stowed in it conformably to the requirements of the occasion.

Supposing the arrangements to be of a general character, and to be adapted, subsequently, to the service as circumstances may require.

The howitzer may be in the bow on its boat-carriage, bolted to the stem-pivot.

The field-carriage aft, the wheels resting on the floor of the stern sheets and bearing against the after-thwart; the trail laid over the quarter rail, so as not to interfere with the steering.

The ammunition can be stowed in the stern sheets, or elsewhere, as may be most convenient for trim of launch, or for its own preservation.

The captain of the howitzer slings his haversack, and deposits in it a supply of primers, a vent bit, and vent cloth, which are handed to him by the quarter-gunner.

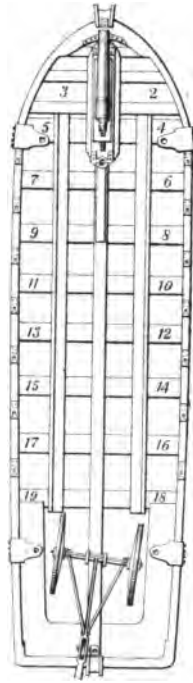
The stations in the boat and at the howitzer will be as follows, for 20 men; if fewer are employed, the higher numbers are to be omitted:—

BOAT.		HOWITZER.
<i>Stations.</i>		<i>Duty.</i>
Quarter-gunner,	Ammunition.	Ammunition.
Coxswain,	Helm.	
No. 1.	Bow.	<i>Captain</i> of howitzer; points and fires the gun, superintends orders, and gives orders in absence of an officer.
<i>Port.</i>	<i>Starboard.</i>	
2. ———	Bow oar.	<i>Spenger</i> ; sponges and rams home charge.
3. Bow oar.	———	<i>Loader</i> ; receives and enters ammunition.
4. ———	2d oar.	Tends forward compressor.
5. 2d oar.	———	Tends after compressor.
6. ———	3d oar.	Train rope.
7. 3d oar.	———	Tends vent and puts in primer.
8. ———	4th oar.	
9. 4th oar.	———	
10. ———	5th oar.	
11. 5th oar.	———	
12. ———	6th oar.	
13. 6th oar.	———	
14. ———	7th oar.	
15. 7th oar.	———	
16. ———	8th oar.	
17. 8th oar.	———	
18. ———	9th oar.	
19. 9th oar.	———	

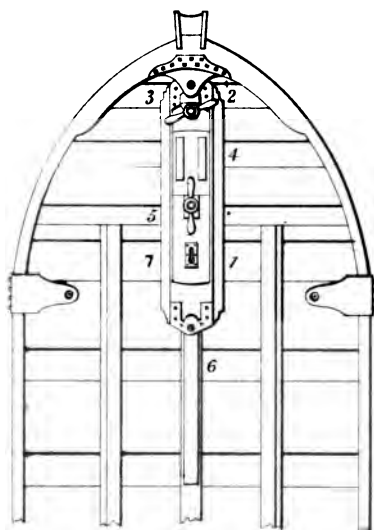
Officer of the launch directs the whole operations, or may take especial charge of the howitzer.

Officer of the gun is in command of the piece, unless otherwise ordered by the officer of the boat.

Stations in Boat.



Stations at Howitzer
in Boat.



(Preliminary Order)—MAN THE HOWITZER.

The captain of the gun is to see that the elevator, sight, and lock are in order for firing.

Nos. 2, 3, 4, 5, 6, 7. Trail oars.

No. 2 goes to starboard side of muzzle, having the sponge and rammer ready.

No. 3 goes to port side of muzzle, takes out tompon.

No. 4 to starboard side, near forward compressor.

No. 5 port side near after compressor.

No. 6 after end of slide, and hooks training-rope.

No. 7 tends the vent and puts in primer.

If the gun is unloaded, it must be run in.

1. SPONGE.

No. 7 closes vent (a).

No. 2 enters the sponge, and, pressing it firmly to the bottom, turns it round and withdraws it (b).

Quarter-gunner takes a round from the ammunition-box, and, if shell or shrapnell be used, holds it for the officer in command of gun to adjust the fuze.

2. LOAD.

Quarter-gunner passes forward with the fixed charge, protecting it under his jacket (c).

No. 3 receives from quarter-gunner and enters charge.

No. 2 rams home to the mark on rammer-handle (d).

No. 7 puts in primer, and covers it with his hand until Nos. 1 and 2 are clear of the gun (e).

3. POINT.

Nos. 4 and 5 ease compressors (*f*).

All six men and captain of gun run out the howitzer (*g*).

Nos. 4 and 5 then tighten compressors.

Officer of gun puts up the sight as directed by officer of launch (*h*).

Captain of gun brings the elevation within the limits of the boat's motion.

And causes No. 6, with the assistance of some others, to train nearly to object, if the boat is under way.

4. FIRE.

If the boat have motion, or is under way, a discretionary execution of this order is necessarily implied.

The assumed elevation having been given by the elevator, a slight motion of the helm is made to sweep the piece laterally, so as to cross the object.

The captain of the gun closely watches this movement, with his eye down on the sights, and, holding the lock laniard firmly, draws as soon as the sights coincide with the object.

Immediately after firing, he coils up the laniard, and pulls from the vent any pieces of the quill that may remain, also enters the bit to clear it entirely through (*i*).

NOTES TO THE FORM OF BOAT EXERCISE.

(a). The necessity of closing the vent is now a mooted question; as the operation itself is a slight one, having no appreciable effect in complicating or delaying the manœuvre of the gun, it is not deemed advisable to lay it aside in this "Form." The practice here shows that the most ready, and equally sure method, is merely to lay a piece of untwilled woollen cloth over the vent, and press it down with the hand, or else turn the lock on it, and hold that down.

(b). Too much care cannot be used in sponging; as a premature explosion endangers life and limb: a moist sponge is to be preferred, for contact with it must surely extinguish every trace of fire in the bore.

It may be considered a safeguard against accident, if the absence of a single instance of the kind, in several years' practice, can be admitted as evidence; during this time, the habit has been, in proving pieces, and exercising the men to fire rapidly; ordinarily, seven or eight times in a minute.

(c). The head of the fuze composition must be guarded against moisture from the fingers, rain, or spray of the sea; otherwise, there will be a failure to ignite.

(d). The ammunition is never to be struck with the rammer-head, but pushed home, and with very moderate force; particularly omitting a very common practice of forcing the charge after it reaches the bottom of the bore. In ramming home the charge, No. 2 should always keep his body at the side of the chase, not before the muzzle.

(e). It is not necessary to pierce the cylinder of the charge when percussion-primers are used; their power being always sufficient to pass through it.

(f). It is only necessary to give the compressors a turn, or a part of a turn; this will relieve the compression completely, and time is saved subsequently in compressing.

(g). Some will take hold of the standard of the carriage-bed that receives the loop of the piece, others of the breech or bed, as may be convenient to run out the gun.

(h). In tightening the thumb-screw that retains the breech-sight in position, do not turn it too hard; the thread may be stripped by continuing to do so. The sight may descend by the shock of the discharge, but this is of no moment.

In point-blank firing, the breech-sight is not required; the eye must then range along the cylinder and muzzle-sight.

(i). The charge may refuse fire; if this arises from not properly drawing the lock, it will be evident at sight, as the wafer of the primer will not flash, in which case No. 7 will throw back the lock.

If the primer explodes without acting on the charge, care must be taken not to approach the piece too soon, as it may only hang fire, and the recoil will injure any one in the way of it. After a seasonable pause, the captain of the howitzer will remove the residue of the primer, pass the bit down the vent, and reinsert another primer.

PIVOTING THE HOWITZER.

The sweep allowed by the stem-pivot is about one point and a half starboard or port; if this is not sufficient to train the piece on the object, without diverging inconveniently from the course or position of the boat, then the bow pivots may be used.

The officer of the launch gives the order :—

PIVOT ON THE PORT (or Starboard) Bow.

No. 6, with the assistance of the others, trains the rear end of the slide into the bow-pivot which is *not* to be used. No. 7 bolts it in. No. 2 draws bolt out of stem-pivot and, with assistance, draws round the forward end of the slide into the pivot *to be used*; drops in the bolt. No. 6 withdraws the bolt from rear end of slide.

The sweep on the bow-pivots includes an arc of about 120 degrees.

It is not advisable to train the howitzer more than a point abaft the beam if forward, or more than a point forward the beam if aft; as the accidental explosion of a shell near the muzzle, and even of a shrapnell, might be dangerous to those in the boat.

On the bow-pivot, the piece may be pointed nearly from the direction of the keel to a little abaft the beam.

SHIFTING THE HOWITZER.

If this does not bear on the object with such assistance as is admissible from the helm, then the officer of the launch may direct the howitzer to be shifted to the other end of the boat.

The light 12 pounders, with their boat-carriages, average 660 lbs. each; and can be transported by hand from one end of the boat to another.

With their boat-carriages the 12 pounders of 750 average 1200 lbs. each; the 24 pounders about 2000 lbs., and will probably be more conveniently managed, especially if the boat have motion, by placing rollers ($2\frac{1}{2}$ to $2\frac{3}{4}$ inches in diameter) on the tracks laid for the field-carriage. On these the boat-carriage can be shifted from one end to the other, using light falls at each end to keep it under command.

DISEMBARKATION OF THE HOWITZER.

1. PREPARE TO LAND.

The quarter-gunner fills the pouches or passing-boxes with one round each, and passes them to the men, each of whom, except No. 2, slings a pouch over the right shoulder, and buckles the strap as short as possible, so as to keep the ammunition clear of the water when leaving the boat.

The captain of the gun also shortens the strap of his haversack.

TRAIL BOW AND STROKE OARS.

Nos. 2 and 3 will adjust the bed of the boat-carriage to its proper place on the slide for shifting; place the muzzle-block, and make the muzzle bear on it by means of the elevator; pass the strap around the neck of the cascable, and put the shifting-spar through the strap; the quarter-gunner, assisted by the men from the after oars, raises the field-carriage up on the tracks.

2. TRAIL.

The boat being beached in season, the men trail their oars and jump to their stations.

Nos. 4 and 5 over the bow to adjust the skids, which are launched by Nos. 6 and 7.

No. 2 attends the elevator.

No. 3 attends the muzzle.

Nos. 8, 10, 11, and 13 the shifting-spar, assisted by as many of the crew as can take hold.

No. 9 draws the loop-bolt.

The stroke oarsmen run the field-carriage forward, the quarter-gunner guiding it on the track by the trail.

3. SHIFT THE HOWITZER.

Now clear the elevator; heave up the breech of the gun by the spar; Nos. 6 and 7 back the bed on the slide; run the field-carriage a little forward, so that its lugs come under the loop of the howitzer; lower the piece; put in the loop-bolt and elevator; hook on the drag-rope, and ship the trail-handspike in its socket.

4. LAND.

Nos. 2, 3, 6, and 7 now jump out of the boat, and, with Nos. 4 and 5, divide to each skid; not standing between them, but keeping outside of them. The stroke oarsmen wheel the piece up to the gunwale by the spokes, the quarter-gunner guiding the trail by the trail-handspike; the remainder of the boat's crew take hold of the drag-rope, so as to ease the howitzer down from the bow, the quarter-gunner guiding it on the skids with care, so that the wheels may not run off sideways.

When down off the skids and on the bottom, the drag-rope may be hooked around the axle, and the howitzer run up on the beach.

The captain of the howitzer superintends and assists whenever it may be necessary.

The sponges and rammers are now to be attached in their places on the trail.

If required, one or two boxes or double boxes may be lashed under the axles.

The boxes contain 9 rounds each, the double boxes 18 rounds each.

EMBARKATION OF THE HOWITZER.

When the howitzer is to be embarked, the ammunition-boxes, if slung to the axle, should be cast off from it, and put in the boat separately.

The men unsling the ammunition-pouches or passing-boxes, and pass them into the boat, which is to be brought to a convenient distance from the beach, the skids laid and secured.

The field-carriage is pointed with the trail towards the boat, and drawn down to the skids, with a wheel resting on each.

Nos. 2, 3, 4, 5, 6, and 7 divide at the wheels, and take hold of the spokes, so as to assist the carriage up. No. 14 ships the trail-handspike, and tends it with No. 15. The rest of the men get into the boat and take hold of the drag-rope. At the word HEAVE! the men at the wheels bear the carriage up on the skids, those in the boat haul on the drag-rope, and the two at the trail bear it up so that the quarter-gunner, who stands at the bow, can get hold of the trail-handspike and guide the carriage fairly.

When the howitzer is in the boat, the skids are unhooked and put in the boat by Nos. 4, 5, 6, and 7.

The howitzer may now be shifted to the boat-carriage, by reversing the process already described in orders Nos. 1, 2, and 3, for the shifting to the field-carriage.

EXERCISE WITH HOWITZER ON FIELD-CARRIAGE.
GUN'S CREW.

<i>Stations.</i>	<i>Duty.</i>
Quarter-gunner.	Charge of ammunition and spare equipment.
No. 1. Rear of breech, to the right.	<i>Captain of piece</i> ; points and fires the howitzer, superintends orders, and gives orders in absence of an officer.
2. Starboard side of muzzle.	Sponges and rams home.
3. Port side of muzzle.	Receives and enters ammunition.
4. Rear and outside of starboard wheel.	Assists at starboard wheel.
5. Rear and outside of port wheel.	Passes ammunition, assists at port wheel.
6. Five yards rear of starboard wheel.	Assists at starboard wheel, attends bolt of trail wheel, and trail handspike.
7. Five yards rear of port wheel.	Passes ammunition, assists at port wheel.
8. With No. 6.	Assists at starboard wheel.
9. With No. 7.	Assists at port wheel.
10. Rear of breech, to the left.	Closes the vent, puts in primer.

(Preparatory Order)—**MAN THE HOWITZER.**

The men go to their stations as above designated.

If the piece has been just landed, the *captain of the howitzer* will have been provided with his haversack, previously supplied.

All the men, except No. 2, with one round in a pouch.

No. 2 takes the sponge and rammer.

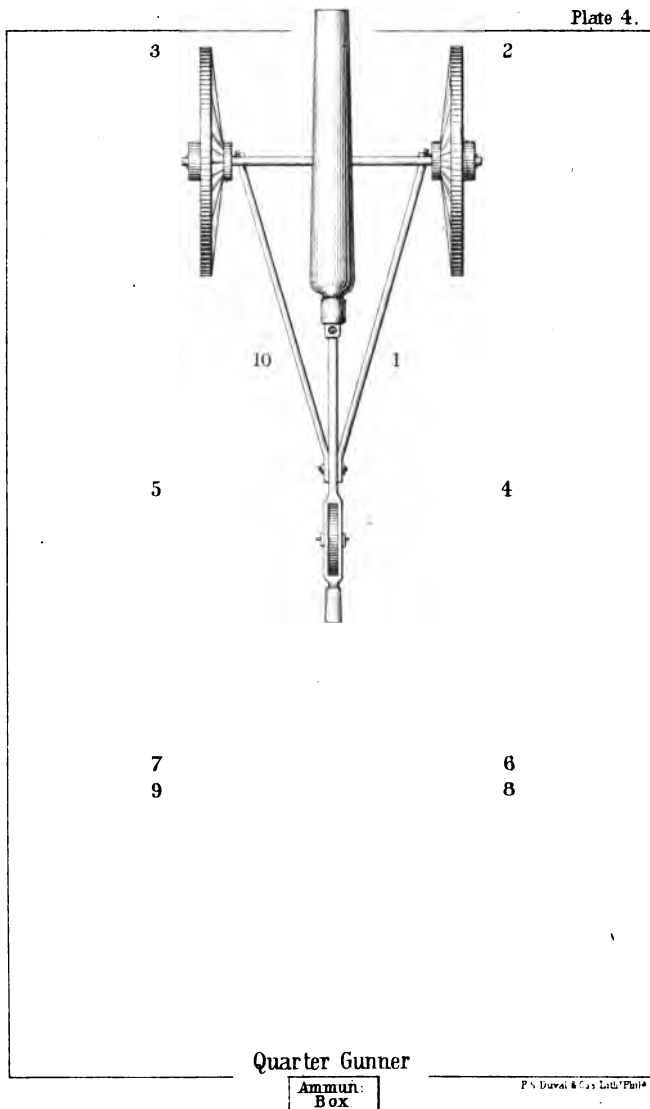
No. 6 unbolts trail wheel, and ships handspike in its socket of trail.

The ammunition-box, if there be any with the howitzer, is to be deposited about twenty-five yards in the rear of howitzer, in charge of quarter-gunner.

The drag-rope is deposited with the ammunition-box.

Stations at the Field Carriage.

Plate 4.



1. SPONGE.

No. 2 enters the sponge, and, pressing it firmly to the bottom, turns it round and withdraws it.

Quarter-gunner takes a round from the ammunition-box, or from the pouch or passing box of one of the men; and, if shell or shrapnell be used, holds it for the officer in command to adjust the fuze.

2. LOAD.

The charge is to be passed along by the quarter-gunner to No. 7, and by No. 7 to No. 5, and by No. 5 to No. 3, who enters it into the muzzle.

No. 2 rams home to the mark on rammer-handle.

No. 10 puts in primer, and covers it with his hand until Nos. 2 and 3 have withdrawn to their stations outside the wheels.

3. POINT.

Officer of gun puts up the sight, as directed by officer in command.

The captain of the gun gives the piece the proper elevation with the screw, and causes No. 6 to train the gun with the trail-handspike to the desired direction. He then withdraws as far as the lock laniard permits, standing on the right quarter of the breech, and outside of the wheel.

No. 10 stands outside of the port wheel. Nos. 2 and 3 fall back upon Nos. 1 and 10, and the remainder of the gun's crew take the stations first assigned them.

4. FIRE.

The captain of the howitzer instantly draws the laniard at the word.

No. 10 closes the vent.

Nos. 5, 7, and 9 go to the port wheel; 4, 6, and 8 to the star-board wheel, taking hold of the spokes, ready to wheel the carriage forward, as may be directed by the officer in command.

(Concluding Order)—SECURE THE HOWITZER.

The quarter-gunner secures the ammunition-box, and gets ready the becketts or lashing.

The captain of the howitzer coils the laniard around the lock.

No. 6 bolts the trail wheel.

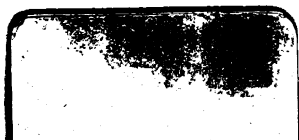
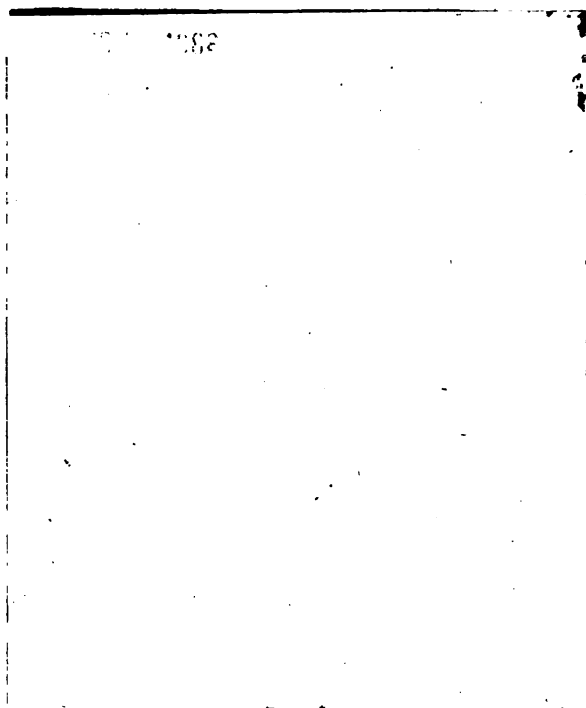
No. 2 may carry the sponge in his hand if the fire is merely suspended.

No. 6 may also carry the trail-handspike.

Nos. 7 and 8 hook on the drag-rope, and lead its parts fair for taking hold.

Wheel the piece over the ammunition-box, and lash or becket it to the axle.

The piece is now ready for any change of position.



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