

HANDBOOK
OF THE
0·45-INCH MAXIM GUN,
(G.G. CHAMBER).

1894.



By Command of the Lords Commissioners of the Admiralty.

ADMIRALTY,
G. Branch (No. 230),
G. 567/94.

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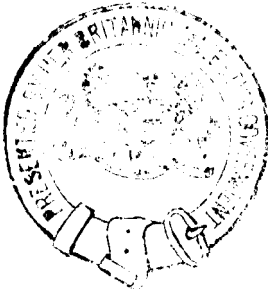
H A N D B O O K

OF THE

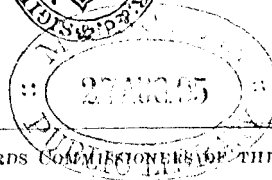
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0.45-INCH MAXIM GUN.

NOMENCLATURE.

ARTICLES.		Index No
Designation.	Detail.	
Guns, Maxim, 0.45-inch (G.G. chamber), complete, with component parts and fittings as under :—		
*BARREL	Steel, with block, fixing pin, and protector muzzle, with chain, ring, and S-hook.	2
Asbestos packing pieces ...	5 yards long	
Rear tie, plate	Steel, with fixing pin ...	
Side plates { left	Steel	
{ right	Steel	
Valve	Gunmetal	21
BARREL, CASING		17
Asbestos packing pieces ...	11 inches long	
Packing gland	Bronze	18
Screwed plugs	Bronze, with chain and stud	19, 20
Slide valve	Bronze	23
Steam tube	Bronze, with keeper screw ...	25
BREACH CASING		10
Check lever	Steel, with collar and fixing pin.	39
Fusce spring box	Bronze	16
Slides { left	Steel	
{ right	Steel	
Trigger bar	Bronze	35, 435
Resistance piece		11
COVER		10
Cover lock	Steel, with joint pin, collar and fixing pin.	44
Label, ammunition	Steel, with piston and stop screw.	
	Bronze, with 4 rivets ...	
CRANK		7
Connecting rod	Steel, with crank pin and fixing pin.	110
	Steel	

* Not interchangeable between Ordnance Factory and Trade guns, but is interchangeable between guns from the same manufactory.

ARTICLES.						Index No.
Designation.				Detail.		
CRANK—cont.						
Crank handle				Steel, with fixing pin ...	6	
Fusce				Steel, with chain ...	12	
FEED BLOCK, COMPLETE						
Band, roller				Bronze	25	
Casing				Boxwood	27	
Collar				Bronze	26	
Lever { bottom				Steel	32	
{ top				Steel	33	
Pawl { bottom				Steel	31	
{ top				Steel	29	
{ axis { band roller				Steel		
{ pawl { bottom				Steel		
{ top				Steel		
Pins { fixing, axis pin, band roller				Steel		
{ spring, fixing, top and bottom levers.				Steel		
{ feed block springs				Steel		
Screws { stop cartridge				Steel		
Slide				Steel		
Slide springs				German silver, flat		
Springs				German silver, flat		
FUSSEE CHAIN... ..				Steel, with fittings	13	
*LOCK, Complete						
Casing				Steel	3, L 1	
Extractor				Steel	L 2	
Extractor levers { left				Steel	L 3	
{ right... ..				Steel	L 9	
Extractor spring... ..				Steel, flat	L 9	
Extractor stop				Steel		
Gib... ..				Steel	L 4, L 6	
Gib spring				Steel, flat	L 7	
Gib spring cover... ..				Steel		
Keeper bracket				Steel		
Lock spring				Steel, flat	L 24	
{ lock spring				Steel		
{ axis { sear				Steel		
{ trigger				Steel		
{ tumbler				Steel		
{ axis pin				Steel		
{ extractor spring				Steel		
{ keeper pin, ex-tractor stop }				Steel		
{ firing				Steel		
{ keeper extractor stop				Steel		
Sear				Steel	L 19	
Sear spring				Steel	L 20	
Side levers { left				Steel, with nut and 4 fixing pins.		
{ right						
Trigger				Steel	L 12	
Tumbler				Steel	L 22	
				Steel	L 15	

* Not interchangeable between Ordnance Factory and Trade guns, but is interchangeable between guns from the same manufactory.

ARTICLES.					Index No.
Designation.			Detail.		
PINS, FIXING, FUSEE CHAIN			Steel	...	
REAR CROSSPIECE			Bronze, with fixing pin	...	49
Firing lever			Bronze, with axis pin	...	52
Milled heads			Bronze, with oil brushes	...	51
Piston			Steel	...	
Safety catch			Bronze, with axis pin	...	55
Shutter			Bronze, with catch	...	56
SCREWS—					
Adjusting fusee spring			Steel	...	15
Fixing ejecting tube spring			Steel, with fixing wire	...	
SIGHTS, FORE			Steel, with fixing screw	...	24
SIGHTS, TANGENT, Complete			...	...	41
Graduated plate			German silver	...	43
Milled head			Steel	...	
Pawl			Steel	...	
Pinion			Steel	...	
Pins { axis			Steel	...	
{ fixing pawl			Steel	...	
Piston			Steel	...	
Screw fixing { graduated plate			Steel	...	
{ milled head			Steel	...	
Slide			Steel	...	
Slide spring			Steel, flat	...	
Spring			Steel, spiral	...	
Stem			...	...	
SPRINGS—					
Buffer			Steel, flat	...	38
Connecting rod			Steel, flat	...	8
Cover			Steel, flat	...	
Cover lock			Steel, spiral	...	45
Ejecting tube			Steel, flat	...	34
Fusee			Steel, spiral, and fittings	...	14
Safety catch			Steel, spiral	...	
Shutter			Steel, spiral	...	57
Side plate			Steel, flat	...	
Trigger bar			German silver, spiral	...	37
MOUNTING.					
CONE—					
Bearing pieces, fixing ammunition box.			Bronze	...	
Clip, crosshead			Bronze	...	M 3

ARTICLES		Index No.
Designation.	Detail.	
CONE—cont.		
Collar, toothed, handle, clamping sleeve.	Steel	
Cone	Bronze	
Crosshead	Bronze	M 1
Gib sleeve	Steel	
Handle, clamping sleeve	Steel	
Key, hand wheel, elevating	Steel	
Milled heads	Bronze	
Nut pin, joint, crosshead	Steel	M 9
Nut, screw, pivot	Steel	
Pawl, handle, clamping sleeve...	Steel	M 10
Pin, fixing, milled heads		
Pin joint, cross-head	Steel, with vice pin...	M 16
Pin joint, elevating gear	Steel	M 16
Pin, spring, fixing, pin joint, elevating gear.	Steel	
Pin, stop, slide, cylindrical	Steel	
Pin, taper	Steel, with chain, ring, and stud.	
Screw, clamping brake	Steel	M 12
Screw, clamping clip	Steel	
Screw, clamping sleeve	Steel	M 13
Screw, elevating, inner	Steel	M 11
Screw, elevating, outer	Steel	M 11
*Screw, keeper, sleeve	Steel	
Screw, pivot	Steel	M 16
Screw, set, fixing ammunition belt box.	Steel	
Screw, set, nut pin joint, cross-head.	Steel	
*Screw, set, sleeve	Steel	
Screw, spring, handle, clamping sleeve.	Steel	
Shield	Steel, with eyebolt and grummet.	
Sleeve	Steel	
Slide, cylindrical, elevating gear.	Steel	
Spring, handle, clamping sleeve	Steel, flat	
Spring, stop, brake	Steel, flat	
Wheel, hand, elevating	Bronze	

* A certain number of these mountings are fitted with the "screw, set, sleeve," but some (and all future) mountings will be fitted with the "screw, keeper, sleeve."

GENERAL DESCRIPTION.

The gun to consist of two parts :—*viz.*, the recoiling and the non-recoiling. For plates illustrating the following description, *see* end of this handbook.

The recoiling portion is the barrel and its extension to the rear, which latter contains the lock and the gear connected therewith. Recoiling portion.

The barrel is an ordinary rifle barrel, with a breech sleeve, to which is secured the extension of the barrel ; this extension is of steel, and consists of two vertical plates and a rear tie plate. Barrel.

The lock is secured by an interrupted screw to the connecting rod of a crank, the shaft of which passes through the plates ; there is also a handle to the shaft on the right of the gun outside and a curved arm to the crank. The lock does not differ materially from that of an ordinary pistol. In Fig. 2 the position of the lock is shown, where 7 is the connecting rod, and 4 the crank. Figs. 4, 5, and 6 also show the lock in various positions, and it will be observed that it has a vertically sliding piece on the fore end marked L 3 in the Fig. of the lock, and designated the extractor. The use of this latter will be illustrated hereafter. Lock, crank, and crank arm.

In Figs. 3, 4, 5 and 6, the trigger, marked 32, is shown, also the trigger bar 35 which actuates it. This bar is operated on by a lever in the rear of the gun shown in Fig. 2, 54, on the upper end of which is a double button, the whole being called the firing lever. A pressure being applied to this firing lever draws back the rod and releases the tumbler and firing pin. In the rear of the gun is a safety catch, *see* Fig. 2, 55, which when down prevents the firing lever being pressed forward. The lock spring and the manner in which it acts in the trigger and firing lever is clearly shown in Figs. 5 and 6. Trigger and lock spring.

The non-recoiling portion of the gun consists of the outer frame and the barrel casing, which are dovetailed together. On the right side of the outer frame is a solidly attached resistance piece, marked 11 in Fig. 1. It will be observed that when the breech is closed as in Fig. 1, the curved arm of crank is some small distance from the resistance piece ; the reason of this will be explained when the action of the mechanism is treated on. Non-recoiling portion.

On the left side of the gun, there is a strong spiral spring, the rear end of which is connected by a chain and fusee with the crank shaft, and the fore end is attached to the outer frame by means of the spring box ; the use of this spring, as will be seen hereafter, is to bring back the barrel after the recoil and to work the crank ; the working tension of the spring, which should lie between 12 lbs. and 14 lbs., can be adjusted by means of a screw on the fore end. Spiral spring and fusee.

The barrel casing is of gunmetal and surrounds the barrel, it is fitted with three openings, one for receiving the water, one for drawing off the water, and the third for letting out the Barrel casing.

steam; the first two openings are closed by screw plugs, the third is always open and is connected to a system of tubes (one sliding and one stationary), which permits the steam to escape, but not the water, whether the gun is elevated or depressed. Both ends of the water jacket are fitted with stuffing boxes and glands, these guide the barrel and prevent the water escaping.

Feeding the
gun with
cartridges.

The gun is supplied with cartridges from a belt, which passes through the feed block on the top of the gun from right to left (*see* Figs. 7 and 8). In the feed block are two movable pawls and two stationary ones. The movable pawls are connected by a lever to the recoil frame, and are adjusted in such a manner that the barrel on recoiling moves them from left to right; by means of two springs they engage behind the next cartridge in the belt, and thus the cartridges move on automatically towards the chamber; when the barrel returns after the recoil, the pawls place the cartridge still in the belt immediately above the chamber.

Shoulder
piece.

A shoulder piece is supplied, and ships on to the left side of the gun as shown in Fig. 9. When the ship has much motion it will be found more convenient to use the shoulder piece and disconnect the elevating gear.

CONE MOUNTING.

The mounting (*see* Figs. 9, 10 and 11) consists of a cross-head to which the gun is attached, the lower part of which forms a sleeve that ships over a central stem attached to the cone-shaped pedestal; a clip on the lower part of the socket prevents it from jumping. The socket has a projecting arm which carries the elevating screw, and forms a rest for the ammunition box; there are two clamps attached to this for clamping the box when in position. The elevating gear is carried in a socket attached to the projecting arm, and consists of a differential screw worked by a horizontal wheel. There is a clamp by which the elevating gear is clamped to its socket; if unclamped the gun can be worked up and down by hand. The lower part of the pedestal is fitted to ship in the service holding-down ring.

Sighting.

The tangent sight consists of a hinged steel bar upon which teeth are cut to form a rack; the sight moves up and down by means of a pinion gearing into the rack, and to which is attached a milled wheel for working it; the bar is marked from 0 to 2000 yards.

Shield.

The shield slides into two grooves on cross-head of mounting, and is fixed by a taper pin on the right, a slot or slots being cut for sighting purposes. Thickness $\frac{1}{4}$ inch.

ACTION OF THE MECHANISM.

Recoil frame
crank and
spring.

On firing, the barrel and recoil frame move to the rear, about 1 inch, carrying with it crank, crank handle, fusee and lock.

The upper part of crank handle strikes resistance piece, and is thrown over to the front, rotating the crank and fusee, and further drawing lock to rear. The recoil of the crank and the rotation of the fusee on it cause an extension of the fusee spring.

The fusee spring now forces the whole of the recoiling portion forward again, and rotates crank in the opposite direction, thus placing lock in the firing position. The revolution of the crank handle to the front is checked by the buffer spring, and the rebound, when revolving back again, by the check lever.

On firing, the movement of the lock to the rear causes the extractor to withdraw the empty cylinder and a filled cartridge from the belt. The connecting nut forces the tumbler down which draws the firing pin to the rear, compressing the lock spring, and forcing the trigger into the cock notch in the tumbler. When the firing pin is fully to the rear, the sear is forced down on the firing pin by the sear spring, a projection on the sear takes in a notch on the firing pin, and holds the firing pin back until the gun is fired. Lock and extractor.

When the lock is fully back, the extractor being freed from its guides is forced down by the cover springs, thus placing the full cartridge in line with the barrel, and the empty cylinder in line with the ejecting tube. During the forward motion of the lock the filled cartridge enters the barrel and the empty cylinder the ejecting tube. When the lock is closing the rear end of barrel the side levers, acting in the extractor levers, forces the extractor upwards, thus gripping the cartridge in the belt, and freeing the empty cylinder, which is now held in the ejecting tube by a spring.

When the connecting rod and nut straighten out, it lifts the sear clear of the firing pin. The gun is now in the position for firing.

During recoil, the slot in the side plate forces the lower feed lever to the rear, thus forcing the pawls to the right over a cartridge in the belt, the belt being retained in position by the lower pawls. As the barrel is driven forward the slot in the side plate acting on the lower feed lever drives the pawls from right to left, thus placing another cartridge in the centre of the feed block. Feed action.

By pressing in the firing lever, the trigger bar is brought to the rear, the stud in trigger bar takes against the toe of the trigger, which releases it from the tumbler, and the lock spring forces the firing pin to the front, and thus fires the gun. To fire the gun.

MUZZLE ATTACHMENT FOR BLANK FIRING.

In order to produce sufficient energy of recoil when firing blank cartridges, the gun is supplied with a muzzle attachment, which should be shipped before carrying out blank firing. By

this arrangement the escape of gas at the muzzle is checked, and by means of an "adjusting screw" it can be adjusted to throw any required amount of thrust on to the recoiling portion when the gun is fired.

It consists of the following parts (*see* Fig. 12) :—

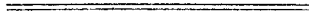
(A) muzzle cup, (B) outer casing, (C) adjusting screw, (D) check nut. There is also a special front gland (E) supplied for use with it, having a threaded portion on to which the outer casing screws. The muzzle of the gun is threaded for half an inch on the outside to take the "muzzle cup," or when not in use a muzzle protector is screwed on to preserve the threads from injury.

To prepare the gun for blank firing—

1. Unscrew the "front gland" and screw in the special one in its place.
2. Remove the "muzzle protector" and screw on the "muzzle cup."
3. Screw the outer casing on to the threaded part of the special gland.
4. Screw the adjusting screw up until the crank handle begins to move, then ease it back three complete turns, set the check nut up to this.

Note.—If this adjustment does not give satisfactory results it can be adjusted to give more recoil by screwing in the "adjusting screw" a small amount, or for less recoil by easing it out.

Owing to the excessive heating caused by firing blank with this attachment, not more than 100 rounds are to be fired at one time without allowing it to cool down.



INSTRUCTIONS FOR ARMOURERS IN STRIPPING AND ASSEMBLING THE GUN.

To dismount
the shield.

Raise the cover. Force the crank handle to the front, raise the lock carefully with the left hand, easing the crank handle back at the same time ; next give the lock an eighth of a turn to the left ; this will disengage it from the connecting rod.

To remove
the lock.

Proceed in the reverse order to the above, having seen that the lock is full cocked in order to keep the firing pin back.

To replace
the lock.

1. Remove the rear cross-piece.
2. Pull out the slides.
3. Remove check lever.
4. Take off crank handle.
5. Remove spring box and unhook spring from fusee chain.
6. Take out feed block.
7. Draw recoil frame and barrel to the rear.
8. Unscrew packing gland in front.
9. Knock out connecting pin of cover.
10. Remove barrel casing from outer frame (these two are dovetailed together).

To strip the
gun.

Proceed in the reverse order to the above.

To assemble
the gun.

See that the extractor is in its highest position, then release the lock spring by lifting the sear and pulling trigger.

To strip the
lock.

1. Take out the lock spring axis pin. Remove the lock spring, clip and extractor levers.
2. Take out the trigger axis pin. Remove the trigger.
3. Drift out the tumbler axis. Remove the tumbler.
4. Drift out the sear axis pin. Remove the sear and the firing pin.
5. Take out the keeper pin for extractor stop. Remove extractor stop and extractor.
6. Remove the cover at the back of the extractor, and take out the upper gib and spring ; the lower gib is rivetted on to the extractor.

Note.—In driving out a pin, see that the side of the lock round the pin is well supported.

The lock is now dismantled, as the body of the lock is formed out of a solid piece of steel and the connecting nut and side levers are rivetted together.

To mount the lock.

1. Put the upper gib and spring into their place in the face of the extractor and slide on the cover.
2. Slide on the extractor, put in the extractor stop and keeper pin.
3. Put in the firing pin and enter the lock spring, seeing the long arm of spring in notch of firing pin.
4. Enter trigger and trigger axis pin.
5. Insert tumbler and tumbler axis pin.
6. Put on extractor levers and clip.
7. Insert lock spring axis pin.
8. Insert sear and sear axis pin.

Note.—After entering pins or axes, always enter keeper pins.

INSTRUCTIONS FOR KEEPING THE GUN IN WORKING ORDER.

When practice with the gun is completed, empty the barrel casing, drawing the water off by the hole underneath the casing. Remove the lock, clean the bore and chamber, oiling them lightly. Remove all traces of dirt or water from all parts, and oil lightly; push the barrel to and fro several times, and see that it works freely in the stuffing boxes. Clean and oil the lock, then replace it; work the mechanism several times by means of the crank handle, releasing the tumbler each time, and see that all parts work perfectly smoothly and correctly. The gun should be protected from the weather.

Before commencing firing the barrel casing should be filled, a can is supplied for this purpose; the packing of the front and rear stuffing boxes should be supplied liberally with oil; see that the barrel goes close home forwards, if it does not the crank cannot fully turn upwards, the extractor cannot rise, and the crank handle will not come down on the stop; this latter is an indication the barrel is not home; when the foregoing occurs the packing of the stuffing boxes must be seen to, and, if necessary, be renewed; see that the lock works correctly; also, if time admit, test the spare one; it is recommended in practice to use both alternately.

In frosty weather care should be taken that the barrel casing is not filled until just previous to firing, as in the event of the water freezing the gun will not work.

IMPLEMENTS AND APPURTENANCES SUPPLIED PER GUN.

ARTICLES.		Proportion allowed.
Designation.	Detail.	
IMPLEMENTS.		
Bag, water	With cap, nozzle and chain	1
Balance, spring	Bronze	1
Drivers, screw { bent	Steel	1
	large	1
	small	Steel
Funnel	Tin	1
Hammers, small	Steel	1
Keys, gib { and spanner combined, gun-metal gland and adjusting screw. cup muzzle and outer casing. muzzle protector and check nut. valve	Steel	1
	Steel	1
	Steel	1
	Steel	1
	Steel	1
Pliers, cutting, pairs	Steel	1
Plug, clearing (Mk. III.)	Steel	1
Punches	Steel, Nos. 1, 2, 3 and 4	1
Rod, cleaning	Bronze	1
Spanner, shifting	Steel	1
Tommy	Steel	1
Tool, belt repairing	Steel	1
Vessel, water	Brass	1
Wrench, pin	Steel	1
APPURTENANCES.		
Belts, ammunition { 334 rounds	Canvas	5
	Canvas	2
Boxes, belt, ammunition	Wood, to hold one 334 rds., or two 140 rds.	*3
Boxes, spare parts and tools	Wood	1
Boxes, strips and eyelets	Tin	2
Eyelets, belt, ammunition	Bronze	20
Muzzle attachment for blank firing	Bronze, consisting of ad- justing screw (steel), cup muzzle (steel), check nut, gun-metal gland and outer casing.	1
Shoulder-piece	Steel, with india-rubber pad, nut plate and fixing screws.	1 per gun and 1 spare to 10 guns or less.
Strips, belt, ammunition { long	Bronze	20
	short	Bronze

* In addition to the above, four belt boxes are supplied for each field carriage.

FAILURES WHICH MAY OCCUR.

Jambs.

Jambs may be caused by any one of the following :—

1. Belt not properly loaded.
2. Cartridge rim being out of line with extractor when it rises.
3. Bullet being canted.
4. Fusee spring out of adjustment.
5. Base of cartridge being torn off.

Belt not properly loaded.

I. Should the belt not be properly loaded it will not travel through the feed block, and the mechanism will be hung up by the pawls. To clear this the belt must be withdrawn, first forcing the lower pawls down by the pawl levers.

Cartridge rim being out of line with carrier when it rises.

II. Should the rim of the cartridge not be exactly in line with the groove of the extractor, then as the extractor rises the edge of the extractor will either cut into the rim of the cartridge, or burring up the rim will prevent it rising to the top of its stroke. This may be cleared by giving the crank handle a sharp tap; if, however, this does not clear it, the cover must be opened and the extractor forced up with a screw-driver. Brass filings from this cause are liable to get into groove of the extractor and so make it stiff in working.

Bullet canted.

III. If the bullet becomes canted there is a chance of its striking the outside of the cartridge recess, so preventing the lock from going forward. This may be cleared by working the crank handle; if this does not clear it, it will be necessary to remove the cartridge from the lock.

Fusee spring out of adjustment.

IV. If too much tension is on the spring it will bind the lock when forward, and thus prevent the extractor from rising to the top of its stroke. If the spring is weak the sear will not be released by the connecting nut.

Base of cartridge torn off.

V. This will cause the bullet of the next full cartridge to jamb in the chamber. In order to clear it the lock should be removed, and with it the full cartridge; the empty cylinder is then removed by the clearing plug.

Miss-fire.

In the case of a miss-fire the mechanism does not recoil, and so the gun is out of action. To prepare the gun for action proceed as laid down in the drill.

DRILL FOR 0.45-INCH MAXIM GUN.

The following drill is for the 0.45-inch Maxim Gun on ship's mounting. The gun's crew, consisting of 4 men, fall in for drill in single rank in rear of starboard gun thus :—

3. 1. 2. 4.

Close up.—The gun's crew place themselves as follows :—

1 in rear of the gun.

2 on the right in line with the breech.

3 and 4 in rear.

Number.—The gun's crew call their numbers in succession.

Fall out.—The gun's crew fall in in single rank in rear of their gun.

Starboard (or Port) Gun.—The gun's crew close up at the named gun.

Both sides.—The gun's crew place themselves as follows :—

Odd numbers at the starboard guns, even numbers at the port guns.

Starboard guns.

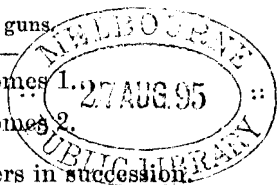
1 remains 1.

3 becomes 2.

Port guns.

2 becomes 1.

4 becomes 2.



Number.—The gun's crew call their numbers in succession.

Fall out.—The gun's crew fall in in single rank in rear of their guns.

The following drill is for working with both sides manned. Should only one side be engaged, numbers 3 and 4 keep up the supply of ammunition and refill belts. On the bugle call "Action," the guns' crews repair to their guns both sides manned, and place them in the "Cease firing" position.

Action.—1 sees elevating and training gear clear and unclamped, then raises the cover, examines and tries the mechanism by turning the crank handle forward to buffer stop and easing it back again, puts safety catch to "Fire," and eases the spring by pressing the firing lever; 2 fills barrel casing and places a cartridge box in position, then draws out the lid and fixes the belt slide.

Note 1.—This is termed the "Cease firing" position, i.e., gun empty, and cover up.

Note 2.—In trying the mechanism the crank handle is eased back to prevent damage to the extractor of the lock when rising as the lock goes forward, its buffer which is on the cover not being in place.

—*Deflection.* } 1 puts down the cover, raises and adjusts the
 —*Yards.* } sight.

Object.—2 passes the end of the belt through the feed block from right to left; 1 turns the crank handle forward, pulls the belt to the left, *lets it go*, and then releases crank handle, thus placing a cartridge in the extractor; he then again turns the crank handle forward without pulling the belt and releases it, thus placing the cartridge for firing; 1 then lays the gun, holding the handles with both hands, or working the elevating gear with the left hand.

Note 1.—The gun is thus loaded for a single shot, the belt not being pulled the second time prevents a second cartridge being placed in the extractor. If required to load for rapid firing at once the belt must be pulled a second time as the crank handle is moved forward.

Note 2.—Care must be taken not to pull at the belt when letting go the crank handle.

Commence.—1 fires by pressing the firing lever with the thumbs, he then reloads by turning the crank handle forward and releasing it, and continues the fire.

After one or two single shots have thus been fired to get the range, the order should be given.

Rapid firing.—Assuming a single shot to have first been fired, 1 loads by turning the crank handle forward, whilst he pulls the belt to the left and then releases it; the gun will now fire continuously as long and as often as the trigger is pressed, and will cease to fire as soon as the pressure is released. 2 removes the empty cartridge box and replaces a filled one as required.

Note 1.—If the order is given when loaded for a single shot, 1 fires and then proceeds as above.

Note 2.—With one side only manned, 3 and 4 maintain a supply of cartridge boxes to 2, and if necessary, fill belts.

Rest.—1 discontinues the fire and puts safety catch to "Safe."

Carry on.—1 puts safety catch to "Fire" and continues the firing.

Note 1.—In rapid firing it is unnecessary to fire a large number of shots at the same spot. 1 therefore should not, under ordinary circumstances, keep the trigger pressed for more than a few rounds at a time, so that the smoke may clear away and he can see the effect of his shots.

Note 2.—When the gun is loaded for rapid firing, and it is required to fire a single shot, 1 turns the crank handle forward without pulling the belt and then releases it.

Cease firing.—1 discontinues the fire and puts the safety catch to "Safe," puts down sight and raises the cover, he then removes the lock and removes the cartridges from it, being careful in doing so not to press either the sear or trigger, gives the cartridges to 2 and then replaces the lock, puts safety catch to "Fire" and eases the spring. 2 withdraws the belt, turning down the feed pawls and returns it to the cartridge box.

Secure.—1 closes the cover, puts the safety catch to "Safe," sets the sight to zero and puts it down; places the gun in the securing position, and clamps the training and elevating gear. 2 closes and returns the cartridge box, collects and returns any unfired cartridges and empties the barrel casing, When everything is finished, 1 orders "Fall out."

GENERAL NOTES.

If a miss-fire occurs in rapid firing the gun ceases to fire; to reload in this case, the crank handle must be turned forward whilst the belt is pulled to the left and then released, firing can then be continued.

If any difficulty occurs in moving the crank handle, the cover must be raised, and the cause ascertained and corrected.

To shift a lock, raise the cover, turn the crank handle forward, lift the fore part of the lock and ease the crank handle to the rear again; the lock is attached to the connecting rod of the crank by an interrupted thread, one-eighth of a turn releases it from it, the new lock is placed in the reverse order.

LIST OF SPARE PARTS FOR 0.45-INCH MAXIM GUN.

Names of parts.	No.	Remarks.
Barrels, with block, fixing pin and protector muzzle, with chain, ring, and S-hook.	2	
Extractor levers { right	1	
left	1	
Feed blocks, complete	1	
Fusee chain, with fittings	1	
Gibs	4	
Handles, crank, with fixing pin	1	
Locks, complete	2	
Packing, asbestos, pieces 11 inches long	2	
Packing, asbestos, pieces 5 yards long	1	
Pins, axis, lock spring	1	
Pins, axis, sear... ..	1	
Pins, axis, trigger	1	
Pins, axis, tumbler	4	
Pins, fixing axis pins	12	
Pins, fixing, extractor spring	1	
Pins, fixing, fusee chain	2	
Pins, firing	2	
Sears	1	
Sights { fore, with fixing screws	1	} To every 5 or less No. of guns.
tangent, complete	1	
Springs, buffer... ..	2	
Springs, connecting rod	2	
Springs, cover	4	
Springs, cover lock	2	
Springs, ejecting tube	2	
Springs, extractor	2	
Springs, feed block	2	
Springs, feed block slide	2	
Springs, fusee and fittings	2	
Springs, gib	4	
Springs, lock	3	
Springs, safety catch	1	
Springs, sear	2	
Springs, shutter	2	
Springs, side plate	2	
Springs, tangent sight	1	
Springs, trigger bar	2	
Triggers	1	
Tumblers	1	

LIST OF SPARE PARTS FOR 0.45-INCH MAXIM GUN—*cont.*

Names of parts.	No.	Remarks.
MOUNTING.		
Pins, joint { crosshead, with vice pin { elevating gear, with spring split pin	1	
	1	
Screw, keeper, sleeve	*1	
Screw set, nut, pin, joint, crosshead	1	
Screw set, sleeve	*1	
Screw, spring, handle clamping, sleeve	1	
Springs, handle clamping, sleeve	1	
Springs, stop, brake	1	

* See footnote on page 6.

AMMUNITION.

The ammunition to be used with the gun is the 0.45-inch machine gun in a solid drawn case. There are long and short belts (5 long and 2 short per gun) supplied, and three boxes per gun capable of holding either one long belt of 334 rounds, or two short belts each containing 140 rounds. Four boxes are supplied for each field carriage, and these, with the three allowed per gun, complete the number to be taken away with the carriage. The belts should be carefully loaded, and when properly inserted should correspond to the position of the cartridges painted on the lid.

Blank ammunition, made up in solid drawn cases, will also be supplied.

BELT FILLING MACHINE.

This machine will be supplied for use in filling the Maxim belts. Its action is briefly as follows :—

The belt having been placed in the guide and the guard to keep it down placed under its catch, the crank handle is turned slowly, the piercer at the rear then moves forward and care must be taken that one of the cartridge recesses is opposite its point, the flat point of piercer enters horizontally, and therefore easily finds its way into the recess when the belt is stretched out flat; but when once entered it gradually turns by means of a stud working in an inclined groove until it is at right angles to its former position, thereby expanding the cartridge recess ready for a cartridge to enter. There is a plunger in the feed which retires as the piercer advances, and *vice versa*. When the plunger is right back a cartridge falls from the feed in front of it, the advancing plunger then forces the cartridge into the belt, the piercer retiring at the same time; when the cartridge is placed a feed pawl presses against the last cartridge entered and forces the belt along till the next recess is in line with the piercer and the operation is repeated.

WEIGHTS AND DIMENSIONS, &c.

Ammunition	0.45" machine gun.
Bullet	Lead.
„ weight of	480 grs.
Charge	85 grs., R.F. G ² .
Cartridges, number in a long belt	334 rounds.
Weight of belt { filled	43 $\frac{3}{4}$ lbs.
{ empty	4 $\frac{1}{2}$ lbs.
Cartridges, number in a short belt	140 rounds.
Weight of belt { filled	18 $\frac{1}{2}$ lbs.
{ empty	2 lbs.
Cartridge box contains	1 long or 2 short belts.
Weight of box filled (one belt, 334 rounds)	54 lbs.
Weight of box filled (two belts, 140 rounds)	47 $\frac{1}{4}$ lbs.
Weight of box empty	10 $\frac{1}{4}$ lbs.
Weight of gun	60 lbs.
Barrels, number	1.
„ calibre	0.45".
Rifling, description	Henry.
„ number of grooves	7.
„ twist	Uniform 1 turn in 22".
Elevation	20°.
Depression	48°.
Weight of mounting without shield	100 lbs.
Weight of shield	*64 lbs.
Dimensions of shield... ..	30" broad, 27" high.
Thickness of shield	$\frac{1}{4}$ ".
Weight of shoulder piece	7 $\frac{1}{4}$ lbs.
Proportion of ammu- } ball... ..	8160 rounds per gun
} blank	1000 " "

* The first 87 shields issued are of a different pattern, and weigh 54 lbs.

·45-INCH MAXIM FIELD CARRIAGE.

(See Figs. 13, 14 and 15.)

The body of the carriage consists of a skeleton wrought iron frame (A) formed to support the six ammunition boxes (B), and a compartment (C) containing two boxes (D D) for tools, spare parts, &c. The top is formed of a thin steel plate covered with leather, the rear part being hinged to give access to the compartment (C).

At the rear end of the body is fitted the wire net receptacle (E) which is suitable for carrying light stores, such as drag ropes, but this net arrangement is primarily a prolongation of the carriage intended to prevent the mounting from tilting backwards if the shafts are lifted high and let go. The frame (A) is rivetted and clipped to the axletree, which is slightly cranked, to lower the centre of gravity of the load.

The wheels are 4 feet in diameter, and have 2-inch tyres, the naves are of metal. Lynch pins and washers of the ordinary service type are fitted, so that drag ropes can be used. A steadying bar (L) is attached to the bottom of the carriage. A loop is forged at each end of the axletree for the attachment of the shafts by means of joint pins, and the shafts are further secured to the frame by the bands (F).

Two slats are provided, and fittings on the shafts permit of their being readily shipped or unshipped; by this means four men can be stationed for holding up the shafts, and for pulling in addition to the men on the drag ropes. When the slats are not in use they can be stowed on the sides of the carriage and secured by straps (G).

The shafts are cased on three sides with steel to strengthen and protect them. This field carriage is capable of being drawn by horse power or by hand as required, and is provided with the means of carrying 2,338 rounds, in ammunition belts.

These belts are carried in the boxes (B), six of which are made to slide into the frame (A) from the front, and one is kept shipped ready for firing.

The boxes stowed in the frame of the carriage are secured by means of a cross-bar (K) fitted and attached to the frame by a short chain.

The gun is attached to the carriage by means of a combined central pivot and clip racer (H), made of manganese bronze (like the service cone mounting) let into the top of the carriage, and on which the gun can be readily mounted or dismounted.

No limber is supplied for carrying extra ammunition, as this can always be done more conveniently by means of pack animals or country carts, according to the circumstances of the locality.

Fig. 1.
ELEVATION OF GUN.

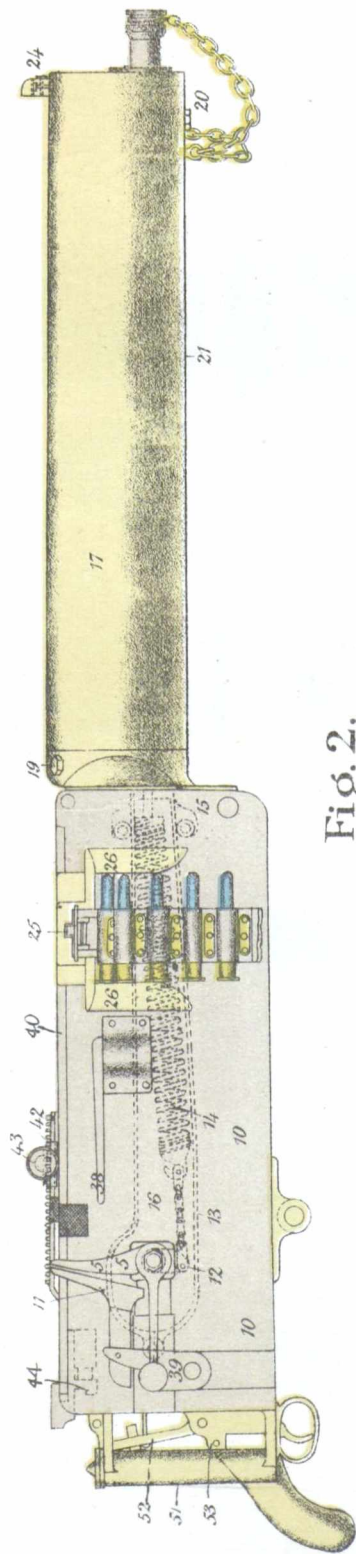


Fig. 2.
SECTIONAL ELEVATION OF GUN.

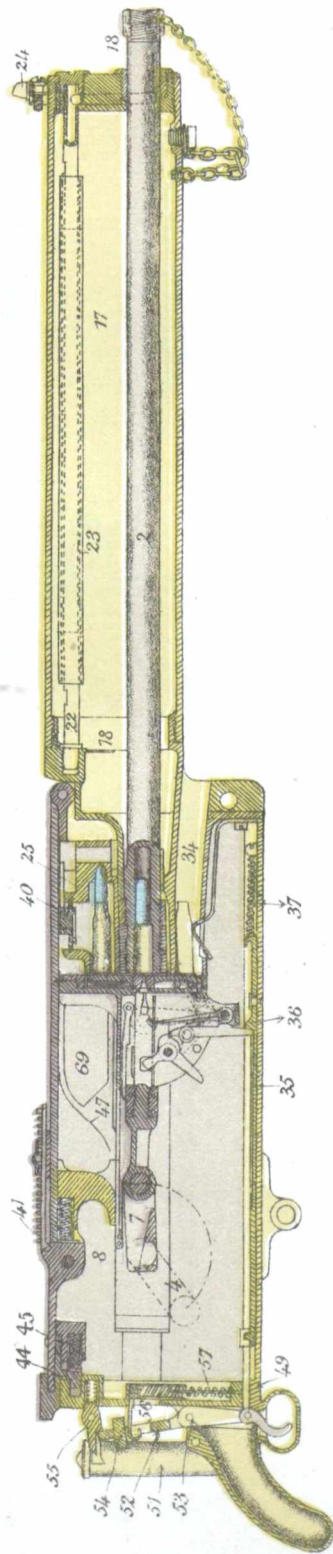


Fig. 3.
ELEVATION OF LOCK.
FIRING POSITION.

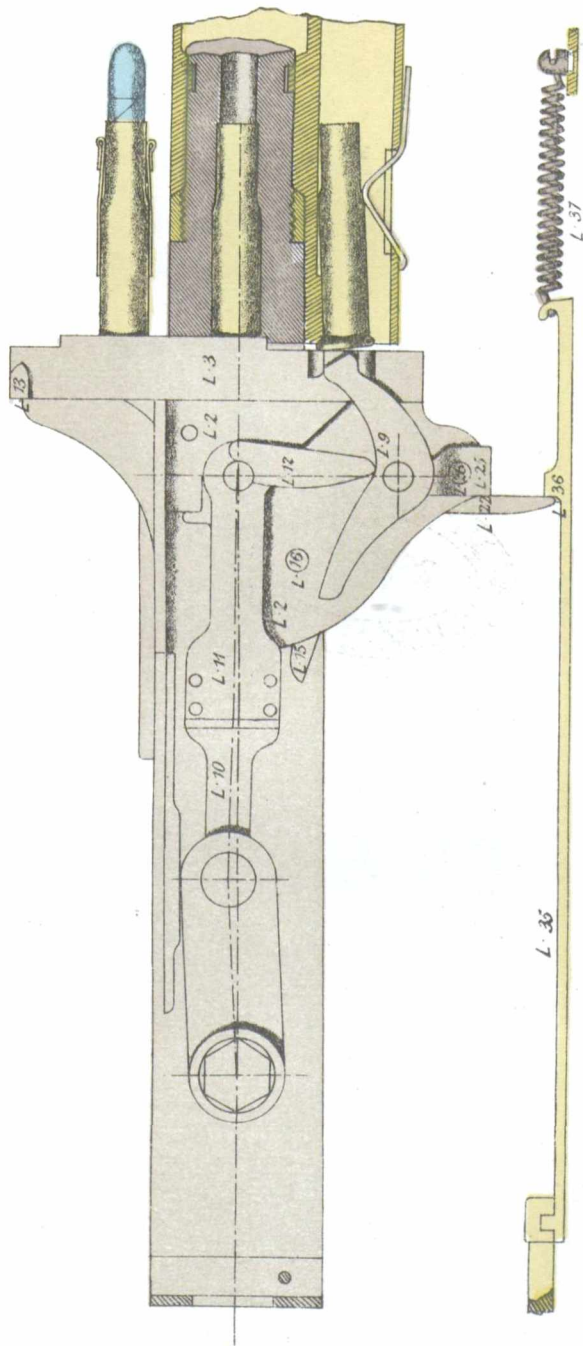


Fig. 4.
ELEVATION OF LOCK.
EXTREME REAR POSITION.

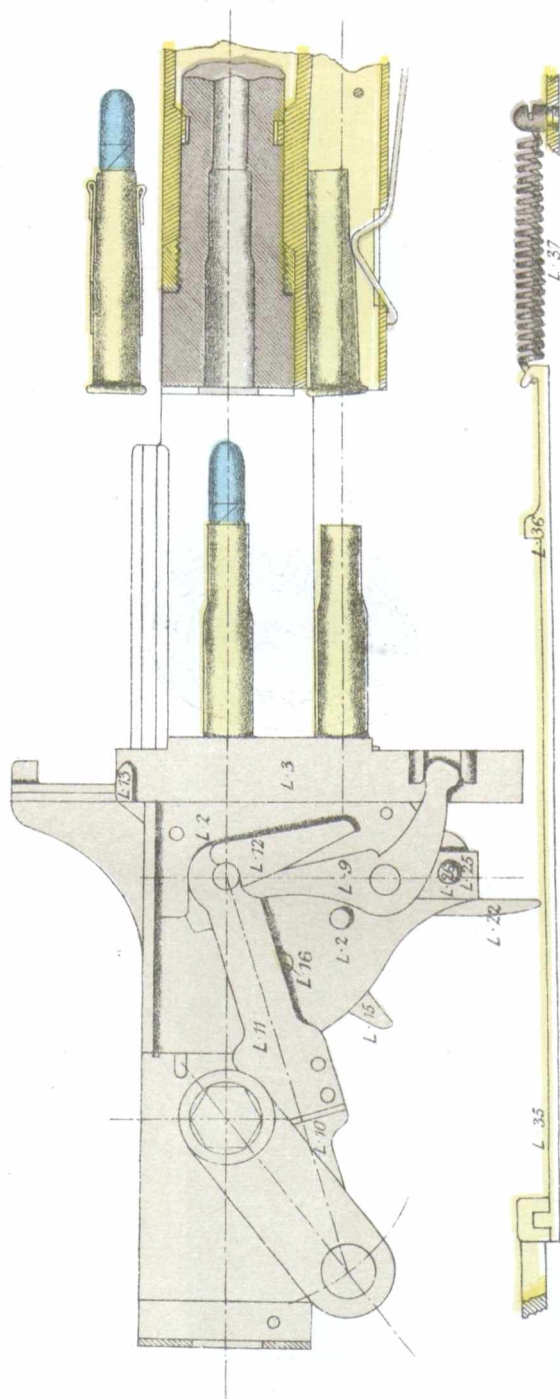


Fig. 5.
SECTIONAL ELEVATION OF LOCK.
FIRING POSITION.

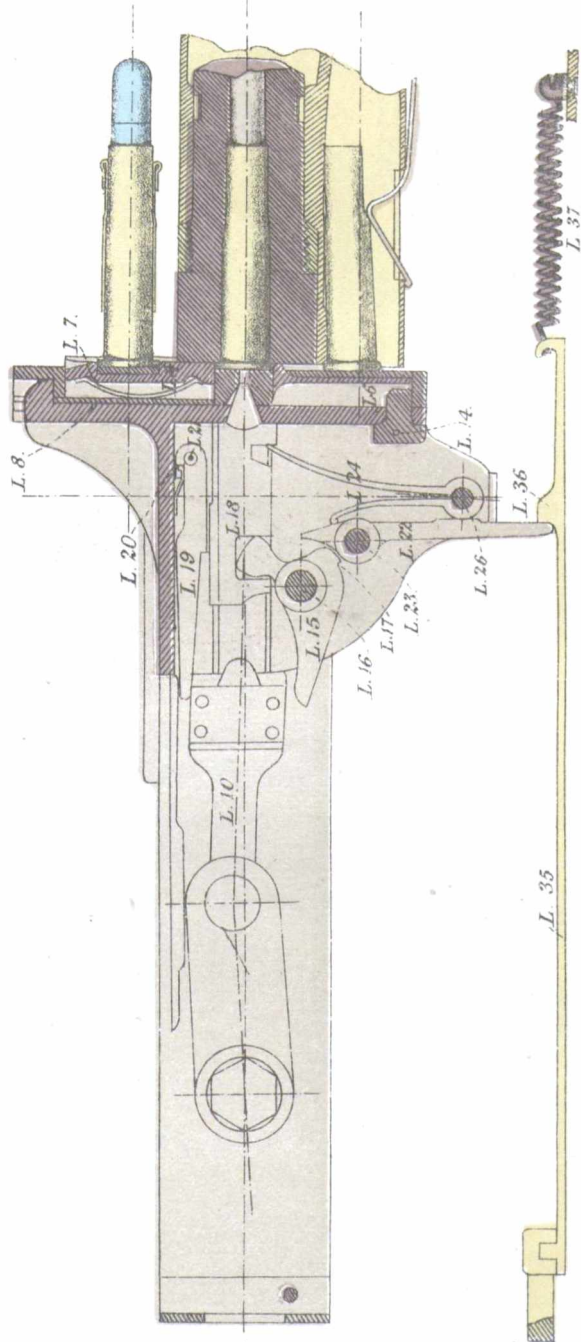
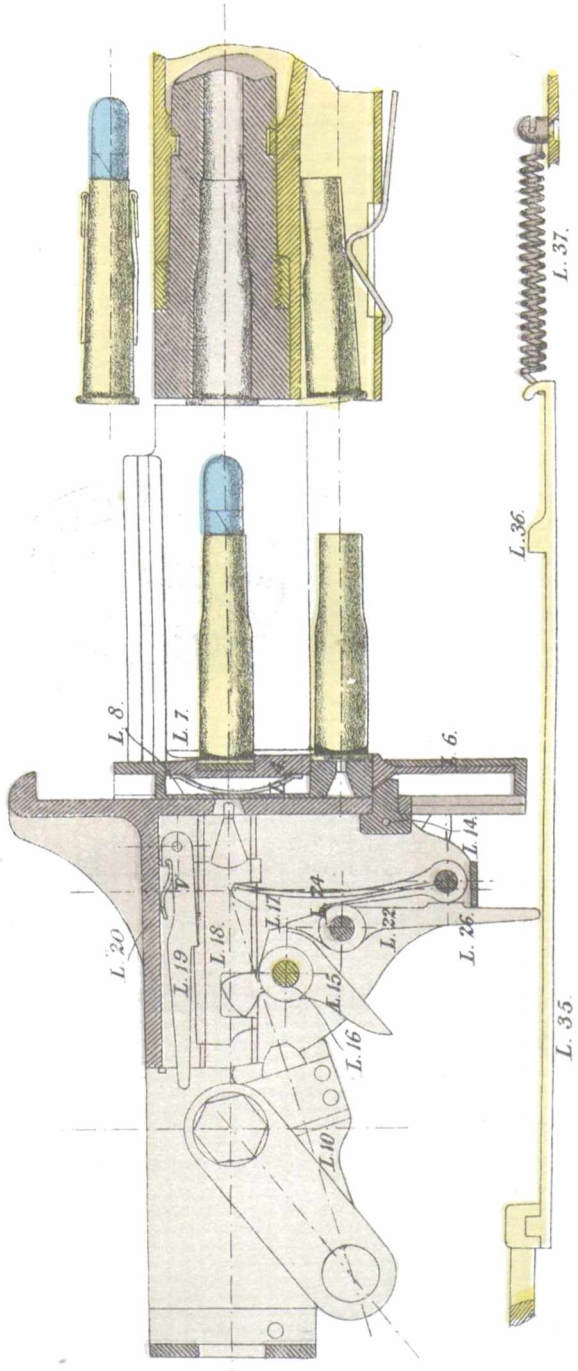


Fig. 6.
SECTIONAL ELEVATION OF LOCK.
EXTREME REAR POSITION.



FEED BLOCK. RIGHT SIDE VIEW.

Fig. 7.

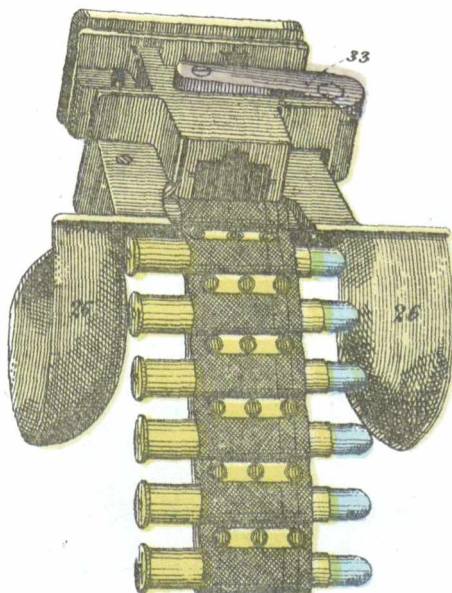


Fig. 8.

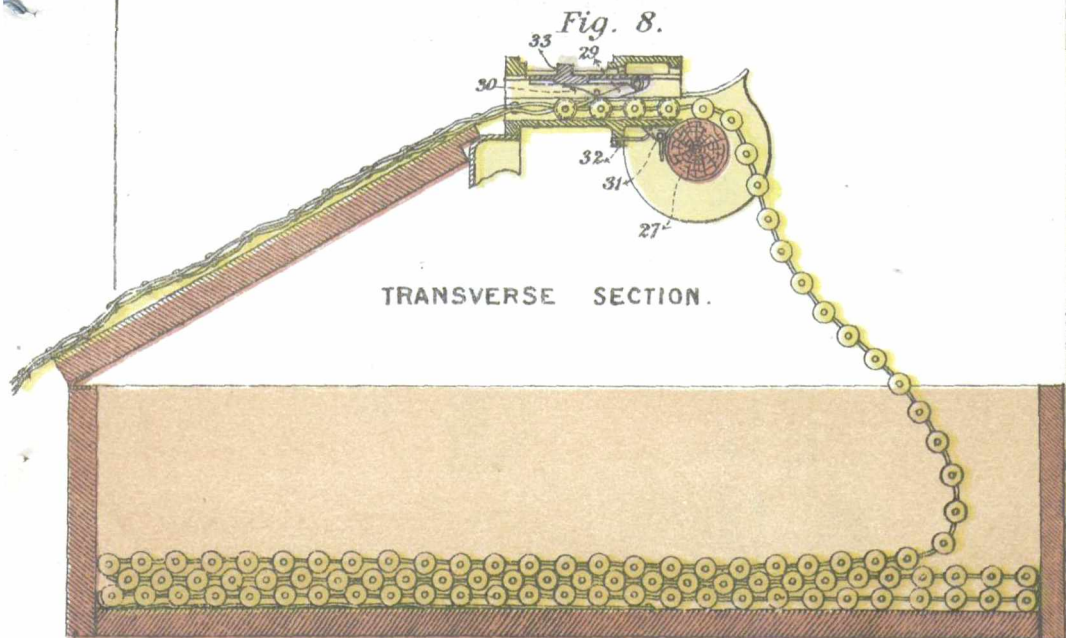


Fig. 9.

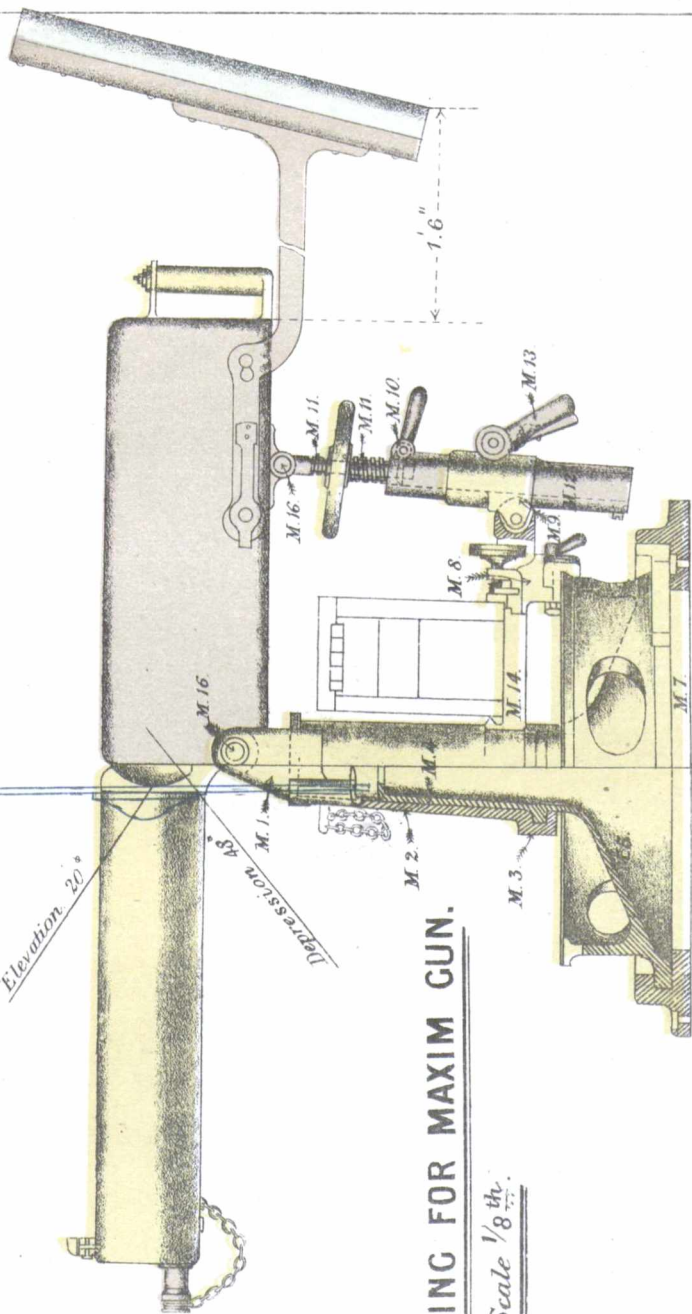
> 25"

Elevation 20°

Depression 45°

CONE MOUNTING FOR MAXIM GUN.

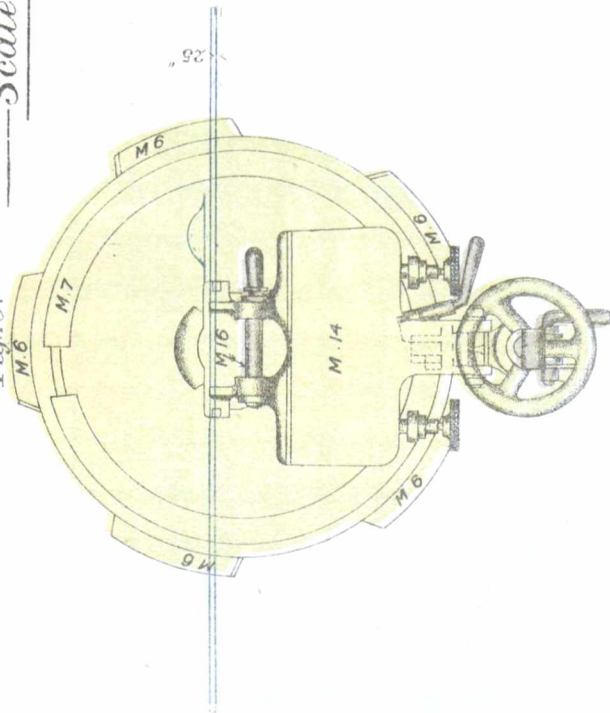
Scale $\frac{1}{8}$ in.



SIDE ELEVATION.

— CONE MOUNTING FOR MAXIM GUN —

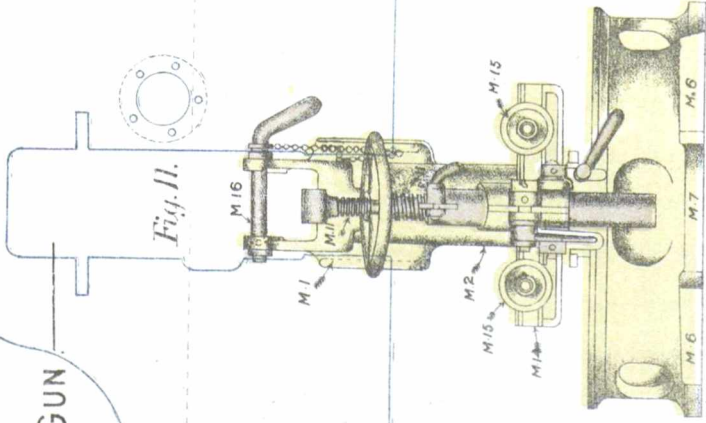
Fig. 10. *Scale $\frac{1}{8}$ "*



— PLAN —

Fig. 11.

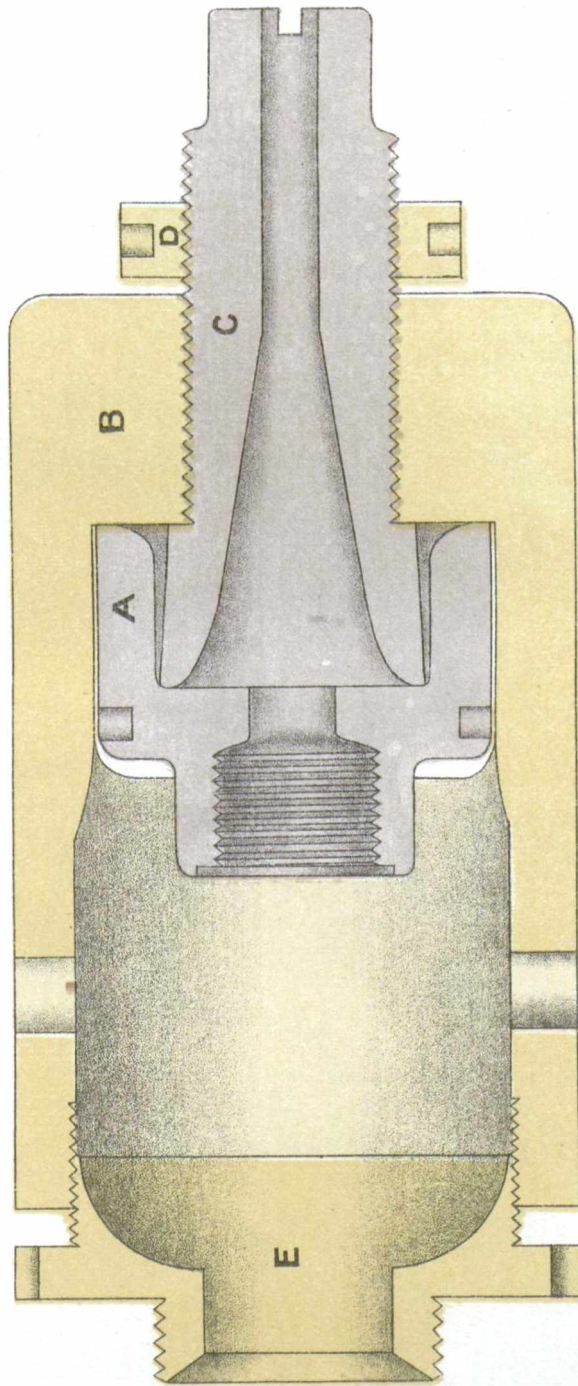
30"



— REAR VIEW —

Fig 12.
MUZZLE ATTACHMENT FOR BLANK FIRING.
Full Size.

SECTION



- A.-- Muzzle Cup.
- B.-- Outer Casing.
- C.-- Adjusting Screw.
- D.-- Check Nut.
- E.-- Gun Metal Gland.

— FIELD CARRIAGE — Fig. 13.

ELEVATION

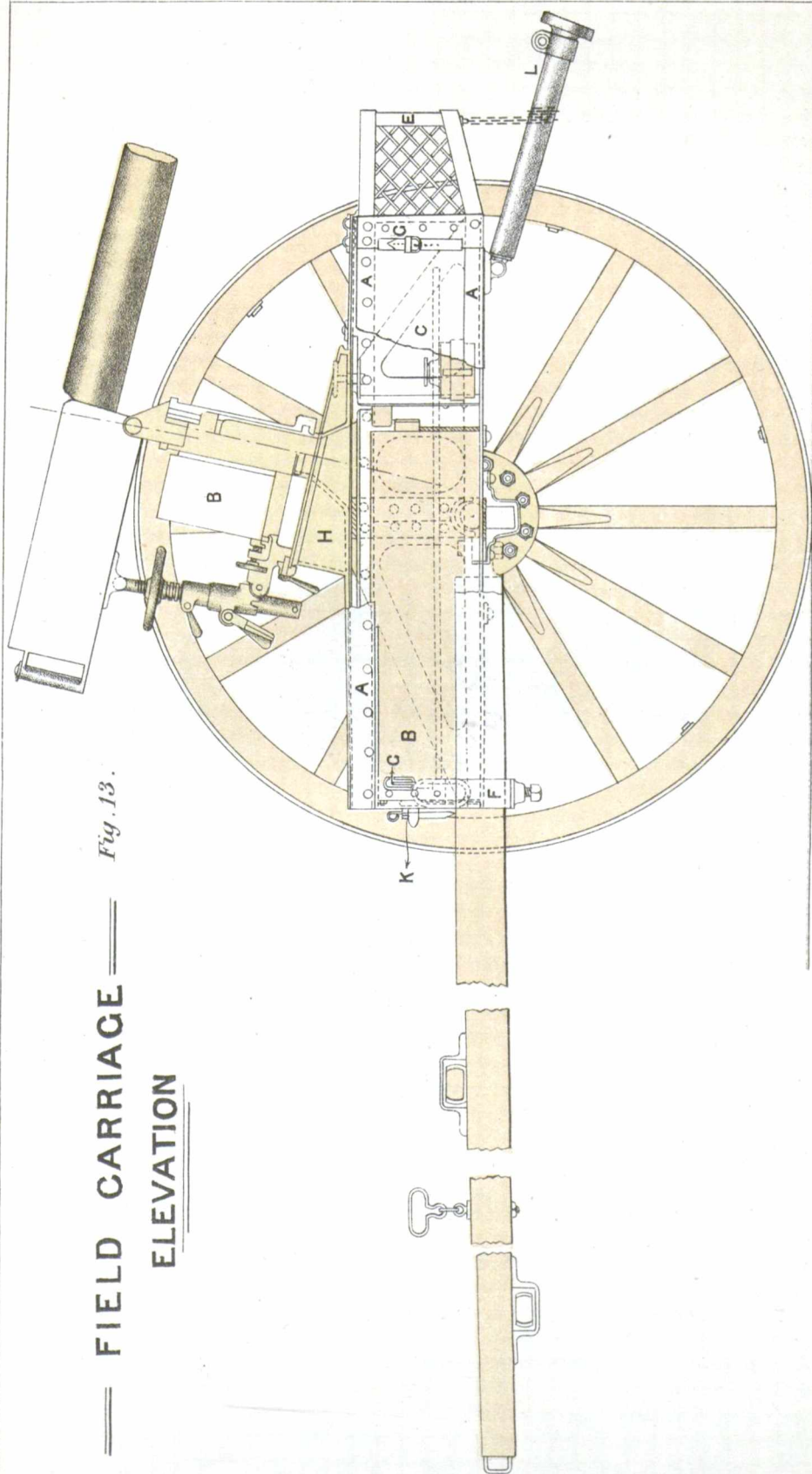
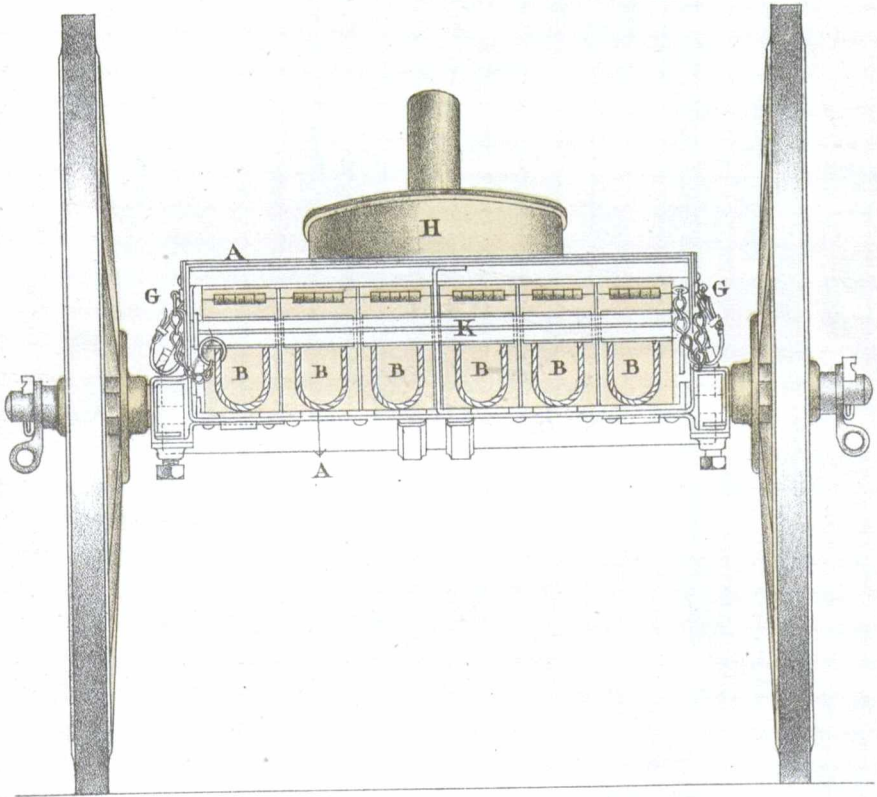


Fig 14.



FIELD CARRIAGE
REAR VIEW

Fig. 15.

FIELD CARRIAGE PLAN

