

R.L. WILLIAMS, S.M.M.

Hatchers Portable Machine Gun

HANDBOOK



62

D. GEORGE

Hotchkiss! Hotchkiss!! Hotchkiss!!!

No Water Jacket one well-aimed shot in water jacket !!

A Fighting Machine not a delicate toy, but built to fight !!

No Small Parts they break and get lost !!

Safety chamber is clear when firing ceases no fatal didn't-know-it-was-loaded accidents !!

Simplicity only 26 parts !!

Weight can't be lighter and still lead them all !!

Single Shots the "Hotchkiss" alone does this !!

When you equal these times you KNOW your "Hotchkiss" !!

250 rounds per minute	-	-	Firer alone.
400 " " "	-	-	Firer and aid loading.
Stripping	-	-	35 seconds.
Assembling	-	-	75 "
Changing Firing Pin	-	-	30 "
Changing Extractor (Fig. 11)	-	-	15 "
Changing Hot Barrel	-	-	15 ..

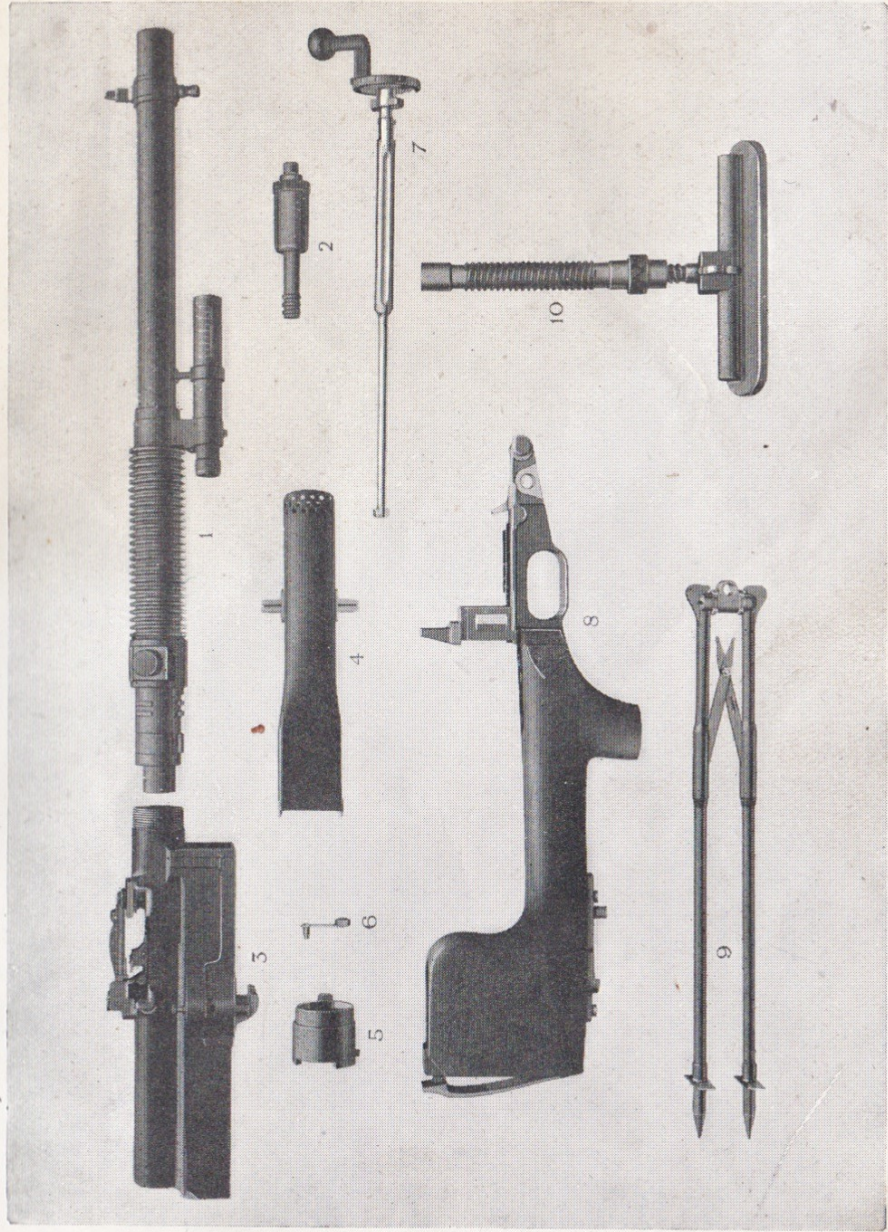
Hotchkiss Portable Machine Gun

HANDBOOK

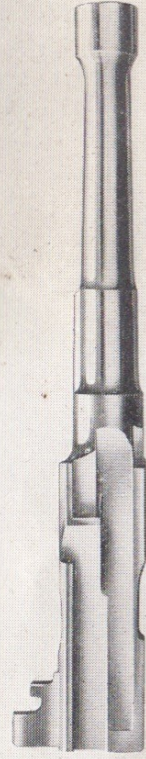




Infantry model with elevating gear.
PLATE I.



External Parts.
PLATE II.



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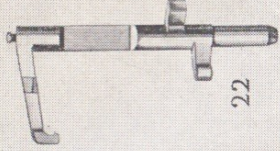
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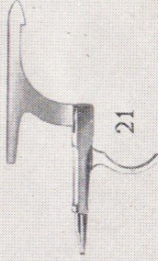
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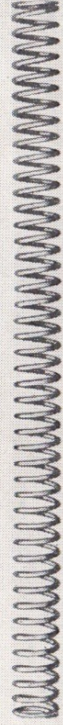
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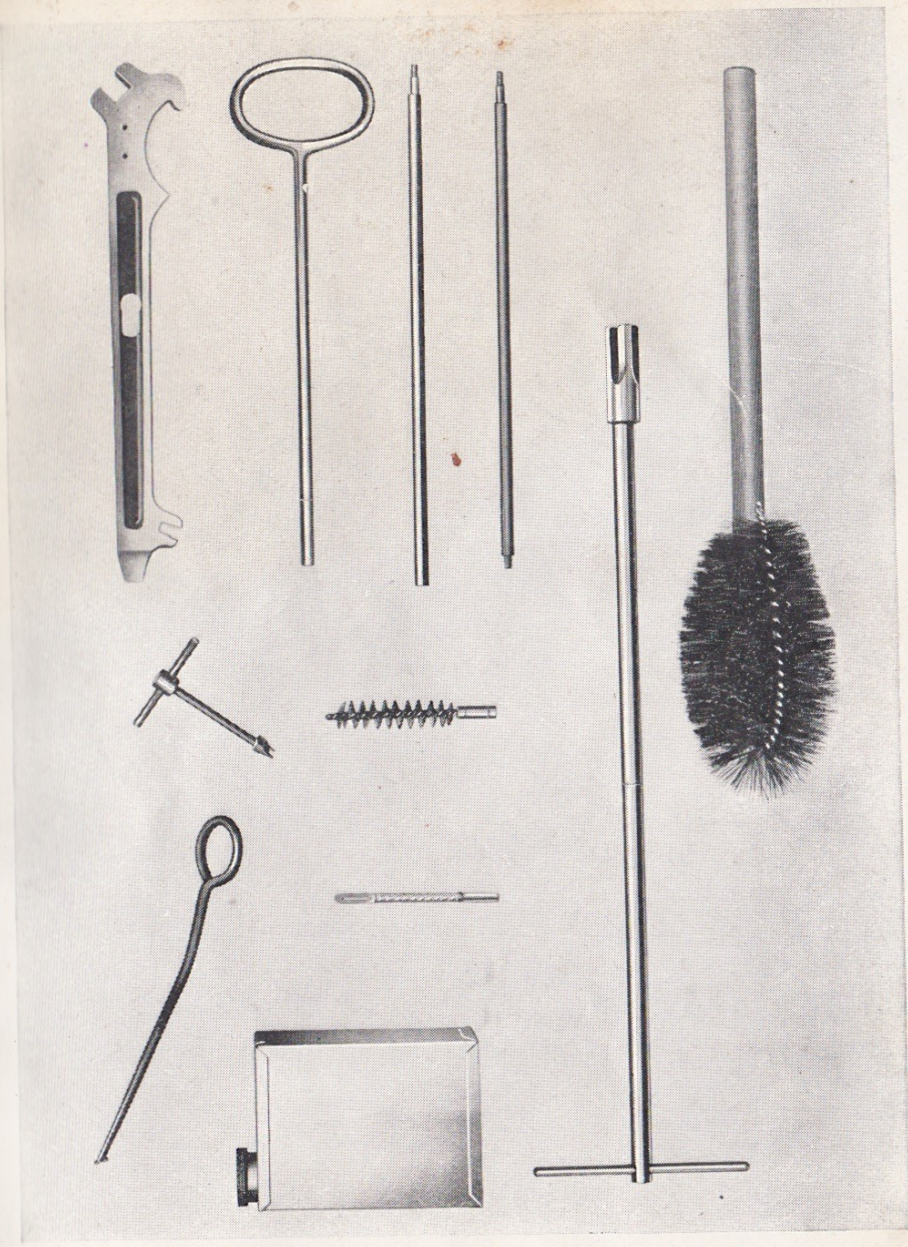
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Accessories.
PLATE IV

HOTCHKISS PORTABLE MACHINE GUN.

COMPONENT PARTS.

- | | |
|--|--|
| <p>1. Barrel :</p> <ul style="list-style-type: none"> Trunnion Ring Gas Nozzle Ring Orifice Screw Gas Cylinder Support Front Sight Carrier Front Sight <p>2. Regulator.</p> <p>3. Receiver :</p> <ul style="list-style-type: none"> Bottom Plate Front Feed Guide Rear Feed Guide Cartridge Base Stop Feed Piece Cover Closing Spring Rear Sight Base Rear Sight Screw <p>4. Hand Guard :</p> <ul style="list-style-type: none"> Catches for Legs Catch Springs <p>5. Locking Nut.</p> <p>6. Locking Screw.</p> <p>7. Cocking Handle.</p> <p>8. Guard with Stock :</p> <ul style="list-style-type: none"> Recoil Spring Seat Hinged Strap Elevating Screw Tube Elevating Screw Slide Slide Spring | <p>9. Barrel Rest.</p> <p>10. Elevating Mechanism :</p> <ul style="list-style-type: none"> Outer Screw Inner Screw Base <p>11. Piston.</p> <p>12. Fermeture Nut.</p> <p>13. Breech Block.</p> <p>14. Extractor.</p> <p>15. Firing Pin.</p> <p>16. Ejector.</p> <p>17. Ejector Cap.</p> <p>18. Cartridge Stop.</p> <p>19. Cartridge Stop Holder.</p> <p>20. Sear.</p> <p>21. Trigger.</p> <p>22. Feed Piece.</p> <p>23. Feed Spring.</p> <p>24. Recoil Spring.</p> <p>25. Ejector Spring.</p> <p>26. Sear Spring.</p> <p>27. Cartridge Stop Spring.</p> <p>28. Extractor Spring.</p> |
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ACCESSORIES.

- | | |
|---|--|
| <ul style="list-style-type: none"> One dismounting wrench. One ejector key. One hand extractor. One cleaning rod complete. Two wire brushes. | <ul style="list-style-type: none"> One cleaning brush. One gas cylinder cleaner. One oil can. One front sight cover. |
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HOTCHKISS PORTABLE MACHINE GUN.

COMPONENT PARTS.

1. Barrel	1. Barrel
2. Receiver	2. Receiver
3. Guard	3. Guard
4. Stock	4. Stock
5. Piston	5. Piston
6. Breech Block	6. Breech Block
7. Cartridge	7. Cartridge
8. Chamber	8. Chamber
9. Ejector	9. Ejector
10. Magazine	10. Magazine
11. Trigger	11. Trigger
12. Sights	12. Sights
13. Trip	13. Trip
14. Cartridge Stop	14. Cartridge Stop
15. Cartridge Stop Holder	15. Cartridge Stop Holder
16. Bolt	16. Bolt
17. Trigger	17. Trigger
18. Feed Lever	18. Feed Lever
19. Feed Spring	19. Feed Spring
20. Feed Pawl	20. Feed Pawl
21. Feed Wheel	21. Feed Wheel
22. Feed Pin	22. Feed Pin
23. Feed Nut	23. Feed Nut
24. Feed Bolt	24. Feed Bolt
25. Feed Washer	25. Feed Washer
26. Feed Lock	26. Feed Lock
27. Feed Key	27. Feed Key
28. Feed Pinion	28. Feed Pinion
29. Feed Gear	29. Feed Gear
30. Feed Shaft	30. Feed Shaft
31. Feed Housing	31. Feed Housing
32. Feed Cover	32. Feed Cover
33. Feed Spring	33. Feed Spring
34. Feed Pawl	34. Feed Pawl
35. Feed Wheel	35. Feed Wheel
36. Feed Pin	36. Feed Pin
37. Feed Nut	37. Feed Nut
38. Feed Bolt	38. Feed Bolt
39. Feed Washer	39. Feed Washer
40. Feed Lock	40. Feed Lock
41. Feed Key	41. Feed Key
42. Feed Pinion	42. Feed Pinion
43. Feed Gear	43. Feed Gear
44. Feed Shaft	44. Feed Shaft
45. Feed Housing	45. Feed Housing
46. Feed Cover	46. Feed Cover
47. Feed Spring	47. Feed Spring
48. Feed Pawl	48. Feed Pawl
49. Feed Wheel	49. Feed Wheel
50. Feed Pin	50. Feed Pin
51. Feed Nut	51. Feed Nut
52. Feed Bolt	52. Feed Bolt
53. Feed Washer	53. Feed Washer
54. Feed Lock	54. Feed Lock
55. Feed Key	55. Feed Key
56. Feed Pinion	56. Feed Pinion
57. Feed Gear	57. Feed Gear
58. Feed Shaft	58. Feed Shaft
59. Feed Housing	59. Feed Housing
60. Feed Cover	60. Feed Cover
61. Feed Spring	61. Feed Spring
62. Feed Pawl	62. Feed Pawl
63. Feed Wheel	63. Feed Wheel
64. Feed Pin	64. Feed Pin
65. Feed Nut	65. Feed Nut
66. Feed Bolt	66. Feed Bolt
67. Feed Washer	67. Feed Washer
68. Feed Lock	68. Feed Lock
69. Feed Key	69. Feed Key
70. Feed Pinion	70. Feed Pinion
71. Feed Gear	71. Feed Gear
72. Feed Shaft	72. Feed Shaft
73. Feed Housing	73. Feed Housing
74. Feed Cover	74. Feed Cover
75. Feed Spring	75. Feed Spring
76. Feed Pawl	76. Feed Pawl
77. Feed Wheel	77. Feed Wheel
78. Feed Pin	78. Feed Pin
79. Feed Nut	79. Feed Nut
80. Feed Bolt	80. Feed Bolt
81. Feed Washer	81. Feed Washer
82. Feed Lock	82. Feed Lock
83. Feed Key	83. Feed Key
84. Feed Pinion	84. Feed Pinion
85. Feed Gear	85. Feed Gear
86. Feed Shaft	86. Feed Shaft
87. Feed Housing	87. Feed Housing
88. Feed Cover	88. Feed Cover
89. Feed Spring	89. Feed Spring
90. Feed Pawl	90. Feed Pawl
91. Feed Wheel	91. Feed Wheel
92. Feed Pin	92. Feed Pin
93. Feed Nut	93. Feed Nut
94. Feed Bolt	94. Feed Bolt
95. Feed Washer	95. Feed Washer
96. Feed Lock	96. Feed Lock
97. Feed Key	97. Feed Key
98. Feed Pinion	98. Feed Pinion
99. Feed Gear	99. Feed Gear
100. Feed Shaft	100. Feed Shaft
101. Feed Housing	101. Feed Housing
102. Feed Cover	102. Feed Cover
103. Feed Spring	103. Feed Spring
104. Feed Pawl	104. Feed Pawl
105. Feed Wheel	105. Feed Wheel
106. Feed Pin	106. Feed Pin
107. Feed Nut	107. Feed Nut
108. Feed Bolt	108. Feed Bolt
109. Feed Washer	109. Feed Washer
110. Feed Lock	110. Feed Lock
111. Feed Key	111. Feed Key
112. Feed Pinion	112. Feed Pinion
113. Feed Gear	113. Feed Gear
114. Feed Shaft	114. Feed Shaft
115. Feed Housing	115. Feed Housing
116. Feed Cover	116. Feed Cover
117. Feed Spring	117. Feed Spring
118. Feed Pawl	118. Feed Pawl
119. Feed Wheel	119. Feed Wheel
120. Feed Pin	120. Feed Pin
121. Feed Nut	121. Feed Nut
122. Feed Bolt	122. Feed Bolt
123. Feed Washer	123. Feed Washer
124. Feed Lock	124. Feed Lock
125. Feed Key	125. Feed Key
126. Feed Pinion	126. Feed Pinion
127. Feed Gear	127. Feed Gear
128. Feed Shaft	128. Feed Shaft
129. Feed Housing	129. Feed Housing
130. Feed Cover	130. Feed Cover
131. Feed Spring	131. Feed Spring
132. Feed Pawl	132. Feed Pawl
133. Feed Wheel	133. Feed Wheel
134. Feed Pin	134. Feed Pin
135. Feed Nut	135. Feed Nut
136. Feed Bolt	136. Feed Bolt
137. Feed Washer	137. Feed Washer
138. Feed Lock	138. Feed Lock
139. Feed Key	139. Feed Key
140. Feed Pinion	140. Feed Pinion
141. Feed Gear	141. Feed Gear
142. Feed Shaft	142. Feed Shaft
143. Feed Housing	143. Feed Housing
144. Feed Cover	144. Feed Cover
145. Feed Spring	145. Feed Spring
146. Feed Pawl	146. Feed Pawl
147. Feed Wheel	147. Feed Wheel
148. Feed Pin	148. Feed Pin
149. Feed Nut	149. Feed Nut
150. Feed Bolt	150. Feed Bolt
151. Feed Washer	151. Feed Washer
152. Feed Lock	152. Feed Lock
153. Feed Key	153. Feed Key
154. Feed Pinion	154. Feed Pinion
155. Feed Gear	155. Feed Gear
156. Feed Shaft	156. Feed Shaft
157. Feed Housing	157. Feed Housing
158. Feed Cover	158. Feed Cover
159. Feed Spring	159. Feed Spring
160. Feed Pawl	160. Feed Pawl
161. Feed Wheel	161. Feed Wheel
162. Feed Pin	162. Feed Pin
163. Feed Nut	163. Feed Nut
164. Feed Bolt	164. Feed Bolt
165. Feed Washer	165. Feed Washer
166. Feed Lock	166. Feed Lock
167. Feed Key	167. Feed Key
168. Feed Pinion	168. Feed Pinion
169. Feed Gear	169. Feed Gear
170. Feed Shaft	170. Feed Shaft
171. Feed Housing	171. Feed Housing
172. Feed Cover	172. Feed Cover
173. Feed Spring	173. Feed Spring
174. Feed Pawl	174. Feed Pawl
175. Feed Wheel	175. Feed Wheel
176. Feed Pin	176. Feed Pin
177. Feed Nut	177. Feed Nut
178. Feed Bolt	178. Feed Bolt
179. Feed Washer	179. Feed Washer
180. Feed Lock	180. Feed Lock
181. Feed Key	181. Feed Key
182. Feed Pinion	182. Feed Pinion
183. Feed Gear	183. Feed Gear
184. Feed Shaft	184. Feed Shaft
185. Feed Housing	185. Feed Housing
186. Feed Cover	186. Feed Cover
187. Feed Spring	187. Feed Spring
188. Feed Pawl	188. Feed Pawl
189. Feed Wheel	189. Feed Wheel
190. Feed Pin	190. Feed Pin
191. Feed Nut	191. Feed Nut
192. Feed Bolt	192. Feed Bolt
193. Feed Washer	193. Feed Washer
194. Feed Lock	194. Feed Lock
195. Feed Key	195. Feed Key
196. Feed Pinion	196. Feed Pinion
197. Feed Gear	197. Feed Gear
198. Feed Shaft	198. Feed Shaft
199. Feed Housing	199. Feed Housing
200. Feed Cover	200. Feed Cover

ACCESSORIES.

One cleaning brush	One cleaning brush
One for cylinder chamber	One for cylinder chamber
One for barrel	One for barrel
One for right cover	One for right cover

GENERAL DESCRIPTION.

The gun comprises a single barrel, receiver, guard and stock rigidly assembled. Guided in the receiver parallel to and below the barrel is the piston which by its reciprocating motion assures the automatic action of the gun. This reciprocating motion is brought about as follows: When the bullet in its passage through the bore has passed a port connecting the bore with the gas nozzle, a small portion of the powder gas issues from the nozzle and, impinging in the cup-shaped forward extremity of the piston, throws it to the rear. The recoil spring compressed by the piston in its rearward movement now returns the piston to its initial position.

In its movement to the rear the piston, which is accompanied by the breech block, opens the breach, extracts and ejects the spent cartridge case, and brings a fresh cartridge to the loading position. In its forward movement a cartridge is pushed into the chamber, the breech locked, and the shot fired.

The cartridges are fed into the gun on flat, tempered steel strips of 30 rounds each.

A folding barrel rest is provided for steadying the barrel when firing in the prone position which will ordinarily be taken.

For aircraft the gun is mounted on a crutch, and the stock may be replaced by a pistol grip.

The operation of the gun requires but one man, who loads and fires. If a second operator loads, the speed of fire is increased from 250 to 400 rounds per minute.

ACTION OF THE MECHANISM.

In order to load, the breech must be opened by means of the cocking handle. As the piston is drawn back, cams on its upper face turn the ferreture nut a partial revolution, disengaging its interrupted threads from corresponding threads on the nose of breech block. This unlocks the breech. Under the action of its spring, the feed piece engages with a shoulder on the piston and locks it in its rearmost position.

To permit the introduction of the feed strip, the feed piece must be lifted to its highest position by pressing up on its lower end. This frees it from the shoulder of the piston, which latter moves forward slightly under the action of its spring and engages with the sear. The feed strip may now be introduced into the guides, cartridge side down, and should be pushed forward until the pawl forming part of the feed spring engages with it, so as to prevent any backward movement.

When the trigger is pulled, the piston, accompanied by the breech block, is propelled forward by the recoil spring; the breech block pushes a cartridge from the feed strip into the chamber; the cams on the upper face of the piston act on the ferreture nut locking the breech; the firing pin is driven against the primer and the shot fired.

When the bullet in its passage through the bore has passed the port leading to the gas nozzle, a small portion of the powder gas, conducted by the port and the gas nozzle, impinges in the cup-shaped forward extremity of the piston, and drives it to the rear. As already explained, the breech is now unlocked by the action of the piston cams on the ferreture nut, the breech block is withdrawn, along with the extractor holding the spent cartridge case, which latter, when entirely extracted, is ejected when its head strikes the ejector.

Towards the end of the backward stroke of the piston, a cam on its side imparts a slight rotary movement to the feed piece, which advances the feed strip sufficiently to bring the following cartridge to the loading position.

Its last cartridge having been fired, the exhausted strip is ejected from the gun. Under the action of its spring, the feed piece, which has been held up by the strip, now descends and, engaging with the shoulder of the piston, locks the breech open. All is now ready for the introduction of another strip.

The firing gear may be set for continuous firing, single shots, or safety, by turning the cocking handle to the positions marked "A," "R," and "S" respectively.

When set at "A" (automatic), so long as the trigger is held back the piston is free to move forward again under the action of the recoil spring. As a result the gun fires continuously until the strip is exhausted or the trigger released.

When set at "R" (repetition), a separate pull of the trigger is required for each shot, as the sear engages with the piston each time the latter recoils, thus stopping the firing.

When set at "S" (safety) the trigger is locked, and cannot be pulled back so as to release the sear from the piston. As a result the gun cannot be fired.

TO STRIP AND ASSEMBLE THE GUN.

1st.—*Close the breech.*

- (a) Lift the feed piece to its highest position by pressing up on its lower end as for loading. This releases the shoulder of the piston from the feed piece and allows it to move forward slightly and rest on the sear.

(b) Pull the trigger, the cocking handle being set at "R" or "A." As this releases the sear, the piston is propelled forward by the recoil spring and the breech closed as when firing.

2nd.—*Remove the cocking handle.*

(a) Throw the cocking handle knob to the left slightly past the vertical and against the stop.

(b) Draw the cocking handle back about $\frac{1}{2}$ in. and then throw the knob to the right as far as possible to an angle of about 45° . By this movement the cocking handle is released from the piston.

(c) Withdraw the cocking handle to the rear.

3rd.—*Remove the guard.*

(a) Unscrew the locking screw on the left side of the receiver three turns.

(b) Grasp the receiver firmly with the left hand and the stock or pistol grip with the right. Push the stock forward about $\frac{3}{8}$ in. and then bring it straight down, separating it from the receiver. This combined movement will be learned after a few trials.

The firing gear (sear, sear spring, and trigger) remains with the guard.

4th.—*Withdraw the recoil spring from the receiver.*

5th.—*Remove the recoiling mechanism.*

(a) Insert the cocking handle in the piston and push it forward as far as it will go, the knob inclined at about 45° to the right. When home, turn the knob to the vertical position so as to engage the lugs at the forward end with the piston.

(b) Draw the cocking handle to the rear, and with it the piston, breech block, extractor, and firing pin.

6th.—*Remove the feed spring.* (See fig. 1.)

(a) Disengage the feed spring from the button at the top of the feed piece, spring it up with the fore-finger of the right hand by means of the hooked portion projecting to the rear.

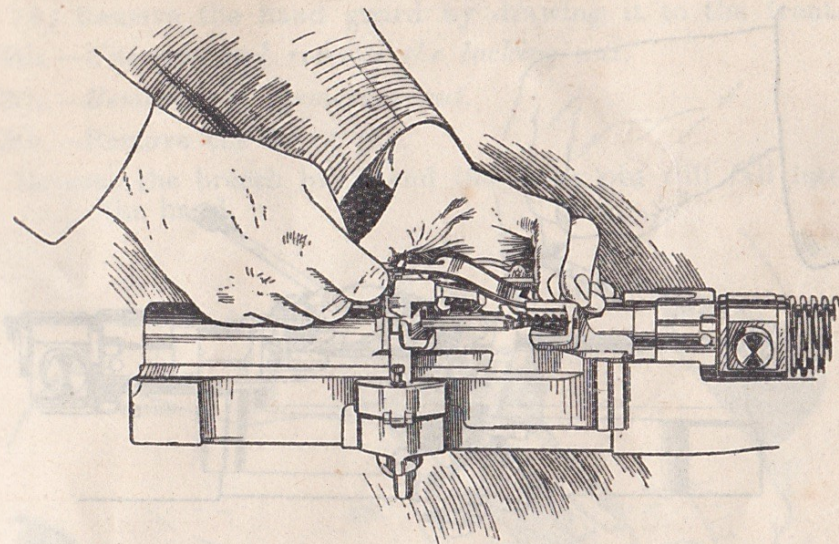


FIG. 1.

(b) Dismount the feed spring by pushing it to the rear with the left hand by means of the knurled button, at the same time springing it up sufficiently with the right hand to clear the pawl from the rear feed guide.

7th.—*Remove the feed piece.* (See fig. 2.)

(a) Throw open the feed piece cover by means of the knurled knob.

(b) Lift leaf of rear sight.

- (c) Lift the feed piece to its highest position and turn through an angle of 180° so that the lever points to the rear. As the flattened portion of the axis is now opposite the corresponding slot in the upper bearing, the feed piece may be removed to the rear.

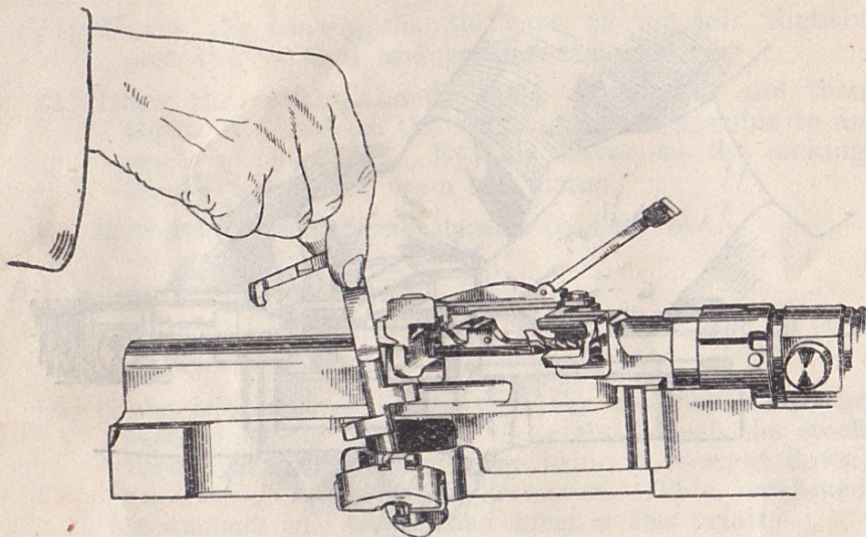


FIG. 2.

- 8th.—Remove the ejector.
(a) By means of the key unscrew the ejector cap and remove it.
(b) Lift out the ejector spring and then the ejector.
- 9th.—Remove the barrel.
(a) Unscrew the barrel locking nut $\frac{1}{8}$ th of a turn to a stop with the right hand, using the dismounting wrench.
(b) Remove the barrel by drawing it straight to the front.

- 10th.—Remove the hand guard.

(a) Turn the locking nut to the left sufficiently to free its stud from engagement with the hand guard. (This stud serves to hold the hand guard in place, while the barrel is being mounted or dismounted.)

(b) Remove the hand guard by drawing it to the front.

- 11th.—Unscrew and remove the locking nut.

- 12th.—Remove the ferreture nut.

- 13th.—Remove the firing pin.

Reverse the breech block and the firing pin will fall into the hand.

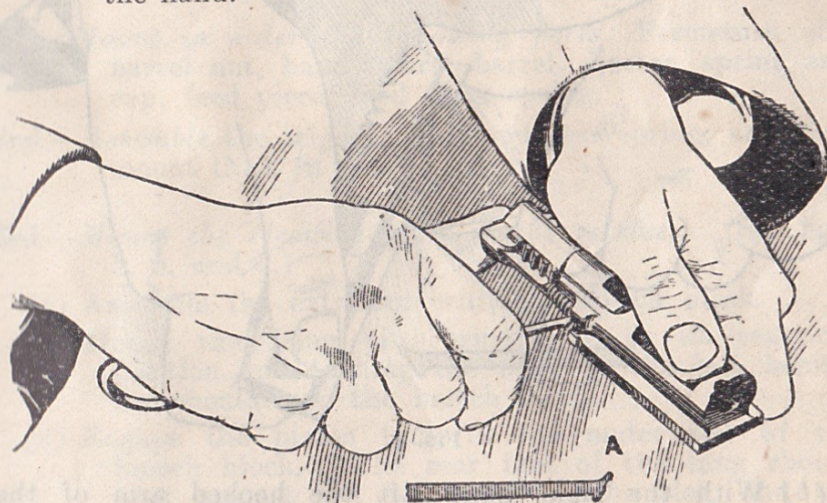


FIG. 3.

- 14th.—Remove the extractor. (See figs. 3 and 4.)

(a) Grasp the breech block with the left hand, and the hand extractor with the right; insert the hook portion of the latter (see A) between the last and before last coil of the extractor spring, compress

the spring, tilt the end out of its seat (see fig. 4) and remove it.

(b) By holding the breech block upwards, the extractor will fall out.

15th.—*Remove the firing gear from the guard.*

(a) Hold the stock between the knees the guard to the front.

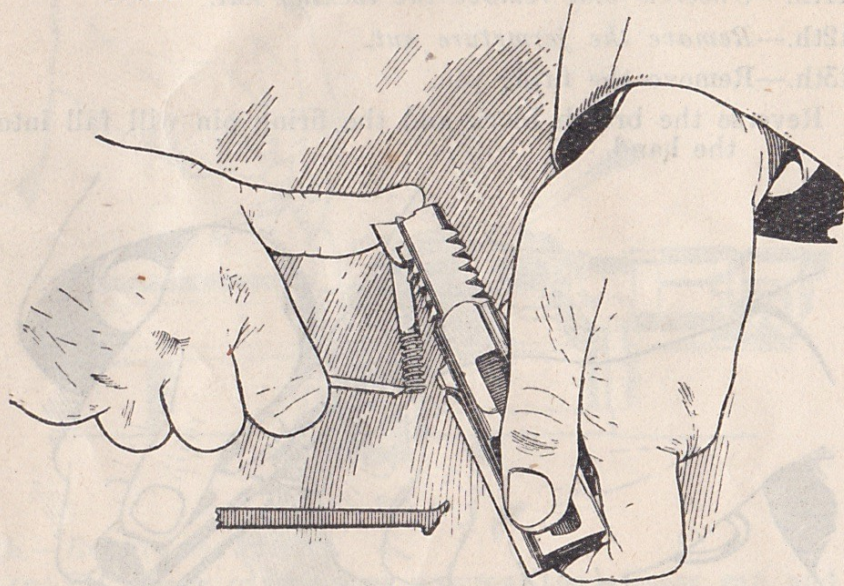


FIG. 4.

(b) With the right hand lift the hooked arm of the trigger sufficiently to clear it entirely from the vertical lever of the sear.

(c) With the left hand catch the knurled button forming the outer extremity of the sear axis and draw to the left sufficiently to free the right hand end of the axis from its pocket. Now lift the sear vertically from the guard.

(d) Lift the trigger upward and forward, separating it and the sear with spring attached from the guard.

(e) Detach the respective ends of the spring from the sear and trigger.

16th.—*Remove the cartridge stop.*

(a) Unscrew the cartridge stop holder by means of the dismantling wrench.

(b) Withdraw the cartridge stop spring and the cartridge stop.

ASSEMBLING.

1st.—*Mount in order the following parts:* Fermeture nut, barrel nut, hand guard, barrel, ejector, spring and cap, feed piece, feed piece spring.

2nd.—*Assemble* the trigger, sear, and sear spring, and then mount them in guard.

3rd.—*Mount the recoiling parts in the receiver.* (See figs. 5, 6, and 7.)

(a) Assemble the extractor with the breech block.

(b) Mount the firing pin, bringing it to its rearmost position and turning the head to the left behind the shoulder in the breech block.

(c) Engage the piston tang in the under slot of the breech block. (The rear face of the tang should abut against the rear wall of the slot, and the under tang of the firing pin should engage in the corresponding groove in the piston tang.)

(d) Turn the fermeture nut to the open position by passing the first finger of the left hand in the ejection slot of the receiver (see fig. 5). (When in the open position the ejection slot in the fermeture nut coincides with the ejection slot in the receiver.)

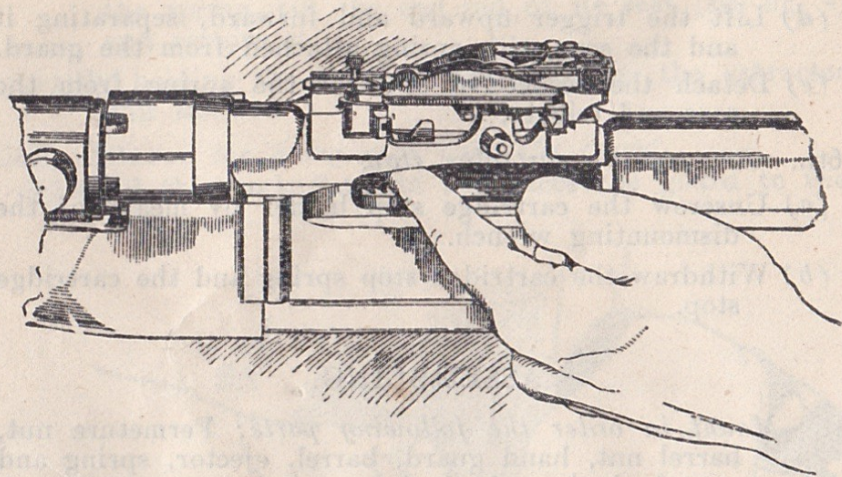


FIG. 5.

(e) With the right hand grasp the rear of the piston assembled with the breech block as per (c), placing the thumb on the head of the firing pin so as to hold it turned to the left behind the shoulder of the breech block (see fig. 6).

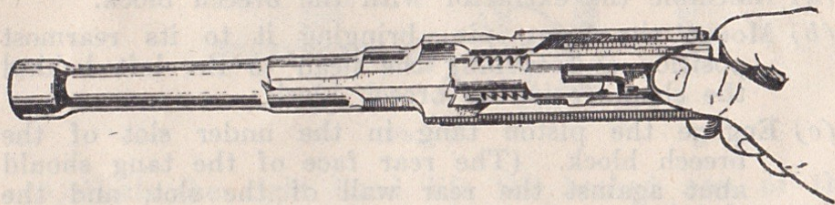


FIG. 6.

(f) Insert the piston assembled with the breech block in the rear of the receiver and push it forward with the right hand until it comes to a stop (see fig. 7). (Its rear face will now be about $1\frac{1}{2}$ in. forward of the rear of the receiver.)

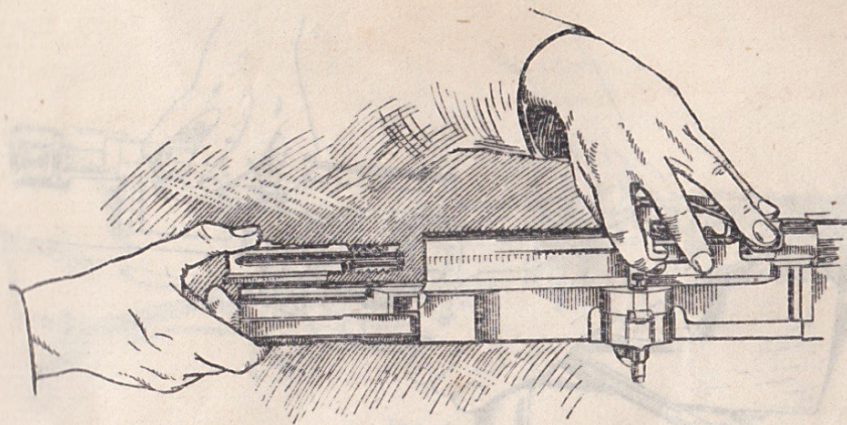


FIG. 7.

N.B.—It is imperative that the head of the firing pin be turned completely to the left, and that the ferreture nut be at the open position. See (d) and (e). The mechanism should slip into place easily, forcing being neither necessary nor permissible.

(g) While pressing on the lower end of the feed piece with the right hand so as to bring it to its highest position, push forward the piston with the left hand until the breech is closed.

4th.—Insert the recoil spring in the piston and push forward, allowing a few inches to project to the rear of the receiver.

5th.—Mount the guard. (See figs. 8 and 9.)

(a) Grasp the pistol grip with the right hand as for firing, making sure that the firing gear is properly mounted by pulling the trigger several times.

(b) Engage the projecting end of the recoil spring in its seat in the guard.

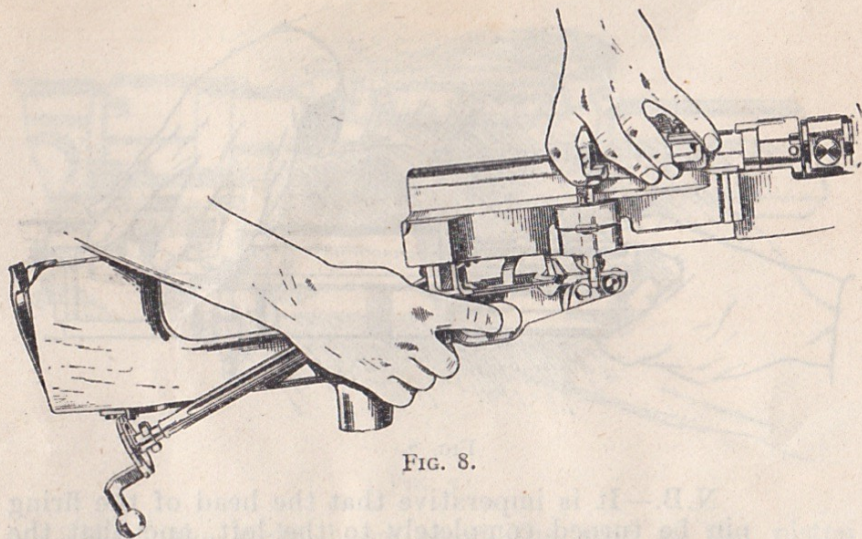


FIG. 8.

- (c) Bring the guard to a position under the receiver such that the two lugs on its head are opposite their mortises in the rear of the receiver, the trunnions at the front being below and slightly in advance of their sockets in the bottom of the receiver (see fig. 8). In order that the end of the recoil spring remain engaged in its seat in the guard, it may be held in place by means of the end of the cocking handle shank, as shown in fig. 9.
- (d) Engage the lugs in their mortises and the trunnions in their sockets by raising the guard vertically.
- (e) Draw the guard to the rear until solidly seated in the receiver.
- (f) Screw up the locking screw.
- 6th.—*Mount the cocking handle.*
- (a) Insert the shank of the cocking handle in the opening in the guard, the knob inclined at 45° to the right, and push forward to a stop.

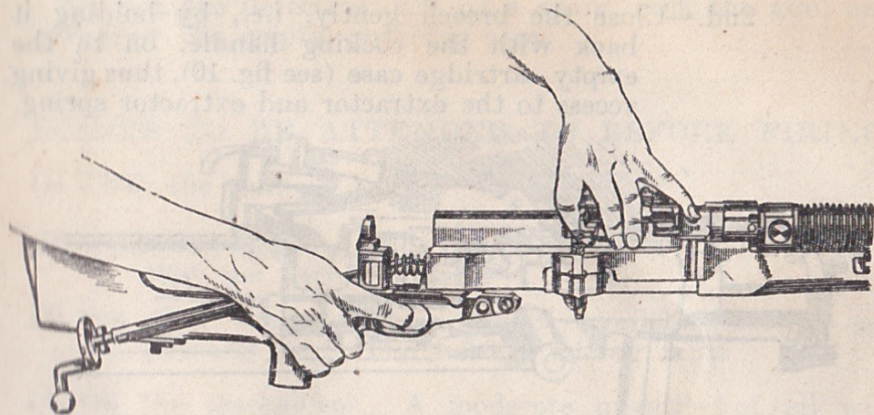


FIG. 9.

- (b) Throw the knob to the left to a stop.
- (c) Push the cocking handle forward until home, and then throw the knob to the right and down as far as it will go.

In order to replace a defective extractor or firing pin, proceed as follows:

- 1st.—Close the breech.
- 2nd.—Remove the cocking handle.
- 3rd.—Remove the guard.
- 4th.—Withdraw the recoil spring.
- 5th.—Remove the recoiling mechanism.

Replace the defective part by a spare, and mount by reversing the operations.

The extractor and extractor spring can also be removed without stripping the gun as follows:

- 1st.—Insert an empty cartridge case in the ejection slot, perpendicular to the chamber.

2nd.—Close the breech gently, *i.e.*, by holding it back with the cocking handle, on to the empty cartridge case (see fig. 10), thus giving access to the extractor and extractor spring.

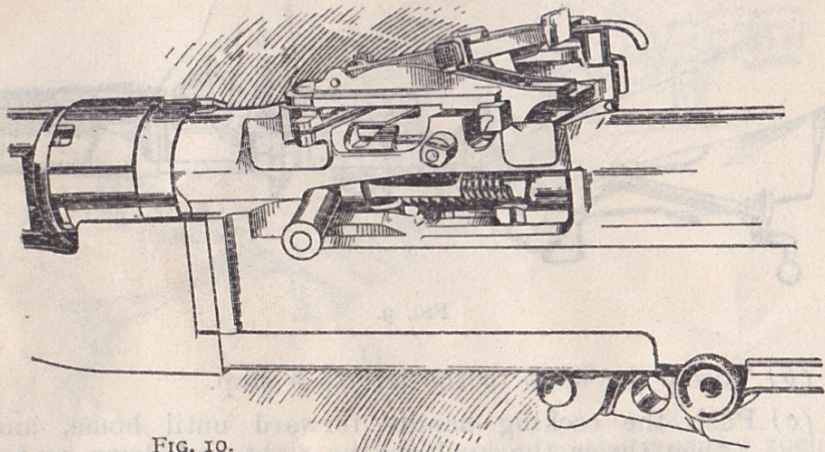


FIG. 10.

3rd.—Remove the extractor spring and extractor by means of the hand extractor. (See fig. 11.)

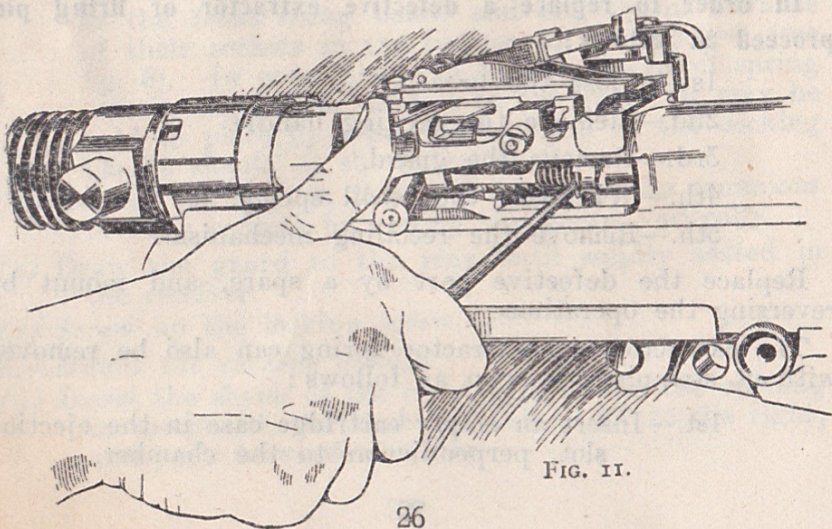


FIG. 11.

Replace the defective part by a spare, cock the gun, and withdraw the empty cartridge case.

POINTS TO BE ATTENDED TO BEFORE FIRING.

- (1) Cock the gun.
- (2) Pass the cleaning rod down the bore to make sure that the barrel is clear.
- (3) See that the regulators of all available barrels are properly set. The normal setting is 25.
- (4) Oil the mechanism. A moderate quantity of oil will suffice. It is useless to flood the mechanism. As the essential parts are sufficiently accessible through the ejection slot and by opening the feed piece cover dismounting is not necessary.
- (5) Test the action of both ejector and cartridge stop by pushing on their points. They should work freely, their springs being elastic but without stiffness.
- (6) Test the action of the mechanism by rapidly opening and closing the breech several times. It should work freely and smoothly.

OPERATING THE GUN.

In firing the prone position will be taken ordinarily, the barrel rest being used to steady the gun.

In high grass or under conditions where more height is desirable ammunition boxes may be placed under the barrel rest so as to increase the height.

In short, any sort of rest available may be used, as, for instance, the top of a parapet or the limb of a tree.

In going into action the following operations must be performed :

(1) *Set the barrel rest.*

- (a) Free the legs from their catches.
- (b) Turn the legs forward until at right angles to the barrel.
- (c) Open the legs with a sharp movement such that the separators catch in one another.
- (d) Place the feet in the desired position and force the points into the ground.

(2) *Mount the elevating mechanism.*

- (a) Place the elevating mechanism foot on the ground in such position that it is at right angles to the axis of the gun.
- (b) Bring the gun to approximately the required elevation by turning the outer elevating screw.

(3) *Take the firing position.* (See figs. 12 and 13.)

- (a) Take the prone position, resting on the elbows.
- (b) Grasp the pistol grip and trigger with the right hand, pressing the stock well into the hollow of the right shoulder.
- (c) Grasp the outer elevating screw with the left hand. (See fig. 12.)
- (d) In case the elevating gear is not used, the left hand grasps the stock to the rear of the receiver and pulls the shoulder strap down solidly against the shoulder. (See fig. 13.)

(4) *Cock the gun.*

- (a) Throw the cocking handle knob to the left to a stop.
- (b) Draw the cocking handle to the rear as far as possible *with a sharp quick movement.*

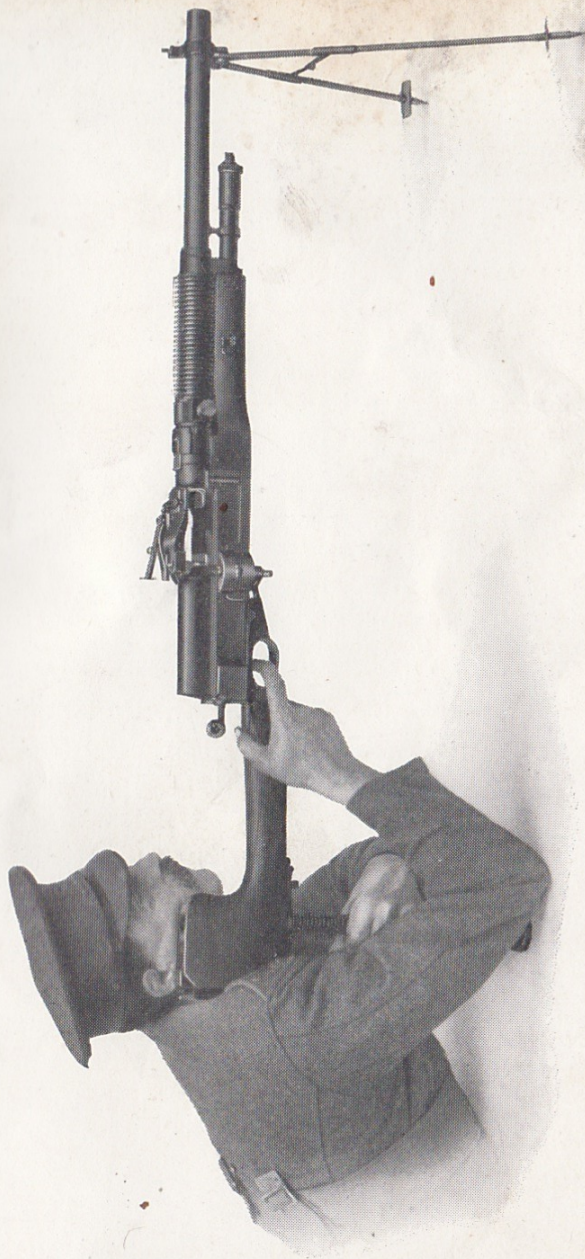


FIG. 12.—Firing position with elevating gear; shoulder strap folded down; left hand grasps outer elevating screw.



FIG. 13.—Firing position without elevating gear; shoulder strap opened and pressed down firmly against shoulder, left hand grasping stock.

(c) Return the cocking handle to its original position, and set at R for single shots, A for automatic, and S for safety.

(5) *Loading* (see figs. 14 and 15)

is ordinarily performed by a second operator, who takes the prone position to the right of the gun, with the ammunition conveniently at hand.

(a) Raise the feed piece to its uppermost position by pushing up on its lower extremity with the left hand, placing the thumb on the feed piece housing cover. (See fig. 14.)

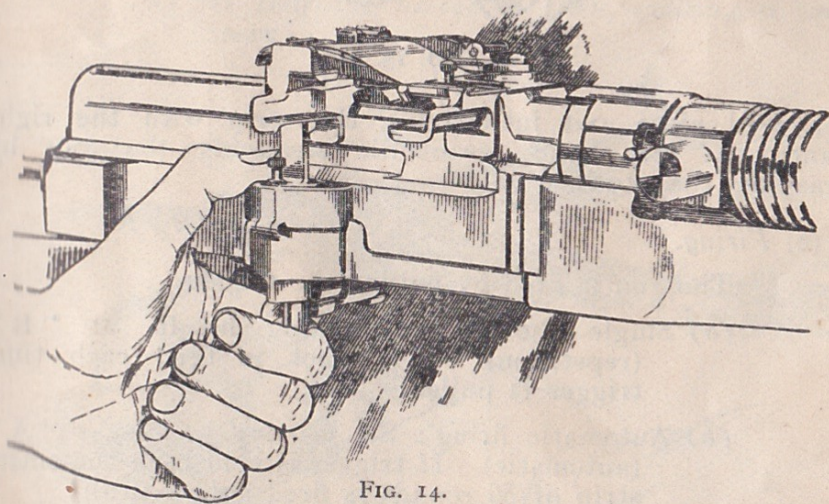


FIG. 14.

(b) With the right hand introduce a feed strip into the guides, cartridge side down, and push home until the pawl catches. (See fig. 15.)

N.B.—If the gun is operated by but one man, loading will be found more convenient if the elevating mechanism is not used: the firer performs both operations of lifting

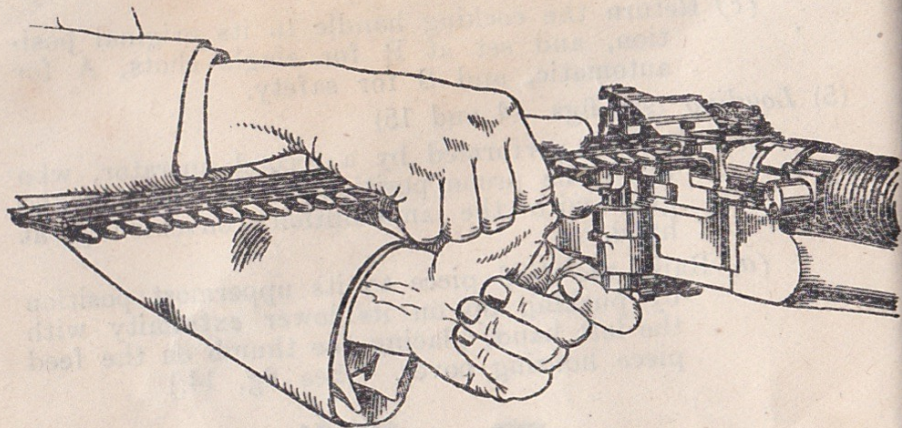


FIG. 15.

the feed piece and introducing the strip with the right hand, the left hand meanwhile steadying the gun by grasping the stock.

(6) *Firing.*

The gun is fired by pulling the trigger.

- (a) Single shots: Set cocking handle at "R" (repetition). One shot is fired each time trigger is pulled.
- (b) Automatic firing: Set cocking handle at "A" (automatic). If trigger is held back the entire strip of 30 rounds is fired automatically.
- (c) Volley firing: Set cocking handle at "A" (automatic). The trigger may be released after some 3, 5, or 10 rounds, as circumstances require, aim quickly altered and firing resumed; *i.e.*, the strip of 30 rounds is fired in volleys, dosed as required.

- (d) Safety: Set cocking handle at "S" (safety), and remove strip unless firing is to be promptly resumed.

N.B.—The trigger must be released at the end of each strip, so that the sear will hold the piston at the cocked position during the introduction of the following strip. Otherwise, as soon as the feed piece is raised, preparatory to loading, the breech will close, necessitating recocking the gun before continuing firing.

(7) *Unloading.*

In order to remove a partially spent strip, proceed as follows:

- (a) See that the breech is open, cocking if necessary.

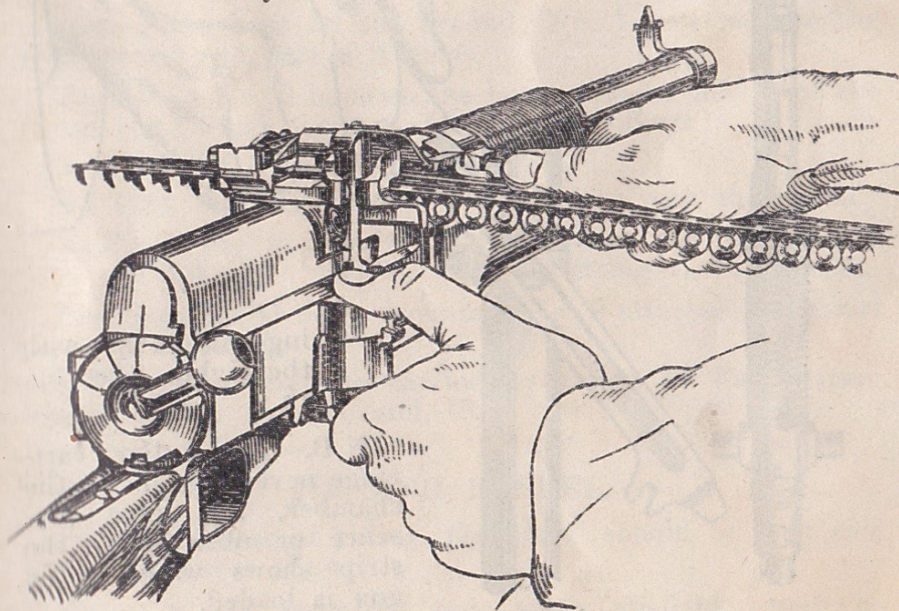
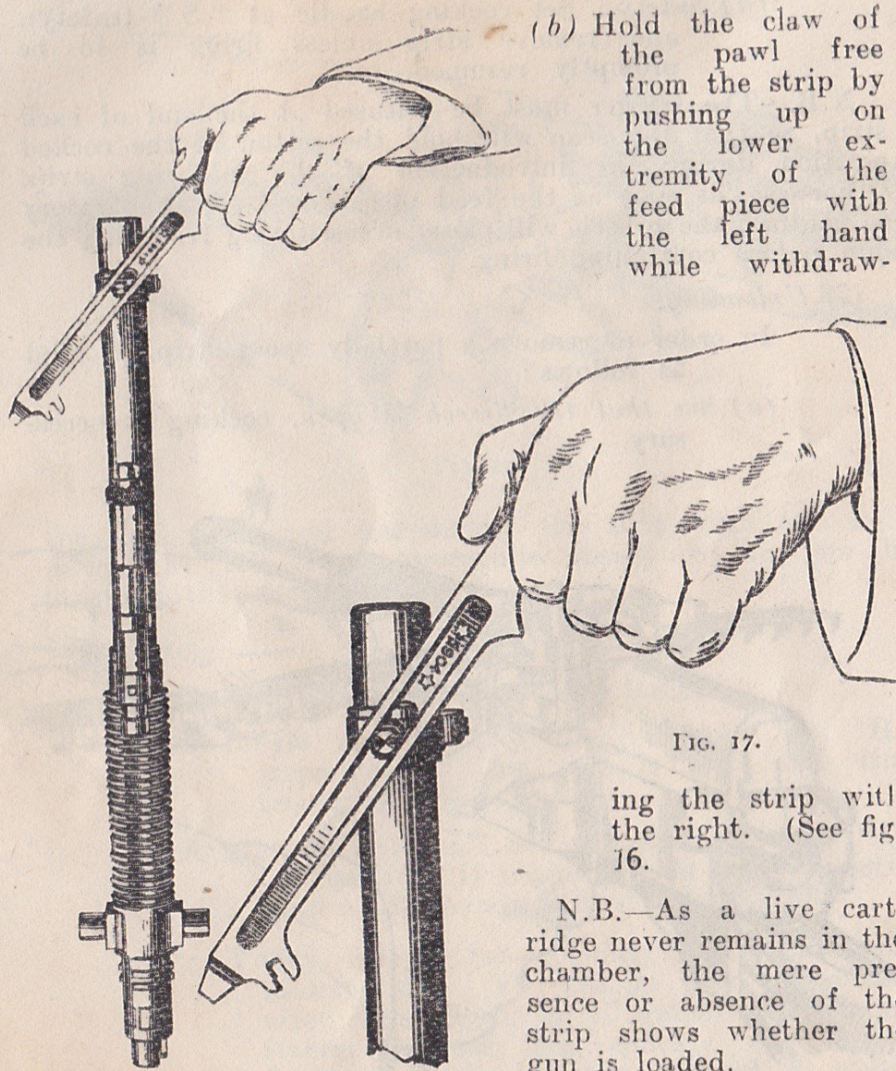


FIG. 16.



(b) Hold the claw of the pawl free from the strip by pushing up on the lower extremity of the feed piece with the left hand while withdraw-

FIG. 17.

ing the strip with the right. (See fig. 16.)

N.B.—As a live cartridge never remains in the chamber, the mere presence or absence of the strip shows whether the gun is loaded.

FIG. 18.

RAPID CHANGE OF BARREL IN THE FIELD.

In prolonged firing it is sometimes desirable to replace a hot barrel by a fresh one, so as to allow the former to cool.

This operation, which is performed without dismounting any part of the mechanism, requires some 10 to 15 seconds.

Proceed as follows:

Suppose the gun in the firing position.

The firer unscrews the locking nut $\frac{1}{4}$ th of a turn with the right hand, using the dismounting wrench.

While the second operator grasps the legs of the barrel rest quite near the barrel, No. 1 separates the barrel from the receiver by drawing the latter to the rear.

Resting the butt on the ground, No. 1 now mounts the fresh barrel and pushes it home.

Meanwhile No. 2 handles the hot barrel by means of the barrel rest, which he then detaches as follows:

(a) Fold the legs.

(b) Turn the legs forward until in line with the barrel.

(c) Pivot the legs half a turn around the lug of the front sight carrier, this permitting the separation.

The fresh barrel being mounted, No. 2 attaches the barrel rest and resets it.

A hot barrel may be carried by means of dismounting wrench. (See figs. 17 and 18.)

COOLING BARREL.

To reduce wear of rifling, the barrel should be kept cool if circumstances allow.

Water is not harmful, and, when available, may be copiously applied to barrel by means of sponge or rag.

A hot barrel may be dipped in water, but all traces of latter must be removed from barrel bore and gas cylinder, by blowing through same, by means of cleaning rod, or by firing two or three loose cartridges.

Until all water is blown out of gas cylinder, the gas pressure may be insufficient for ensuring automatic action.

USE OF THE REGULATOR.

In order that the working of the gun may be regular, sufficient power must be available to ensure complete recoil of the piston. The amount of power necessary may vary because of insufficient oiling, dust, or fouling in the mechanism, etc. Then, again, the pressure of the powder gases may vary because of the temperature, deteriorated powder, or badly worn rifling.

The regulator affords means of varying the power which works the gun. Under normal conditions it should be set between 15 and 25.

To test the automatic action, fire several shots with the regulator set at 25 and the cocking handle at R, and observe:

(a) *One shot should be fired at each pull of the trigger.*
If more than one shot is fired at a time, it shows that the piston does not recoil sufficiently after each shot to catch on the sear.

(b) *The claw of the pawl should catch in the opening in the strip at each shot.* If the pawl rides on top of the strip instead of catching, it shows that the piston does not recoil sufficiently to throw the feed lever through a complete stroke.

(c) *The ejection should be regular and energetic.*

If these three points are not satisfactory it may be concluded that there is a lack of power, and the regulator should be screwed up from 5 to 10 divisions.

On the other hand, too much power is not desirable, as the vibration due to the violent action of the mechanism necessarily affects the accuracy.

ACCIDENTAL STOPPAGES IN THE AUTOMATIC ACTION OF THE GUN.

In case of a jam always proceed as follows:

- (a) Open the breech completely by means of the cocking handle.
- (b) Remove the jammed cartridge through the ejection slot by using the hand ejector or cleaning rod as the case may be, and see that the chamber is clear.
- (c) Withdraw the strip if some remedy is to be applied. Otherwise push it forward, bringing the next cartridge to the loading position.

STOPPAGES AND THEIR REMEDIES.

- (1) *Jam on the first round of a strip.*

The strip was probably not pushed completely home before the trigger was pulled. Always push forward the strip until the pawl catches, so that both strip and cartridge are positively held in the loading position.

- (2) *Misfire.*

Eject the defective cartridge by cocking the gun, and continue firing.

N.B.—A loose primer falling into the mechanism may cause repeated misfires. Dismount the piston and breech block so as to remove the primer, which will usually be found either in the piston cams or in the fermeture nut near the entrance to the chamber.

Misfires may also be due to a weakened recoil spring. In this case replace the spring with the spare.

(3) *Bad introduction.*

The cartridge jams at the entrance to the chamber when being pushed forward by the breech block. The bullet of the cartridge in question may have been imperfectly seated due to defective crimping, or the cartridge insufficiently held by the clips of the feed strip.

In the latter case the strip should be laid aside for resizing.

Another cause of bad introductions is incomplete feeding forward of the strip, due to lack of power. In this case screw up the regulator 5 to 10 divisions.

(4) *Incomplete ejection of the spent cartridge case.*

This is due to lack of power. Screw up the regulator 5 to 10 divisions.

CLEANING AND CARE.

This arm requires the same care as the service rifle. It must be kept clean and free from rust, and all parts lightly oiled. No gritty substances or emery should be used.

As soon after firing as practicable the barrel should be thoroughly cleaned and oiled, particular attention being paid to the chamber.

The gas cylinder should be kept free from fouling by means of the cleaner so that the regulator can be easily screwed up without using the dismantling wrench.

When the gun is not in use the breech should be kept closed so as to avoid fatiguing the recoil spring.

FEED STRIPS.

The feed strips hold 30 rounds each. They are stamped from a single piece of flat sheet steel, and afterwards spring tempered so that the clips may have the desired elasticity. There are three rows of clips which hold the cartridge near the base, the middle, and at the neck. A stop lug which catches behind the head of the cartridge case prevents longitudinal motion. (See Plate V.)

FEED STRIP FILLING MACHINE.

The feed strip filling machine is constructed for clamping to a bench or plank, as, for instance, the lid of a cartridge box. (See Plate VI.)

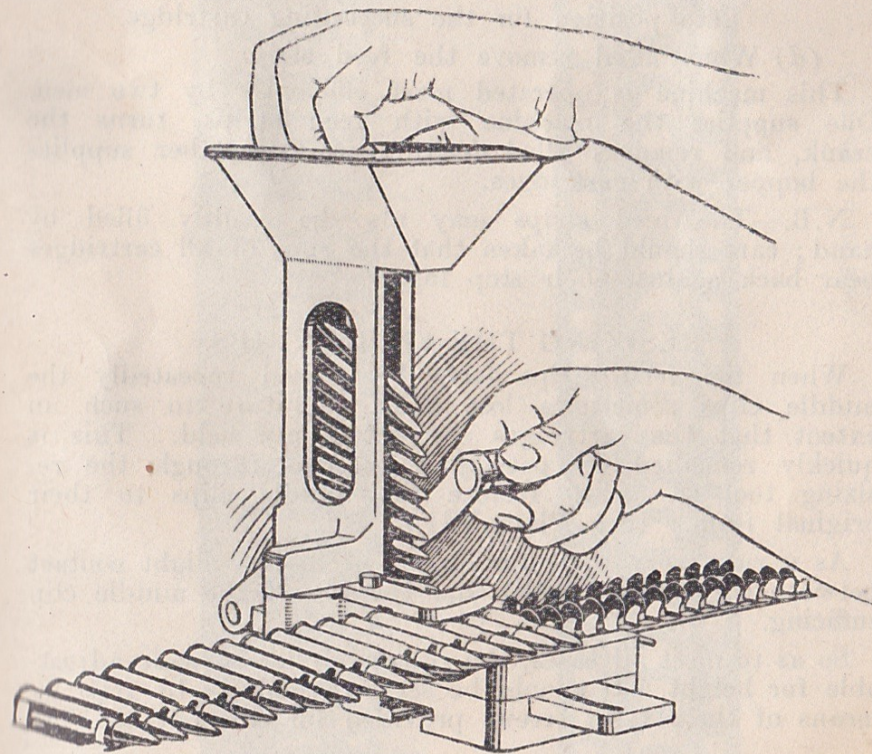


FIG. 19.
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The hopper and clamp are removable for compactness in packing.

The machine must be so placed that the crank can be conveniently turned with the right hand.

Proceed as follows :

- (a) Fill the hopper with cartridges.
- (b) Push a feed strip, stop lugs to the rear, in its guides on the machine until the feed tooth catches back of the first middle clip.
- (c) Turn the crank. At each complete turn of the crank first a cartridge is pushed forward into the clips and then the feed strip fed ahead one notch into position for the succeeding cartridge.
- (d) When filled remove the feed strip.

This machine is operated most efficiently by two men. One supplies the machine with feed strips, turns the crank, and removes filled feed strips; the other supplies the hopper with cartridges.

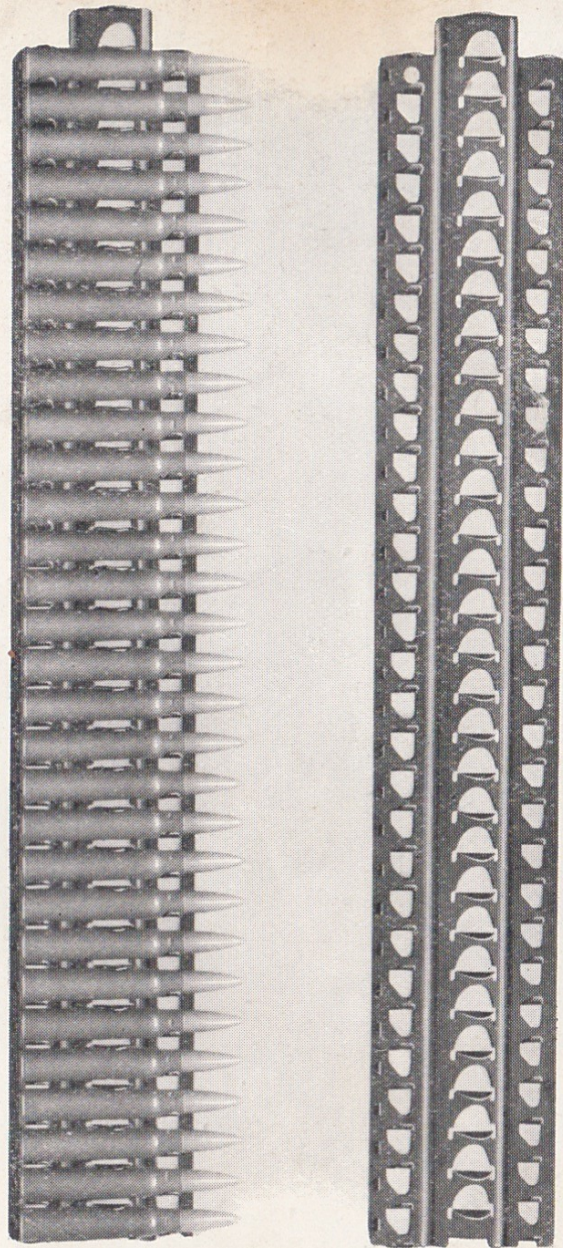
N.B.—The feed strips may also be readily filled by hand; care should be taken that the rims of all cartridges bear back against their stop lugs.

RESIZING THE FEED STRIPS.

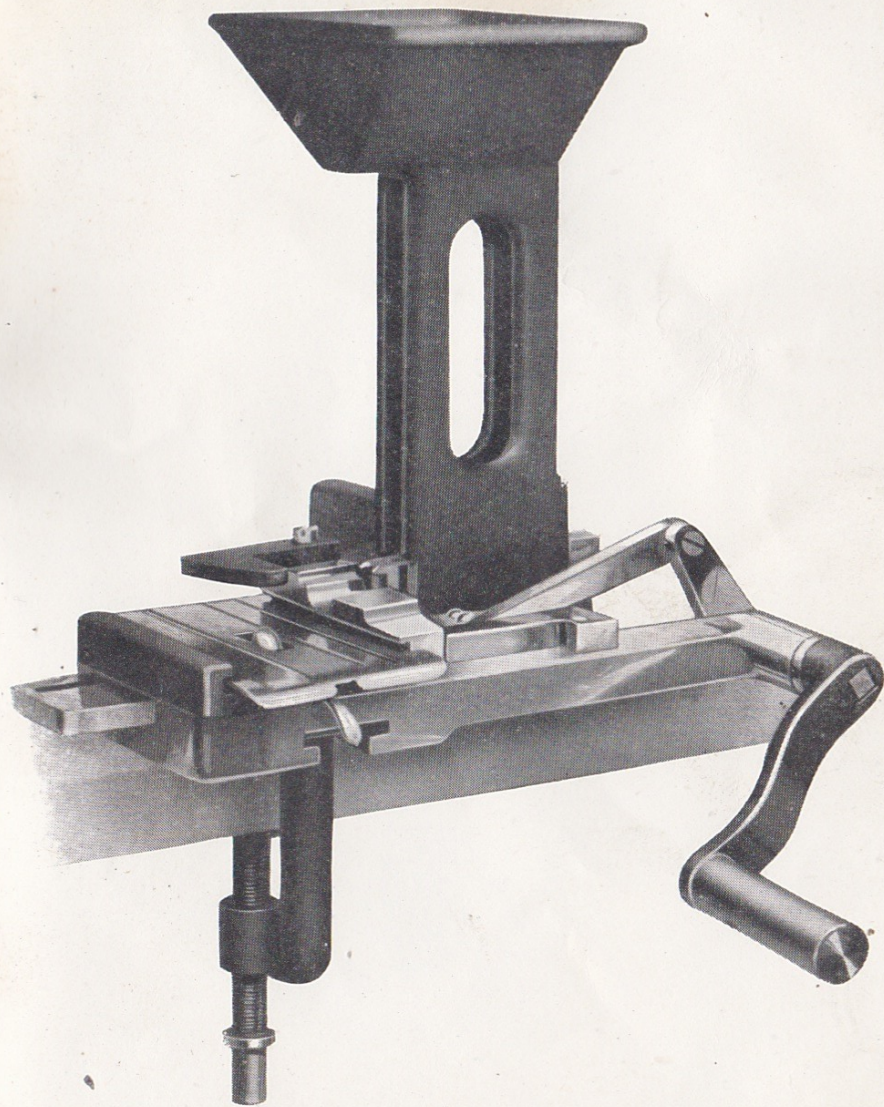
When the feed strips have been used repeatedly the middle clips sometimes lose their curvature to such an extent that the cartridges are not firmly held. This is quickly remedied by passing the strips through the resizing tool so as to restore the middle clips to their original form. (See Plate VII.)

As a rule, very little resizing is necessary, slight contact between the resizing roller and the top of the middle clip sufficing.

So as to meet all cases, the resizing roller is made adjustable for height. It should be set progressively by trial by means of the six set screws provided for this purpose.



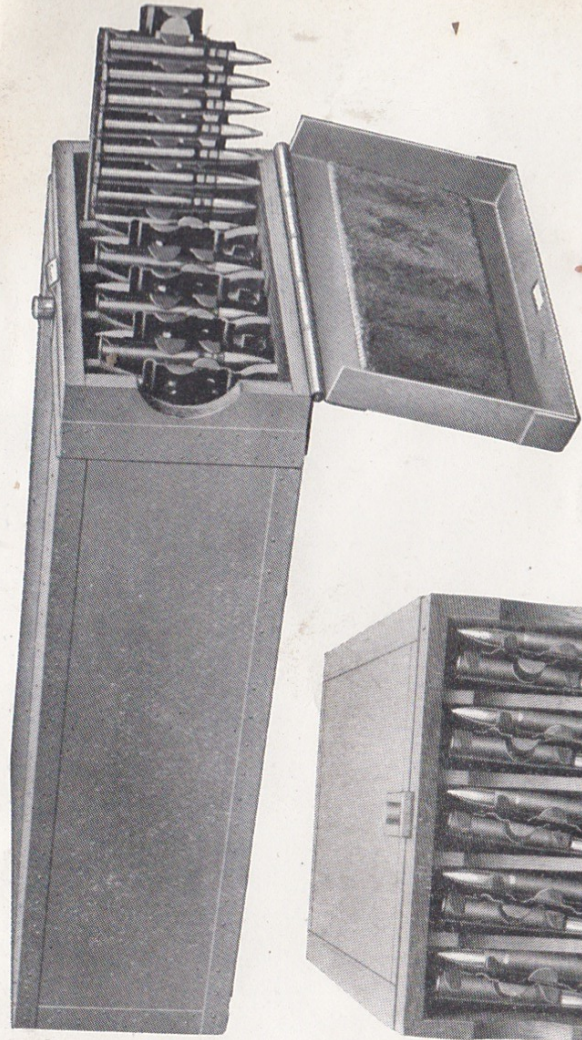
Feed Strip. PLATE V.



Feed Strip Filling Machine.
PLATE VI.



Resizing Tool.
PLATE VII.



Ammunition Box.
PLATE VIII.

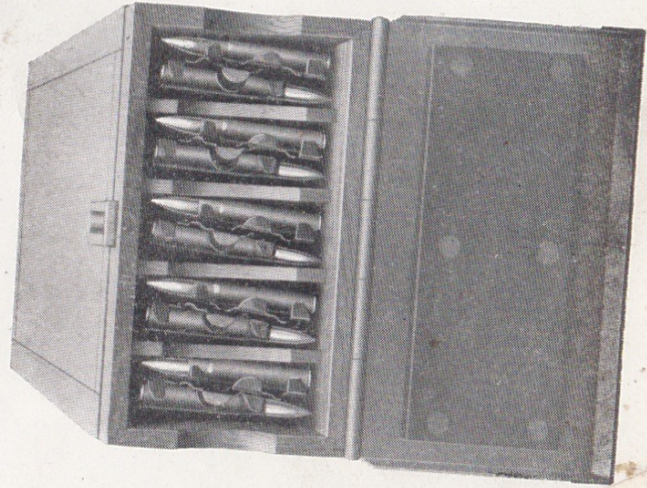




PLATE IX.

French Infantry.



PLATE X

Belgian Cavalry.



PLATE XI.

Belgian Cavalry.

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