

PART I.

# HANDBOOK

FOR THE

## CANADIAN SERVICE RIFLE

(STRIPPING, ASSEMBLING AND TOOLS).

Ross, Mark III.

1913.

H.Q. 70-55-41.

3765—II—1

# HANDBOOK FOR THE CANADIAN SERVICE RIFLE (DESCRIPTION AND CARE OF COMPONENTS) ROSS MARK III. 1913.

Piece No.	Component Parts.	Figure No.
500	Barrel.....	3
501	Receiver.....	4 and 5
502	" Screw Front.....	7
503	" " Rear.....	8
504	Bolt.....	9
505	" Unlocking Pin.....	11
506	" " " Screw.....	12
507	" Sleeve.....	13 and 14
508	" Stop.....	15 and 16
509	" " Hinge Pin.....	17
510	" " Retainer Pin.....	18
511	" " Spring.....	19
512	Safety Catch.....	20
513	" Spring.....	21
514	" " Pin.....	22
515	Magazine (complete).....	23
516	" Body.....	23
517	" Platform.....	23
518	" Link, Right.....	23
519	" " Left.....	23
520	" Spring.....	23
521	" " Sleeve.....	23
522	" " Plunger.....	23
523	" " Pin Bushing.....	23
524	" Rivet, Long.....	23
525	" " Short.....	23
526	" Front (complete).....	23
527	" Retainer Spring, L.....	24
528	" " " R.....	25
529	" Spring Pin.....	23
530	Firing Pin.....	26
531	" Retainer.....	27
532	" " Washer.....	28
533	Main Spring.....	29
534	Cocking piece.....	30 and 31
535	" " Pin.....	32
536	Ejector.....	33
537	" Pin.....	34
538	" Spring.....	35
539	Upper Band and Bayonet Lug (complete).....	36 and 37
540	Upper Band Screw.....	38
541	" " Clamp Screw.....	39
542	Extractor.....	40



Piece No.	Component Parts.	Figure No.
544	Lower Band (complete).....	41 and 42
545	" Screw.....	43
546	Band Screw Nut.....	44
547	Trigger Guard (complete).....	45 and 46
548	Foresight.....	47 and 48
549	" Sleeve.....	49 and 50
550	" Pin.....	51
551	" Screw.....	52
552	" Hood.....	53 and 54
553	" Pin.....	—
554	Pawl Spring.....	58 and 59
555	Sear.....	60
556	Yoke.....	61
557	Trigger.....	62
558	Pawl.....	63
559	Yoke Roll.....	64
560	Trigger, Pawl and Roll Pins.....	65
561	Sear Pin.....	66
562	Sear Spring.....	67
563	Stock Clamp Screw.....	68 and 100
564	" Nut.....	101
565	Bolt Action (complete).....	—
566	Receiver and Trigger Action.....	67 and 68
567	Hand Guard (Complete).....	69
568a	" Spring.....	70
568b	" Rivet.....	72
569	Charger Guide Sight Base.....	73
570	" Screw.....	74 and 75
571	Screw Elevating Sight.....	76
572	" " Spring.....	77 and 78
573	" " Screw.....	79
574	" " Frame.....	80
575	" " Screw.....	81
576	" " Slide.....	—
577	" " Clamp Screw.....	87
578	" " Plate.....	88
579	Wind gauge Screw.....	89
580	" Pin.....	90
581	Sight Base Pin.....	91
582	Butt Plate (complete).....	92 and 93
583	Stock Swivel Screw.....	95A
584	Butt Plate Trap.....	—
585	Butt Plate.....	—
586	" Screws.....	—
587	" Trap Spring.....	—
588	" " Screw.....	—
589	" " Pin.....	—
590	Stock.....	—
591	Oil Bottle and Pull-through.....	—

## DESCRIPTION AND NOMENCLATURE OF RIFLE.

The Rifle is shown in Figs. 1 and 2. Total length is 50.5 inches; weight, about 9 lbs. 5 oz. (without bayonet). The Magazine, 5 rounds charger loading. The rifle is constructed for .303-in British Small Arm Ammunition.



Fig. 1.



Fig. 2.



Fig. 3.



The *Barrel* is shown in Fig. 3. It is 30.5 inches in length. The Rifling consists of four grooves .0042 deep. It has a uniform left-handed twist of one turn in ten inches. Width of Lands, .050; width of Rifling, .176; diameter of Bore, .3025 to .3035.

The Tenon at the rear is threaded for the purpose of securing the Receiver to the Barrel.

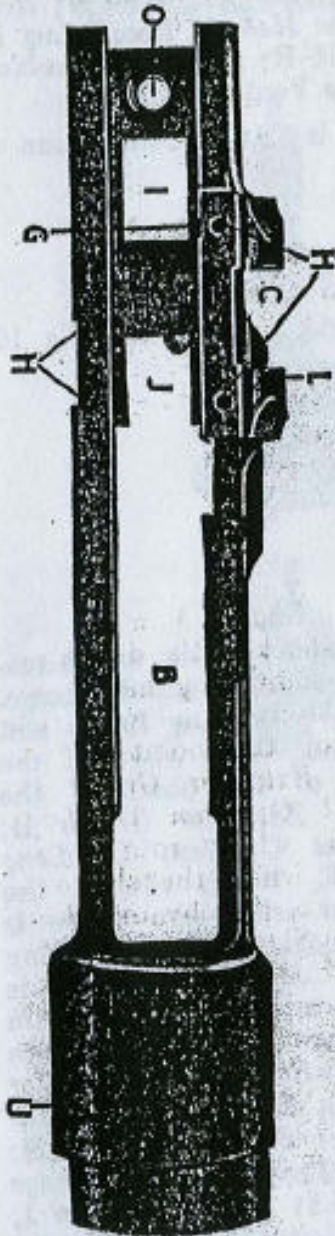


Fig. 4.

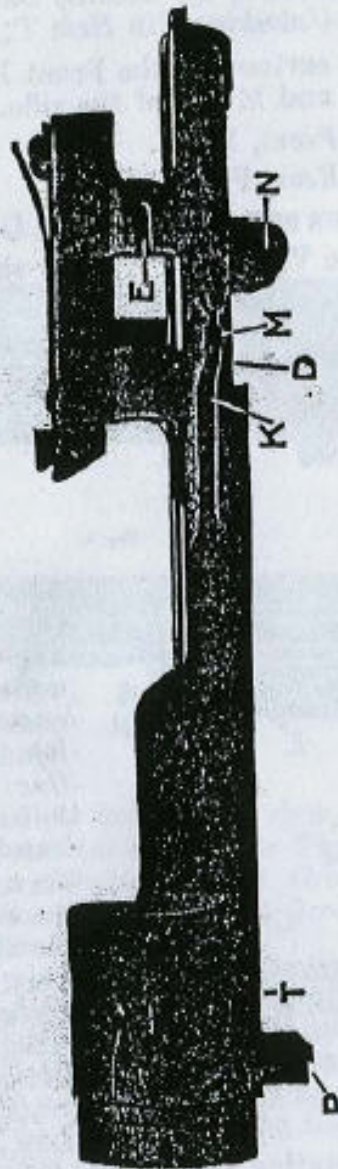


Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

The Government Proof Mark is stamped on rear end of Barrel.  
The RECEIVER—Top View, Fig. 4, Side View Fig. 5, Rear End View Fig. 6, has the two *Guides A*, in which work the Guide Ways on the Bolt Sleeve.



The Magazine Opening B; the Bolt Stop Seat C; Ejector Pin Hole D; Bolt Stop Retainer Pin-Slot E; Hole for Bolt Stop Hinge Pin F; Notch for Safety Catch G; Hole for Bridge Screws H; Trigger Opening I; Pawl Opening J; Ejector Slot K; Line showing the location of Ejector Pin Hole L; Ejector Spring Seat M; Sear Pin Hole N; Rear Receiver Screw Hole O; Front Receiver Screw Hole in Recoil Lug P; Recesses for Bolt Head Q-Q; Locking Cams R-R; Resisting Shoulders S-S; Location of Unlocking Pin Hole T; Gas Vent U.

On the upper surface of the Front End is stamped the name of the manufacturer and Model of the rifle.

Receiver Screw Front, Fig. 7.

Receiver Screw Rear, Fig. 8.

These two screws secure the Trigger Guard to the Receiver.

The BOLT—Side View, Fig. 9; front view showing bottom, Fig. 10.

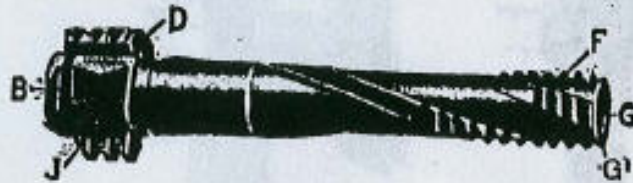


Fig. 9.

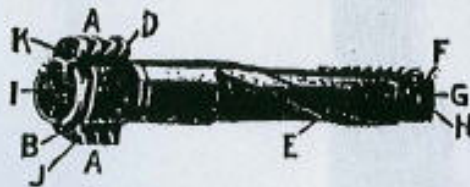


Fig. 10.



Fig. 10a.

Locking Lugs A-A, which sustain the shock of the discharge. The left hand Lug has a slot underneath it to allow of the passage of the point of the Ejector. Extractor Groove B; Gas Vent C; Cam D; Long Spiral E, which rotates the Bolt-head when the sleeve is drawn back, thereby unlocking the rifle. Short Spiral F holds the Bolt in its proper position when drawn to the rear. Main Spring Chamber G; Thread for Firing Pin Retainer G1; Slot for Firing Pin Retainer Washer H; Extractor Clearance and Cartridge Head Seat I; Unlocking Cam J, Slot K.

which starts the rotating movement of the Bolt on closing Ejector



Fig. 11.



Fig. 12.

Bolt Unlocking Pin—Fig. 11, is located in the Receiver. Its function is to release the Bolt from the Spirals on the action being closed.

Bolt Unlocking Pin Screw—Fig. 12. A countersunk hole in the bottom of the Receiver secures the Unlocking Pin in its position.



The SLEEVE—bottom view, Fig. 13, side view Fig. 14. *Handle A; Cocking Piece Slot B; Pawl Lugs C; Safety Catch Hole D; Safety Catch Spring Pin Hole E; Extractor Slot F; Guide Ways G*, which fit the Guides shown in Receiver at A, Fig. 6, upon which the action slides. The interior of the Sleeve has *Long and Short Female Spirals* corresponding with the *Male Spirals* on the Bolt.

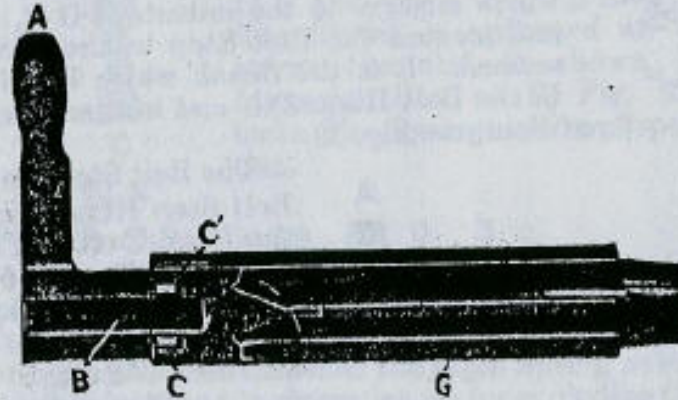


Fig. 13.



Fig. 14.

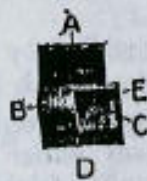


Fig. 15.



Fig. 16.

**BOLT STOP**—Side view, Fig. 15, End view Fig. 16. The outer edge is the *Thumb Piece A*; the *Body B*; the *Magazine Fire Groove C*; *Bolt withdrawing Groove D*; *Bolt Stop Groove E*; *Bolt Stop Retainer Pin Seats G G G*.

When the thumb piece A is turned down it cuts off the Magazine. With the Bolt in this position the Bolt is drawn to the rear and the rear face of the Bolt Head stops against projecting front end of the Bolt Stop; the Rifle may then be used as a single loader.

When the thumb piece is turned up, the Bolt Stop allows the Bolt Head to be withdrawn clear of the Magazine, which then comes into action.

When the thumb piece is in the intermediate position the dismounting groove D permits the Bolt Action to be entirely withdrawn from the Receiver.



**BOLT STOP HINGE PIN—Fig. 17.**

The *Bolt Stop Hinge Pin* has a hole A, into which is driven the Bolt Retainer Pin. It has also a *Head B*, which retains the Bolt Stop Spring in its place. This Hinge Pin fits into Hole F shown on the Receiver, Fig. 4.



Fig. 17.

**BOLT STOP RETAINER PIN—Fig. 18.**

Fig. 18.

The Bolt Stop Retainer Pin has a *Retainer Ball A*, which engages in the indents G G G, in the Bolt Stop and located the Bolt Stop in the various positions described. B is the *Shank* which is driven into Hole A in the Bolt Hinge Pin and locates it in proper position.

**BOLT STOP SPRING—Fig. 19.**

Fig. 19.

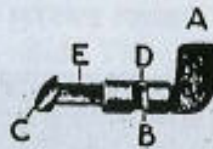


Fig. 20.

The Bolt Stop Spring goes over the Bolt Stop Hinge Pin and engages on the Head B (Fig. 17).

**SAFETY CATCH, Fig. 20,** fits into hole shown in the Bolt Sleeve at Fig. 14. When turned to the rear showing the word "Ready," the rifle can be fired. When turned to the front, it

locks the Bolt Action and shows the word "Safe."

The *Finger Piece A*. The spiral B causes the Bolt Lock to move to the right when the lever is turned to "Safe"; it inserts the Locking Cam C into the Safety Catch Notch shown on the Receiver at G in Fig. 5. The *Recesses D D* in *Spiral B* retain the Safety Lock in place when turned forward or back. *Cocking Piece Cam E* moves the Cocking Piece to the rear, relieving from the Rear and locking it in a safe position.

**SAFETY CATCH SPRING, Fig. 21,** fits into B of the Safety Catch Spring Pin, Fig. 22.

**SAFETY CATCH SPRING PIN, Fig. 22,** goes into Hole E of the Bolt Sleeve, Fig. 14.

The *Retainer Ball A* works in Spiral shown on the Safety Catch at B, Fig. 20. The *Spring Recess B* retains the Safety Catch Spring.



Fig. 21.

Fig. 22.

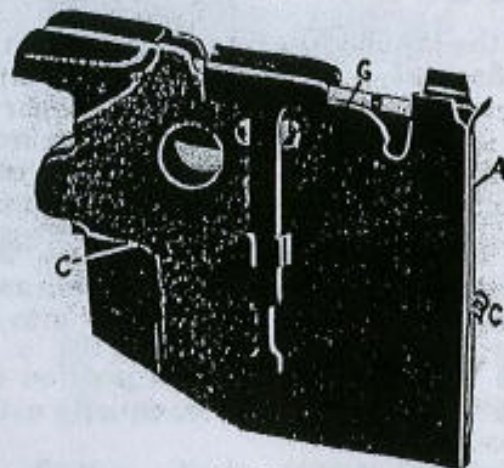
**MAGAZINE (complete)—Fig. 23.**

Fig. 23.

The *Magazine* consists of: the *Body or Outer Case A*; the *Platform B* which supports the cartridges; the *Bearings C C* locate the Magazine in the Trigger Guard. The *Indents D D* locate the Retainer Springs in their proper positions. The *Lugs E E* hold the Retainer Springs. The Lugs of the Retainer Springs fit into the *Slot F*. The *Cams G* guide the cartridges in their upward and forward movement into the Chamber.



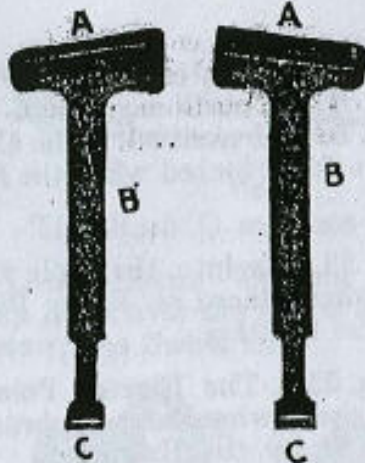


Fig. 24.

Fig. 25.

The **LEFT RETAINING SPRING**, Fig. 24, **RIGHT RETAINING SPRING**, Fig. 25, are for the purposes of retaining the cartridges in their proper position as they rise to the top in the Magazine until the Bolt carries them forward. The *Lip A* retains the cartridges in the Magazine. The *Shank B* is located between the Indents *D D* and under Lugs *E E* (Fig. 23). The *Spring* is upturned at *C* and enters the slot as shown in the Magazine Box at *F*, Fig. 23, and locks the Spring in its proper position.

The **FIRING PIN**, shown in Fig. 26.

A *Groove A*, cut in the rear end, in which is inserted a Cocking Piece Pin, Fig. 32, which retains the two pieces in their proper position. A *Collar B* prevents the Firing Pin from going too far forward and serves as a Shoulder on which the Main Spring acts. The *Striking Point C* is regulated to the proper length for exploding the Cap.



Fig. 26.



Fig. 27.

The **FIRING PIN RETAINER**, Fig. 27, is a threaded cylinder, which screws into the hole shown in the Bolt at *G*, Fig. 9, for the purpose of retaining the Firing Pin and Main Spring. The *Notches A*, into which the Indents of the Washer fit, secure the Retainer and lock it when assembled in the Bolt. The *Lugs B* are used for screwing the Retainer into its place.

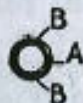


Fig. 28.

The **FIRING PIN RETAINER WASHER**, Fig. 28, fits into the Bolt below the Firing Pin Retainer. The *Lug A* fits into the Slot shown for the Firing Pin Retainer Washer at *H* in Fig. 9, and keeps it from revolving, thereby locking the Retainer with the assistance of the Indents *B*.

**MAIN SPRING**—Fig. 29.

**COCKING PIECE**—Side view, Fig. 30; end view, Fig. 31.



Fig. 29.

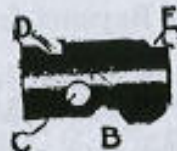


Fig. 30.



Fig. 31.



Hole for Firing Pin A; the *Bent* B where the Sear engages; the *Hole* C for the Cocking Piece Pin, Fig. 32. The Cut D engages at E in Fig. 20 when the action is locked in a cocked position. The *Clearance* F is a cut to allow the Bolt Sleeve to be locked when the Main Spring is released.



Fig. 32.

COCKING PIECE PIN, Fig. 32, fits into the Hole C of the Cocking Piece, Fig. 30, when placed on Firing Pin at A in Fig. 26, thus locking them together.



Fig. 33.



Fig. 34.

EJECTOR, Fig. 33. The Ejector Point C throws out the shells when they are brought in contact with it by the Extractor. The Stop D prevents the Ejector from rising too far through the Slot K in Fig. 4. The Tang E engages the Ejector Spring, Fig. 25.

The EJECTOR PIN, Fig. 34, is inserted in hole shown by D, Fig. 4. The Head D is inserted through the larger segment, Fig. 33, preventing the Ejector Pin from dropping out when located in its proper position. The Neck B fits into the smaller Segment A in Fig. 33 and upon which the Ejector pivots.

Groove H is for the purpose of removing the Ejector Pin.

EJECTOR SPRING, Fig. 35, is inserted into the Ejector Spring Seat M in Fig. 4, and acts on the Tang of the Ejector shown in Fig. 33.

mmmm

Fig. 35.

UPPER BAND, BAYONET STUD AND PILING SWIVEL—End view, Fig. 36; side view, Fig. 37.



Fig. 36.

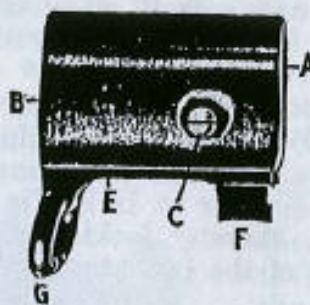


Fig. 37.

The Part A fits over the muzzle of the rifle. The Hole B fits over the front part of the Stock. The Hole C for the body of the Clamp Screw, Fig. 39. The Threaded Nut D, for the Clamp Screw, Fig. 39. The Hole E for the Top Band Screw, Fig. 38. Stud F, on which the Bayonet is fixed. The Piling Swivel G.



Fig. 38.

UPPER BAND SCREW, Fig. 38, is the Screw which is inserted in hole at E in Fig. 37.

UPPER BAND CLAMP SCREW, Fig. 39, is the Screw which is inserted in the hole shown at C in Fig. 36.



Fig. 39.





Fig. 40.

EXTRACTOR, Fig. 40. The Tail A of the Extractor fits over the Slot F in Fig. 12. The Lug B fits into the Slot B in Fig.

9. The Hook C extracts the cartridge from the chamber.

LOWER BAND—Bottom view, Fig. 41; end view, Fig. 42. The Cup A fits over the Barrel and Stock; the Hole B for the Lower Band Screw; the Swivel C.



Fig. 41.

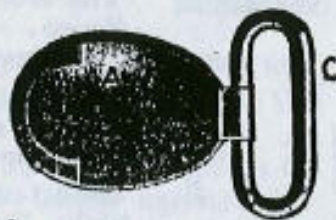


Fig. 42.



Fig. 43.

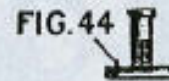


Fig. 44.

LOWER BAND SCREW, Fig. 43, is inserted in Hole B in Fig. 42.

BAND SCREW NUTS, Fig. 44, are the nuts which are seated in the Stock, into which the Hand Screws shown in Fig. 39 and Fig. 43 are screwed to retain the Hands in their places.

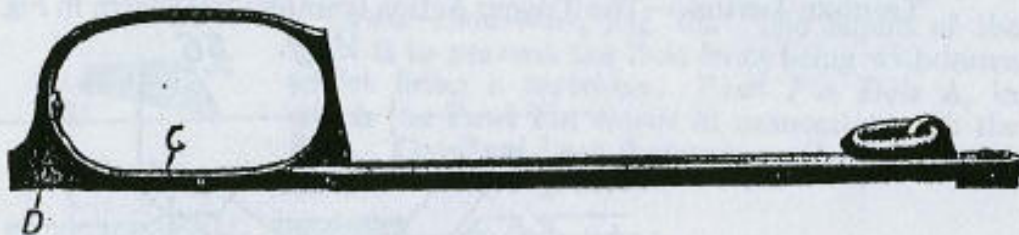


Fig. 45.

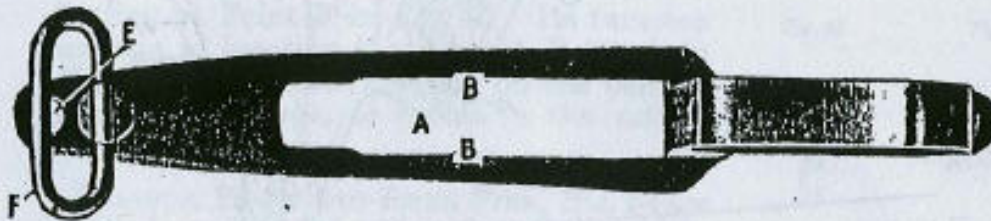


Fig. 46.

TRIGGER GUARD—Side View Fig. 45; Bottom view, Fig. 46. The Opening A receives the Magazine at C C, Fig. 23. Slots B B are clearances for the Cartridge Retainer Springs. The Trigger Opening C. The Tapped Hole D is for the Rear Receiver Screw. The Hole E is for the Front Receiver Screw. The Swivel F, Fig. 46 B.



Fig. 46a.

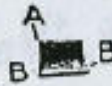


Fig. 47.



Fig. 48.



Fig. 50.



Fig. 49.



Fig. 51.



Fig. 52.

**FORESIGHT**—Side view, Fig. 47; Front view, Fig. 48. The *Blade A*. The *Dovetail B* secures the Sight in opening shown in A in Fig. 49.

**FORESIGHT SLEEVE**—Side view, Fig. 49; End view, Fig. 50. The *Opening A* secures the Foresight at B in Fig. 47. The *Sleeve B* encircles the Barrel. The *Hole C* through which is inserted the Foresight Pin shown in Fig. 51. The *Hole D* is for the Hood Pin. The *Hole E* is for the Indents. The *Hole F* is for the Foresight Screw.

**FORESIGHT PIN**, Fig. 51, is the Pin which goes into Hole C in Fig. 50, securing it to the Barrel.

**FORESIGHT SCREW**, Fig. 52, is the screw which clamps the Foresight, Fig. 47, to secure it in the desired position.

**FORESIGHT HOOD**—End view, Fig. 53; Side view, Fig. 54—is secured to the Sight Sleeve, Fig. 49, by Foresight Hood Pin. The *Hole A* for the Foresight Hood Pin. The Indents B B snap into Hole E, Fig. 50 and hold it in position.



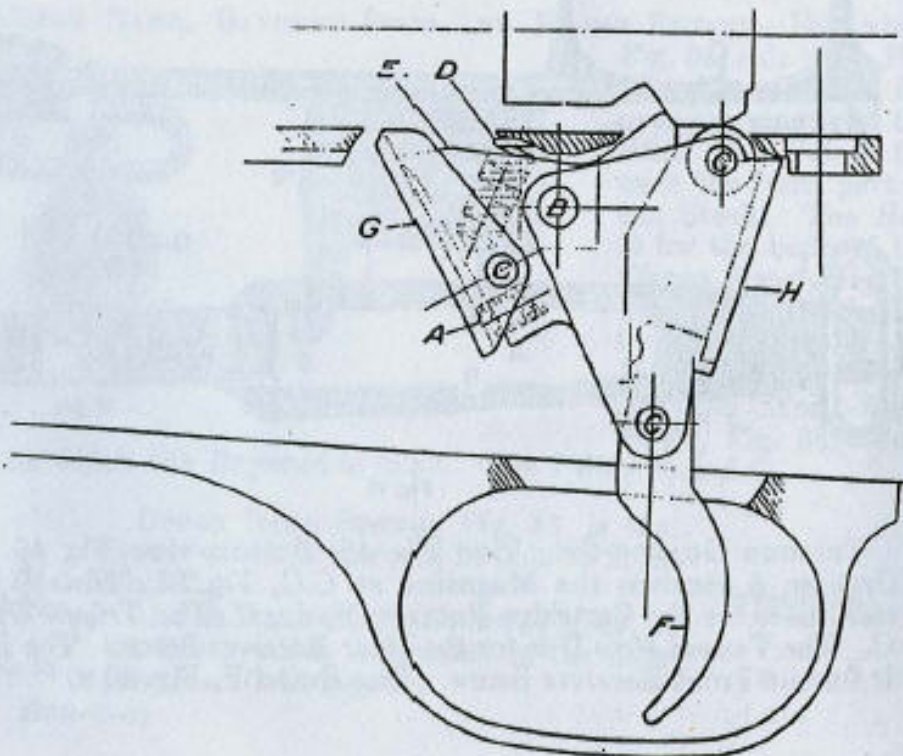
Fig. 53.



Fig. 54.

**TRIGGER ACTION.**—The Trigger Action (complete) is shown in Fig. 56.

Fig. 56





*Paul Spring A; Sear Pin B; Pins for Trigger, Pawl and Roll Pin C C C; Sear Spring D; Sear E; Trigger F; Pawl G; Yoke H.*



Fig. 58.



Fig. 59.

SEAR—Side view, Fig. 58; Top view, Fig. 59. *Sear Bent A; Sear Pin Hole B; Pawl Pin Hole C; Recess for the Sear Pin D; Recess for Pawl Spring E. The Face F engages the Points A and B of Trigger. Fig. 56.*

YOKE, Piece 556, Side view, Fig. 60. The Yoke is the case which contains the Trigger Action. *Sear Pin Hole A; Trigger Pin Hole B; Roll Pin Hole C; Location Point D* bears against the bottom of the Receiver and controls the height of the Roll.

TRIGGER, Side view, Fig. 61. *First Point of Engagement A* with Face F in Fig. 58. *Second Point B* controls the second or final pull when firing a rifle.

*Hole C* is for the Pin upon which the Trigger works. *Location Point D* between the Trigger and the Yoke. *Finger Piece E.*



Fig. 60.



Fig. 61.



Fig. 62.

PAWL—Side view, Fig. 62. The object of the Pawl is to prevent the Bolt from being withdrawn whilst firing a cartridge. *Pawl Pin Hole A*, in which the Pawl Pin works in connection with the Sear. The *Pawl Lugs B* engage on the Bolt Sleeve shown at C in Fig. 14.

YOKE ROLL, End view, Fig. 63. This Roll is located at B in Fig. 60, and is secured in the place by a riveted pin. It takes a bearing at Point F in Fig. 30. Its function consists of locating the Sear at Point A in Fig. 58 to a uniform position on the bent of the Cocking Piece, as shown in the action, Fig. 56.

TRIGGER PAWL AND ROLL PINS, Fig. 64 are located at C C C in Fig. 58 and staked in position.

SEAR PIN, Side view Fig. 65, is the Pin upon which the Sear centres at B in Fig. 56.

SEAR SPRING, Side view Fig. 66, is the Spring which occupies the Recess D of the Sear, Fig. 58.



Fig. 63.



Fig. 64.



Fig. 65.



Fig. 66.



CHARGER-GUIDE SITE BASE—Top view, Fig. 67; Side view, Fig. 68.

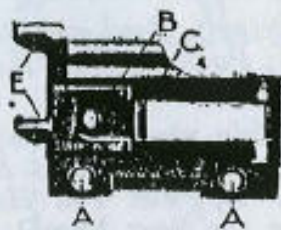


Fig. 67.

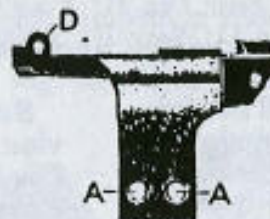


Fig. 68.

Screw Holes A; Sight Spring (Fig. 72); Hole for Sight spring Screw B; Dovetail Seat for Sight spring C; Hole for Sight Hinge Pin D; Charger-Guides E.

CHARGER-GUIDES SITE BASE SCREW, Side view, Fig. 69. Fastens the Charger-Guide to Receiver.

Fig. 69.

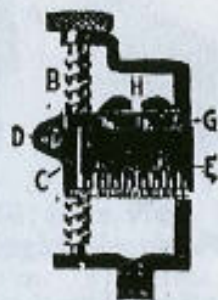


Fig. 70.

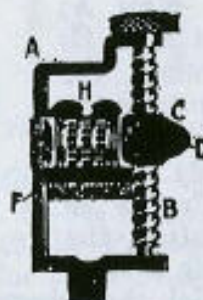


Fig. 71.

SCREW ELEVATING SIGHT—Front view, Fig. 70; Back view, Fig. 71—Frame A; Elevating Screw B; Sight Slide C; Clamping Screw D; Sight Plate E; Wind Gauge Screw F; Battle-sight G;

SIGHT SPRING, Top view, Fig. 72; Hole for Screw A; Dovetail B, which is driven into Seat C Fig. 67.



Fig. 72.



Fig. 73.

SIGHT SPRING SCREW, Side View, Fig. 73, goes through hole A in Spring Fig. 72 into B in Fig. 67.

SIGHT FRAME—Front view when up, Fig. 74; Right Side view, Fig. 75. Hinge A, with hole for Hinge Pin. Vernier Scale B: each line represents two minutes of elevation. The Elevation Scale C, graduated in hundreds of yards for Mark VII Ammunition.

SIGHT SCREW—Side view, Fig. 76. Elevating Screw A. This screw is secured into the location points D D of the Sight Frame, Fig. 75, by compressing these points together sufficiently to allow a Collar D to be sprung into its seat when the Shoulder C is in position.



Fig. 74.

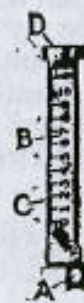


Fig. 75.

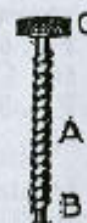


Fig. 76.





Fig. 77.



Fig. 78.



Fig. 79.

SIGHT SLIDE—Fig. 77, and Fig. 78. *Battle-Sight* A; *Elevating Screw* Hole B; the *Dovetail Slide* E for Sight Plate; the *Hole* for the *Wind-gauge Screw* F.



Fig. 80.



Fig. 81.

SIGHT, CLAMP SCREW, Fig. 79. SIGHT PLATE, Fig. 80. The *Threaded Portion* A is operated upon by the *Wind-gauge Screw*, the front of the Plate being graduated, each line representing five minutes. *Aperture* B.

WIND-GAUGE SCREW. Fig. 81. This Screw is for the purpose of adjusting the Sight Plate for windage.

*Sight Base Pin*.—This Pin, on which the Leaf hinges is shown at D in Fig. 68. It is cylindrical, with rounded ends, and fits tightly in the Hinge Lugs of the Base.

*Stock Swivel and Screw*.—This screws into the rear end of the Butt, to which the Sling Swivel is fastened.



Fig. 87.

BUTT PLATE, Fig. 87. *Butt Plate Trap* B—the Hinge; the Hinge of the Trap A; the *Hole* B for receiving the oil bottle and pull-through; the *Screw Holes* C C for screws which fasten the Butt Plate to the Stock. The *Hole* D is for the Butt Plate Trap Spring Screw shown in Fig. 90.

BUTT PLATE SCREW, G Fig. 88, is for securing the Butt Plate to the Stock.

BUTT PLATE TRAP SPRING, Fig. 89. The *Spring* A acts on the tail of the Butt Plate Trap to keep it in position. The *Hole* B is for the Screw which fastens the Spring to the Butt Plate.



Fig. 88.



Fig. 89.



Fig. 90.

BUTT PLATE TRAP SPRING SCREW, Fig. 90, is inserted through the Spring at B, Fig. 91.

BUTT PLATE TRAP PIN, Fig. 91, is the Pin upon which the Butt Plate Strap hinges.

Stock—Top view, Fig. 92; Side view, Fig. 93.

The Butt A.  
 The Grip B.  
 The Magazine Opening C.  
 The Barrel Bed D.  
 Hole for Butt Plate Screw E.  
 Seat for Butt Plate Tang F.  
 Seat for Butt Plate Stock Swivel Screw G.  
 Hole for rear Receiver Screw H.  
 Mortise for Trigger Action I.  
 Bolt Stop Thumb Piece Recess J.  
 Mortise for Recoil Lug on Receiver K.  
 Hole for front Receiver Screw L.  
 Shoulder for Lower Band M.  
 Bed for Band Screw Nuts N.  
 Shoulder for Upper Band O.  
 Channels for decreasing weight P.  
 Upper Band Screw Hole Q.  
 Stock Clamp Screw R.

The larger hole in the Butt is the pocket for the oil bottle and pull-through. The Government Stamp and Serial Number, showing that the Inspector has passed the rifle in its finished state, are on the right side of the rear end of the Butt.

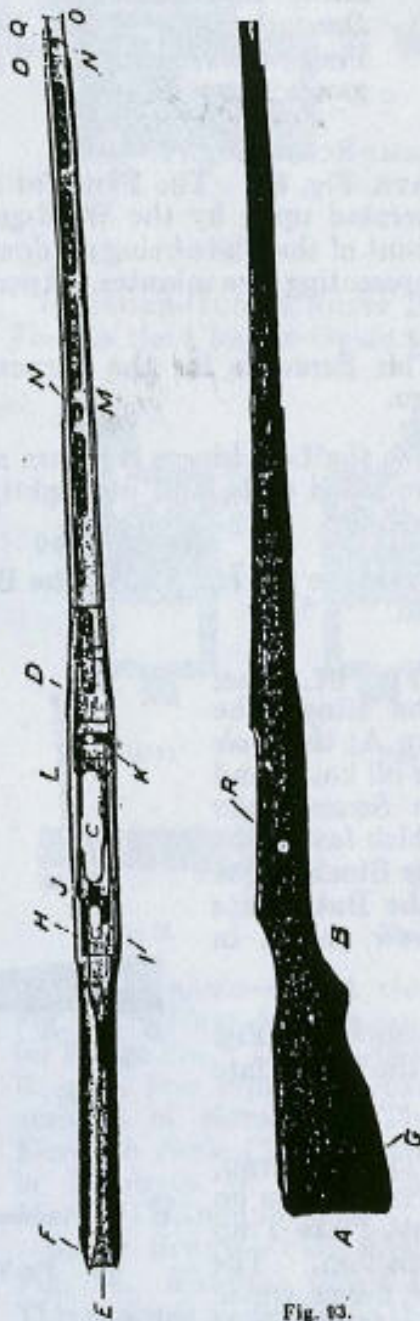


Fig. 92.

Fig. 93.



Fig. 94.

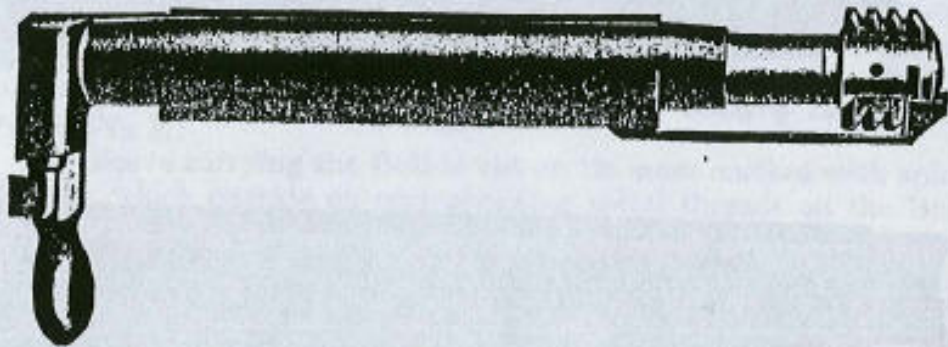


Fig. 95.

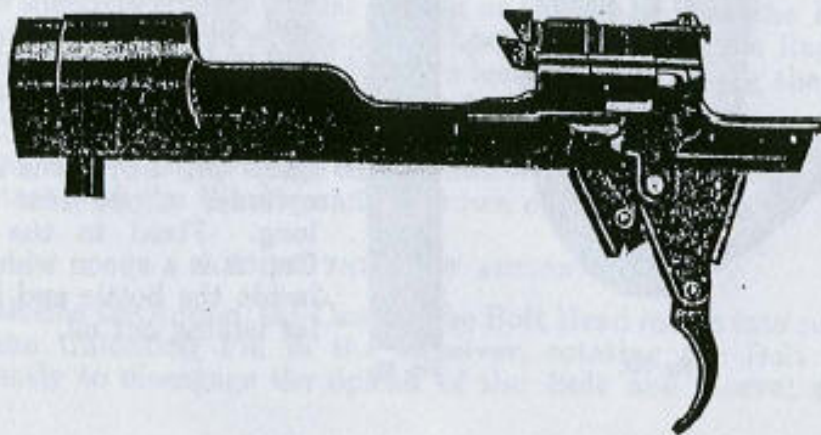
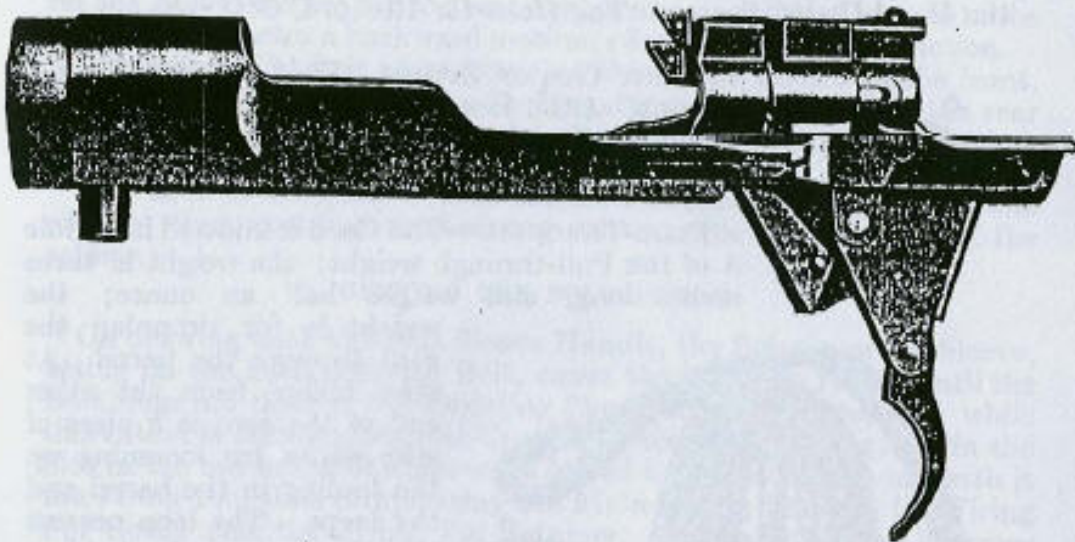
STOCK CLAMP SCREW AND NUT, Figs. 94 and 95, are assembled transversely through the Stock at R, Fig. 92, between the Magazine Opening and the Mortise Hole for the Trigger.



BOLT ACTION (complete), Fig. 96.



RECEIVER AND TRIGGER ACTION, Figs. 97 and 97A.



HAND GUARD (complete), Figs. 98 and 100.



Fig. 98.



Fig. 100.

The *Shoulder A* fits under the Lower Band. The *Tenant B* for the Hand-Guard Spring. The *Holes* for Rivets C C.



Fig. 101.

HAND GUARD SPRING, Fig. 101, fits in the Tenants of the Hand Guard and springs over the Barrel, and secures the Hand Guard in position. The *Holes* for Rivets A.



Fig. 94a.



Fig. 95a.

PULL-THROUGH.—The Cord is knotted into Hole A of the Pull-through weight; the weight is three inches long, and weighs half an ounce; the weight is for dropping the cord through the barrel. At nine inches from the other end of the cord is a piece of wire gauze for loosening up the fouling in the barrel and the loops. The loop nearest the wire gauze is for holding the flannelette for cleaning and oiling; the loop at the end of the pull-through is for the purpose of preventing a jam.

The OIL BOTTLE is a brass cylinder about four inches long. Fixed to the Screw Cap A is a spoon which goes inside the bottle and is used for ladling out oil.



## THE ASSEMBLED PARTS AND THEIR OPERATIONS.

The operating parts are the Bolt, Magazine and Trigger Actions. The Bolt Mechanism consists of the Bolt, Sleeve, Safety Catch, Safety Catch Spring and Pin, Extractor, Cocking Piece, and Firing Pin. A top view is shown in Fig. 103. The parts shown in the cut are:—*Handle A; Bolt Head B; Sleeve C; Safety Catch D; Cocking Piece E; Extractor F; Extractor Lug Grove H; Locking Lugs I, and Firing Pin K.*

The Sleeve carrying the Bolt is cut on its inner surface with spiral threads, which operate on corresponding spiral threads on the Bolt, causing the latter to rotate as the Action is moved backward and forward on the Guides of the Receiver.

The Bolt and Bolt Head are cut out of the solid in one piece and chambered out for the Main Spring and Firing Pin. There are two Lugs on the Bolt Head, which are cut to form an interrupted screw, the threads of which, on the Bolt being closed, engage in corresponding grooves cut in the Resisting Shoulders of the Receiver and take the shock of discharge. A groove is cut in the right side of the Bolt Head in which the Lug on the Extractor works. The threaded Lugs on the Bolt Head are cut to a screw pitch and on rotation impart to the Bolt and Extractor a backward motion, effecting primary extraction.

The Safety Catch is so constructed that when turned to the front, showing "Safe," it causes the Cocking Piece to be drawn to the rear from contact with the Sear and locks the action in a safe position.

When turned to the rear, it shows "Ready."

The Rifle is designed so that the Bolt is opened or closed by one motion, thus avoiding unnecessary movements or exposure by the soldier.

### OPENING THE BOLT ACTION.

On drawing back the Bolt Sleeve Handle, the Spirals on the Sleeve, acting on the Spirals of the Bolt, cause the latter to rotate until the Bolt Lugs are clear of the Resisting Shoulders of the Receiver; while this action is taking place, the Cocking Piece, which is engaged in the Slot in the bottom of the Sleeve, is forced to the rear, drawing with it the Firing Pin, thus compressing the Main Spring between the Firing Pin Collar and the Firing Pin Retainer. As the Bolt Head becomes unseated from the Resisting Shoulders the Short Spirals on the rear end of the Bolt engage similar spirals on the sleeve and the Bolt is further rotated by the action of the Locking Cams on the Receiver, and the Spirals of Sleeve and Bolt are locked, thus holding the Main Spring compressed as the Bolt Action is withdrawn.

As the Action is withdrawn, the Hook of the Extractor being engaged over the rim of the cartridge case, draws it to the rear until it comes in contact with the Ejector and is thrown out to the right.

### CLOSING THE BOLT ACTION.

On closing the Action, the Cam on the Bolt Head comes into contact with the Unlocking Pin in the Receiver, rotating the Bolt Head sufficiently to disengage the Spirals of the Bolt and Sleeve; at the



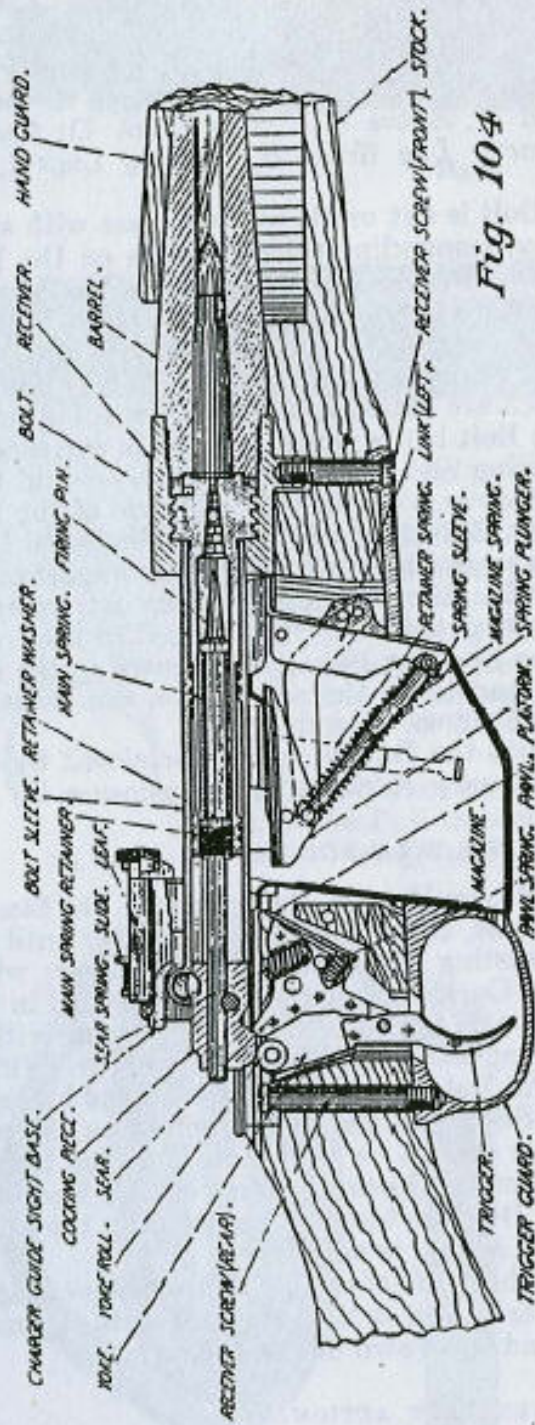


Fig. 104

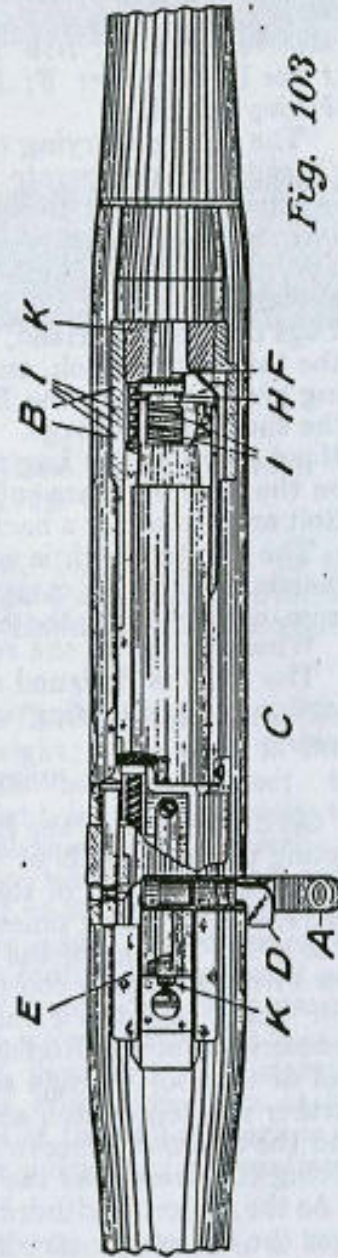


Fig. 103



same time the Bent on the Cocking Piece comes into contact with the Nose of the Sear holding the Cocking Piece and Firing Pin back, thus retaining the Main Spring compressed. As the Sleeve travels forward, the Bolt, under the action of the Spirals, rotates until the threaded lugs of the Bolt Head become seated in those of the Resisting Shoulder and the Breech is finally closed.

In the forward motion of the Action, the Hook of the Extractor, rounded at its outer edge, engages the head of the cartridge as it rises from the Magazine and carries it into the chamber, and the rifle is ready to fire. See Fig. 104.

The Bolt action should be opened with a sharp snappy action.

Draw the Bolt Sleeve Handle fully to the rear on opening and push it fully home, with one continuous motion, on closing. This will ensure ejection and avoid the possibility of a jam or missfire.

Should the Bolt not have been fully home and the Trigger pressed the energy of the main spring will be expended in closing the Action, and a missfire is likely to occur.

In any event the Rifle cannot be fired until the Action is closed.

#### TO FIRE THE RIFLE.

On first pressing the trigger—a long, even pressure (about two pounds) causes the lower point on the trigger to rotate the sear until the nose of the latter is brought close to the edge of the cocking piece bent. On the second pressure (about three pounds) the upper point on the trigger causes the sear to further rotate until it is drawn clear of the bent on the cocking piece, when the main-spring forces the firing pin forward to explode the charge.

#### THE MAGAZINE.

Figure 105 represents a Cross Section to show the Magazine loaded and the Bolt Action closed. The parts shown are:—Charger-Guide Sight Base, Receiver, Ejector, Ejector Pin, Bolt Sleeve, Extractor, Firing Pin, Trigger Guard, Magazine Body.

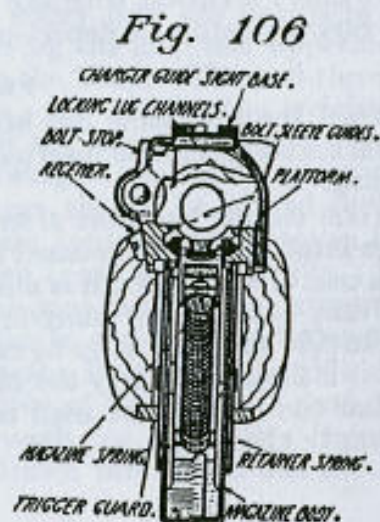
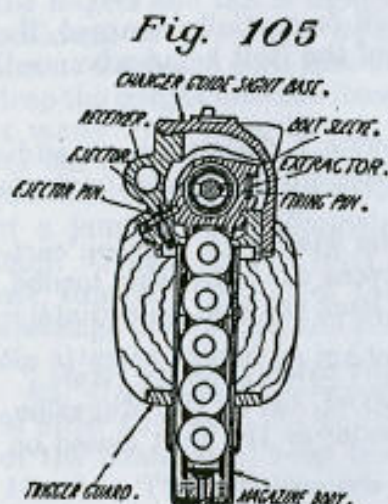




Fig. 106 represents a Cross Section to show the Magazine empty and with the Magazine Bolt Stop "ON."

The parts shown are:—Charger-Guide Sight Base, Locking Lugs Channels, Bolt Stop, Receiver, Bolt Sleeve, Platform, Magazine Spring, Retainer Spring, Trigger Guard, Magazine Body.

To charge the Magazine, turn the "Bolt Stop" up as illustrated in Fig. 103.

Draw the Bolt fully to the rear, insert cartridges from a Charger or from the hand, and close the Bolt.

To fill the Magazine from a Charger, place either end of a loaded Charger in its seat in the Charger Guide and with the thumb of the right hand press the cartridge down into the Magazine until the top cartridge is caught by the Retainer Springs.

The cartridge channel entrance at the bottom of the Receiver in front of the Magazine guides the cartridge into the Chamber.

A partly filled Magazine can be refilled by pressing the cartridges down one by one under the Retainer Spring.

The Charger is ejected by pushing the Bolt forward.

When the Bolt Stop is turned down, the Magazine is closed. The Bolt cannot then be drawn fully back, and its front end, projecting over the rear end of the upper cartridge, holds it down in the Magazine below the action of the Bolt. The Magazine Mechanism then remains inoperative, and the arm can be used as a single loader. When the Magazine is empty, the rifle can also be used as a single loader either by pressing each cartridge under the Retainer Springs or by entering the bullet into the Chamber.

When the Bolt Stop is turned up, the Magazine is open, and the Bolt can be drawn fully to the rear, permitting the top cartridge to rise high enough to be caught by the Bolt in its forward movement. As the Bolt Action is closed the cartridge is pushed forward through the Retainer Springs and into the Chamber. The cartridges are held up by the pressure from below until each one is engaged by the Retainer Springs.

#### HOW TO USE THE BOLT STOP.

Before the Bolt Stop can be used, the Bolt must be in advance of the rearmost position.

To effect a cut-off with the Magazine full or partially charged, the top cartridge must be depressed to permit of the Bolt being advanced.

#### PRECAUTIONS.

When the Magazine has been charged with 5 cartridges, an additional cartridge can be inserted under the Retaining Springs for single loading.

When closing the Bolt after charging the Magazine, the top cartridge must always be pressed down to prevent the rifle being loaded.

In case of a mist-fire, it is unsafe to draw back the Bolt immediately, as it may be a case of "hang-fire."

The rifle should always be carried with the catch showing "Safe."

If it is desired to carry the Magazine charged, cut off the Magazine, so that the rifle can be used as a single loader or the Bolt closed on an empty chamber.



## CARE OF THE RIFLE.

### DISMOUNTING AND ASSEMBLING.

On no account is a rifle to be stripped, except by qualified Armourers. This does not include the removal of the Bolt Action for cleaning the Barrel. The operation of the removal of the Barrel from Receiver is only to be carried out in the S. A. Inspection Department, Quebec.

The following Instructions for Care of Arms is taken from Musketry Regulations, Part I, 1909 (reprint with amendments 1912).

85. Wear in the Bore of a Rifle is due to three causes: (a) the friction of the bullet; (b) the heat generated when ammunition is fired; and (c) the friction of the pull-through gauze when the Bore is being cleaned.

When care is used in cleaning, 5,000 to 6,000 rounds can be fired from a rifle before it becomes unserviceable.

Undue wear is caused by improper and unnecessary use of the pull-through gauze, to prevent which it is most important that the "Instructions for Cleaning" be adhered to. It is recognized that it may be necessary to modify these instructions to suit local climatic conditions, or individual rifles which are in a bad state of preservation.

86. When a Rifle Barrel is new, the interior of the Bore carries a high polish, and this is a great safeguard against rust and metallic fouling; but it must be recognized that, as the Bore becomes worn, this polish will diminish. Efforts to restore it with wire gauze on the pull-through result in unnecessary wear. At the same time it must be clearly understood that, in a well-cared-for rifle, while the brilliancy of the polish will diminish, the Lands of the Bore should still be bright and free from all stain of rust or fouling.

87. A pull-through fitted with a weight and an oil bottle, to contain Russian petroleum, are carried in the Recess in the Butt of the rifle. The pull-through is packed above the oil bottle as follows:—Hold the pull-through (loop end) between the forefinger and thumb of the left hand, so that the end falls about 2 inches below the third finger; roll it loosely three times round the first three fingers; slip the coil off the fingers and lap it tightly with the remainder of the cord, leaving sufficient to allow the weight to drop easily into the Recess in the Butt. Push the cord into the Trap, leaving the loop end uppermost, drop the weight into the Recess, and drop the Trap. The pull-through is made with three loops: the first (*i.e.*, the nearest the weight) is for the gauze when used; the second for the flannelette; the third is provided merely as a means of withdrawing the pull-through in case of a jam; neither flannelette nor gauze should be placed in this loop. When signs of wear appear, a new cord should be taken into use, to avoid the risk of the pull-through breaking in the rifle. If a breakage does occur, the rifle must be at once taken to the armourer. No attempt should be made by the soldier to remove the obstruction.

88. *Use of the pull-through.*—Remove the Bolt from the rifle and, in order to ensure the gradual compression of the gauze, if used, and of the flannelette, drop the weight through the Bore from Breech to Muzzle. The pull-through should be drawn through in one motion,



otherwise the spot where the flannelette is allowed to rest while a fresh grip of the cord is being taken, will not be properly cleaned. Very great care must be taken not to allow the cord to rub against the muzzle, otherwise a groove, technically known as "cord wear," will be cut, which in course of time will destroy the accuracy of the rifle.

Only regulation flannelette is to be used. When cleaning or drying the Bore after washing out with water, a piece of dry flannelette large enough to fit the Bore tightly (about 4 inches by 2 inches) should be placed in the second loop of the pull-through.

For oiling the Bore, a slightly smaller piece of oily flannelette, which will fit the Bore loosely, should be used. Care must be taken not to use too much oil, as it will be squeezed out of the flannelette at the entrance to the Bore and will run down into the Bolt when the rifle is placed in the rack, and may then cause misfires.

The use of two single pull-throughs attached to one another, so as to make a double one, is strictly forbidden, because this practice has been found to produce "cord-worn" Barrels.

89. The object of the gauze is mainly to scour out the Grooves and it should therefore fit the Bore tightly. When it fails to do this, it should be partially unrolled and packed with paper or flannelette to increase its bulk.

Grit must be removed from the gauze and pull-through before use.

90. Cleaning with gauze entails wear of the Bore of the rifle. Gauze should not be pulled through the Barrel more often than is here laid down (para. 99) without sufficient cause. The surest way of preventing the necessity for the continued use of gauze is to keep the Bore well oiled so as to prevent rust. A Barrel which has become rusty will always be more liable to rust than one which has been kept in good condition. It will therefore require more attention and more frequent cleaning with gauze. Similarly, a Barrel in which erosion has commenced will require more care than one of which the surface has not been attacked, for, the eroded portion being rough, moisture is more likely to collect on it and form rust. It is also more difficult to remove rust thoroughly from a rough surface than from a smooth one.

91. No oil other than Russian petroleum should be allowed to remain in the Bore. The function of this oil is to cover the bore with a water-proof film, and thus prevent moisture attacking the steel and forming rust. It must be well worked into the flannelette with the fingers, otherwise it will be scraped off by the Breech end of the Barrel. When paraffin has been used, all traces of it should be thoroughly removed and the Bore coated with Russian petroleum; for paraffin, though an efficient agent for removing rust, does not prevent its formation.

92. No gritty or cutting material, such as emery powder or bath brick, is to be used for cleaning any part of the rifle.

#### INSTRUCTIONS FOR CLEANING.

93. In order that the "Instructions for Cleaning" may be understood, it is essential that the causes of fouling in Rifle Barrels should be briefly explained. Fouling may be said to be of two kinds:—  
(a) Internal, probably caused by the forcing of gas or harmful material



into the pores of the metal; (b) Superficial, caused by the deposit in the Bore of the solid products of combustion of the charge and of the cap composition.

The result of neglect in either case is the same, viz., the formation of rust in the Bore, and, as a consequence, corroded Barrels, calling for the excessive use of wire gauze, or even more drastic treatment, thereby causing unnecessary wear.

Internal fouling can be removed satisfactorily by the use of boiling water (see para. 101). If for any reason this method of cleaning cannot be used, the Barrel will "sweat," and a hard, black crust of fouling will appear in the Bore. This will turn to red rust if not removed, and the rifle will then require repeated cleaning with flannelette, and probably with gauze, for a time which will vary according to climatic conditions and the state of the Bore.

Superficial fouling is readily removed when barrel is warm by the use of a pull-through and flannelette, but if it is allowed to remain long in the Barrel, it will become hard and will have a corrosive effect equal to that produced by internal fouling.

96. *Daily Cleaning.*—The outside of the rifle will be cleaned daily, all parts of the Action wiped with an oily rag; the Bore of the rifle will always be left oily—once a week this oil will be removed and the Bore re-lubricated. In the case of rifles that have once become rusty, the Bore will be daily wiped out with flannelette and re-oiled; it will, in addition, be cleaned once a week with the Gauze on the pull-through. the Gauze to be packed as directed in para. 89 so as to fit the Bore tightly. For daily cleaning after firing, see para. 99.

97. *Cleaning before firing.*—The Action will be wiped with an oily rag, and all traces of oil will be removed from the Bore and Chamber by the use of a pull-through which has no gauze on it.

98. *Cleaning after firing.*—Arms will be cleaned immediately after firing. The fouling can be easily removed while it is still warm, and before it has had time to set hard; while the less the time that is allowed for the fouling to exercise its power of absorbing moisture from the air, the less chance is there of rusting. If it is impossible to clean the rifle at once, an oily rag should be pulled through the Bore, and the rifle should be cleaned at the earliest opportunity.

99. *The Bore.*—The following method of cleaning the Bore should be adopted:—

Thoroughly oil the gauze to prevent its scratching the surface of the metal; drop the weight of the pull-through through the Bore from the Breech and pull the gauze through three or four times. Then place a tightly-fitting piece of dry flannelette in the second loop of the pull-through (see para. 87), and draw it through till the Bore is clean. Finally oil the Bore with a loosely-fitting piece of flannelette, using enough oil to cover the Bore thoroughly. The rifle will be cleaned in this manner for three days following that on which it was fired.

100. After firing blank ammunition, special care should be taken that the cleaning is thorough, as, although there is no friction between bullet and bore, and so no internal fouling or "sweating," there is greater accumulation of superficial fouling from blank than ball cartridge, there being no bullet in blank ammunition to scour



the fouling left by the preceding round. The firing also is, in most cases, more prolonged, and a greater interval must usually elapse before the rifle can be thoroughly cleaned. When blank firing precedes practice with ball, the rifles will be carefully cleaned before ball practice commences.

101. An effective means of cleaning the Bore, whether firing has taken place or not, is found in the use of boiling water. Before boiling water is used superficial fouling and grease should be removed. About five or six pints should be poured through the Bore from the Breech, using a funnel to prevent its entering the body or magazine. The rifle should then be thoroughly dried and the Bore oiled. Not only does the boiling water remove the fouling, but the expansion of the metal due to the heat of the water loosens any rust there may be and makes it easily removable.

102. The appearance of nickelling or metallic fouling should be watched for. It is caused by a portion of the cupro-nickel of the envelope of the bullet being left on the surface of the Bore, and appears as a whitish streak on the Lands, or as a slight roughness on the edge of the Grooves. If it is deposited near the muzzle or the Breech, it is visible to the eye when the Bore is clean, but in the centre of the Bore it can only be detected by the use of the gauge plug. It is a cause of inaccuracy, and if a rifle for no apparent reason shoots badly, its presence should be looked for as a possible explanation. The soldier will make no attempt to remove it himself, but will hand his rifle to the armourer or other qualified person to be cleaned.

When difficulty is experienced in removing metallic fouling from the Bores of Small Arms, the following mixture, which has no injurious effect on steel, may be used (14 fluid ounces is sufficient to clean 10 Barrels):—

To  $\frac{1}{2}$ -oz. ammonia (0.88 Sp. Gr.) add  $\frac{1}{4}$ -oz. water, 30 grains ammonium persulphate and 10 grains ammonium nitrate. As soon as dissolved, the mixture is ready for use. Not more than is required for immediate use should be made up, as the solution does not keep. Use fresh solution each time. Use ammonia of correct strength. Keep bottle well corked and in a cool place. Remove all oil and dirt before cleaning. As the fouling dissolves, a blue colouration is produced, and in all ordinary cases the fouling should be completely removed in from 15 to 20 minutes; but very badly fouled barrels may require a longer time. After use the Barrel should be well washed with water and then dried and oiled.

103. *The Action and outside.*—Thoroughly clean the Bolt, paying particular attention to the face of the Bolt Head, the Striker Point, and the Extractor. If the Bolt requires cleaning inside, it will be taken to the armourer.

See that the Slot for the Extractor is clear of dirt. Wipe the inside of the Receiver and the entrance to the Chamber with an oily rag. Remove all dirt from the Slots in the Charger Guide and from the Extractor Recess in front of the Receiver. Wipe the exterior of the rifle with an oily rag, seeing that the hole in the Aperture Sight and the gas escape hole are free from dirt. Remove any fouling which



has collected on the bayonet Stud on the Nose Cap. If allowed to accumulate, this may cause difficulty in fixing the bayonet.

#### PARTS WHICH ARE MOST LIABLE TO REQUIRE REPAIR.

*Bolt Stop.*—Worn by continual contact with Bolt.

*Cocking Piece.*—Nose worn from neglect to keep it lubricated.

*Safety Catch.*—Thumb piece knocked off by blow.

*Stock.*—Bruises, cuts, pieces chipped from different points, broken at small.

*Striker.*—Point burned or broken by defective cartridge.

#### INJURIES WHICH DO NOT RENDER PARTS UNSERVICEABLE.

*Bolt.*—The entire Flange at Front End may be broken off, except a small portion on the opposite side from the Extractor Hook, which is required to hold, in connection with the Extractor Hook, the empty case while it is being drawn to the rear for ejection.

*Butt Plate.*—Bruises, cuts or wearing.

*Butt Swivel.*—Bent.

*Cocking Piece.*—Moderate wearing of Nose. The Nose can wear until the closing of the Bolt fails to cock the piece.

*Extractor.*—Moderate wear or break of edge of Hook.

*Guard.*—Bent, bruised or cut.

#### USING THE RIFLE WHEN CERTAIN PARTS OF THE BOLT AND MAGAZINE MECHANISM ARE DEFICIENT.

The parts not essential, or only so to a degree, are the Ejector, Safety Catch and Bolt Stop.

In the absence of the Ejector, the empty cases drawn through the rear by the Extractor, can be removed from the Receiver by the finger.

The absence of the Bolt Stop and Safety Catch does not affect the usefulness of the arm.

If the Magazine is out of action it does not prohibit the use of the arm as a single loader. The soldier should be taught to appreciate these facts.

#### REMARKS.

Complaints have sometimes been made that a Mainspring was too weak to perform its office, when the fault rested with the soldier, who had failed to fully close his Bolt, thus allowing the force of the Spring to be expended in closing the Bolt Action, instead of in exploding the cartridge.

All Cams and Bearings should be kept slightly oiled to prevent rust. Should accumulation of dirt be found in the Locking Lug Recesses of the Receiver, as might occur if rifle was left on dusty ground with the Breech opened for any length of time, it should be blown out or removed by any convenient means, otherwise the continued opening and closing of the Bolt on the gritty surface will cause undue wear.



The BAYONET, Ross Rifle, Mark II, and SCABBARD.—The *Bayonet* is shown in Fig. 113, Left side, and Fig. 114, Back view, and Fig. 115 the Right side. The *Blade A* and the *Tang B* are forged in one piece and the *Pommel C* is brazed on the end of the *Tang*.

On the back of the *Tang* and on the *Grips* will be found the Government Inspection Marks.

Immediately below the *Cross Piece D* the *Tang* swells, which serves as a seat for *Cross Piece*, which is riveted to the *Blade* in manufacture.

The *Holes E E* in the *Tang* are for the *Grip Screws*.

*Countersunk Hole F* is for the seat for *Bolt Spring and Nut*.

The *Opening G* in the *Pommel* is for the *Bolt* which locks the *Bayonet Stud* of the *Rifle*.

It receives the *Stud* on the *Upper Band* when the *Bayonet* is fixed, and is held into place by the *Bolt* projecting through the *Hole J* in the *Pommel*.

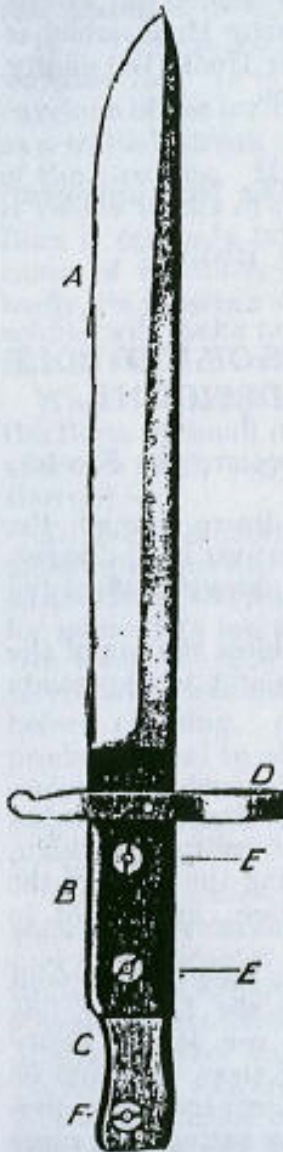


Fig. 113.

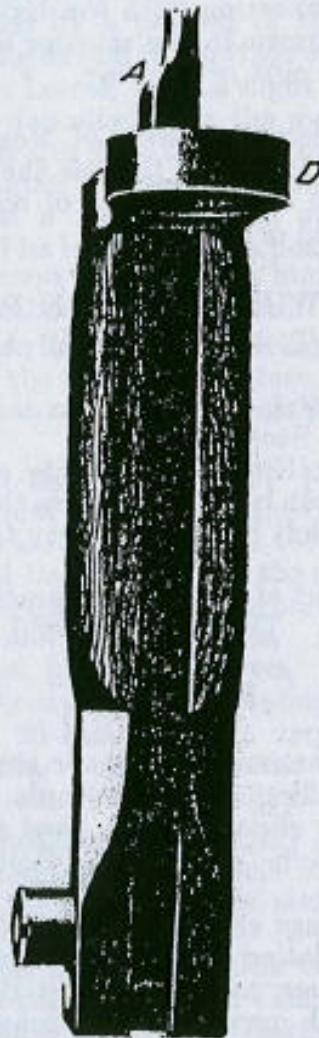


Fig. 114.

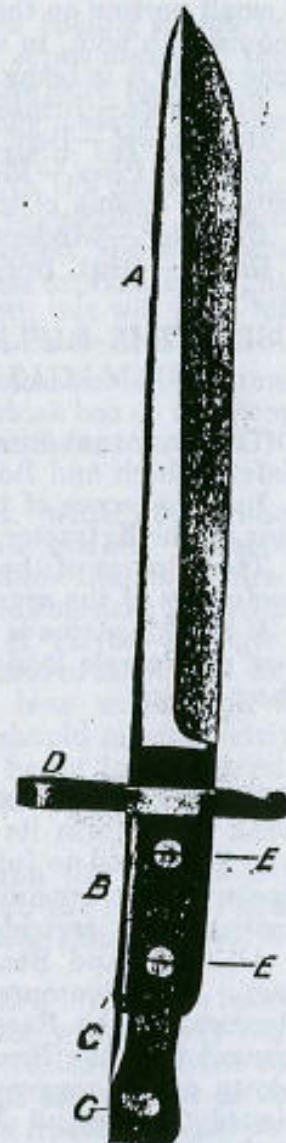


Fig. 115.





Fig. 116.



Fig. 117.



Fig. 118.



Fig. 119.



Fig. 120.



Fig. 121.



Fig. 122.

**CROSS PIECE.** The rear view, Fig. 116, has a *Barrel Hole A*; *Mortise B* for the Blade.

**BAYONET BOLT,** Side view, Fig. 117. The *Point A* engages the Bayonet Stud on the upper Band, and retains the Bayonet in its place on the rifle. The *Shank B*; the *Threaded Screw C* for the Nut.

**BAYONET BOLT NUT—**Fig. 118. *Slot B* for Screw-driver; the *Threaded Hole C* for the Bolt Shank.

**BAYONET BOLT SPRING—**Fig. 119.

**BAYONET GRIPS—**Outside view, Fig. 120. The *Holes AA* are countersunk to receive the Grip Screw Head and Nuts.

**BAYONET GRIP SCREWS,** Fig. 121, by which the Grips are attached to the Tang of the Bayonet.

**BAYONET GRIP SCREW NUTS,** Fig. 122, which receive the thread of the Bayonet Screws.



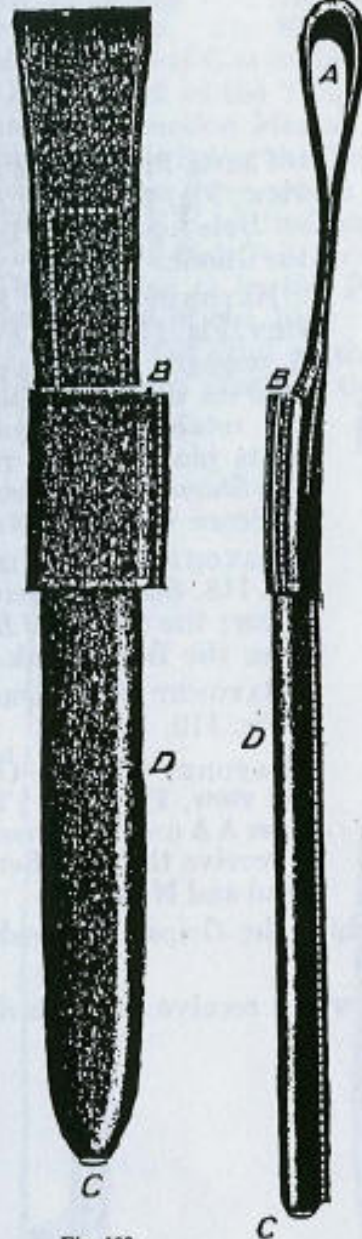


Fig. 123.

Fig. 124.

BAYONET SCABBARD, Front view, Fig. 123; Side view, Fig. 124.

The *Loop A* is for the Belt by which it is carried.

The *Steel Locket B* is located in the Locket Spring. These secure the Bayonet in the Scabbard.

The *Chape C* receives the point of the Bayonet and prevents it from cutting the leather.

The *Body D*, to which a Loop is secured by steel rivets.

Each piece of steel and leather is stamped with the Government Viewers' Mark.

### PACKING OF RIFLE.

The rifles are packed in Arm Chests containing 10 Boss Rifles, 10 Scabbards, 10 Bayonets.

The interior of the Arm Chest is provided with wooden fixtures for the purpose of holding the Rifles and Bayonets in position.

The arrangement of the packing should be carefully observed.

The principal distinguishing features of Ross Rifles of previous manufacture are shown below:—

RIFLE, G. P. ROSS (formerly known as Ross Rifle Mark I).—The Main Spring of this rifle is compressed on closing the Bolt Action. The Back-sight was of the "lever" pattern; barleycorn foresight. Magazine, control platform system, holding 5 cartridges. Weight about 8 lbs. Length

of Barrel, 28 inches. Component parts are not interchangeable with other patterns of Ross Rifles. This Rifle has been authorized for use with G. P. ammunition.

RIFLE, SHORT ROSS, MARK I (formerly known as Ross Rifle Mark II).—The main points of difference from G. P. pattern are as follows: The Main Spring is compressed on opening the Bolt Action. Owing to a difference in size of chamber, this rifle is not suitable, and is forbidden, for use with G. P. ammunition.

The remaining features are practically the same as the G. P. rifle.



RIFLE, SHORT ROSS, MARK II (formerly known as Ross Rifle Mark II<sup>a</sup>—II<sup>b</sup>).—This rifle is identical with the Short Mark I, except that it is fitted with a Sutherland Sight and new pattern Extractor.

RIFLE, LONG ROSS, MARK II (formerly known as Ross Rifle Mark II<sup>a</sup>).—This rifle differs from previous patterns in the following particulars:—Weight, 9 lbs. 8 oz.; length of barrel, 30.5 inches. Double pull trigger action (instead of single). Upright pattern Back Sight. The addition of a Charger Guide Sight Base.

RIFLE, LONG ROSS, MARK III.—The principle differences between the Mark III rifle and those of earlier manufacture are:—

- (1) The adoption of an interrupted Screw Bolt Head with corresponding Locking Lugs in the Receiver. The Bolt Head travels horizontally instead of vertically.
- (2) The Magazine is altered to admit of charger loading; the Lifter Fingerpiece is accordingly done away with.
- (3) The Combined Bolt Stop and Magazine Cut-off replaces the former pattern.
- (4) A Screw Elevating Rear Aperture Back Sight is fitted to the Charger Guide Sight Base; this replaces the open Sight in the Rifle, Long Ross, Mark II. (Vide Canadian List of Changes.).
- (5) The Front and Rear Handguards and spaces for Back Sight (on barrel) are replaced by one Handguard.
- (6) The Sliding Steel Butt Trap is replaced by a hinged Brass Trap.



PART II.

# HANDBOOK

FOR THE

## CANADIAN SERVICE RIFLE

(STRIPPING, ASSEMBLING AND TOOLS).

Ross, Mark III.

1913.

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H.Q. 70-55-41.

37765-II-1



## ROSS MARK III.

### TO REMOVE THE BOLT ACTION.

See that the Safety Catch is showing the word "READY," then place the Bolt Stop at the centre notch and remove the Bolt Action from the Receiver.

### TO STRIP THE BOLT ACTION.

Hold the Sleeve in the left hand and turn the Bolt Head with the thumb, thereby releasing the Mainspring, Fig. 107.



Fig. 107.



Fig. 108.

Seize the Head of the Extractor with the thumb and finger of the right hand, or insert the head of a cartridge case under the Hook of the Extractor, and raise the Lug clear of the Groove in the Bolt Head and withdraw the Extractor from the Slot in the Sleeve, Fig. 108.

Place the thumb of the left hand on the Bent of the Cocking Piece, forcing it to the rear to enable a hook wire or piece of string to be passed through the Hole in rear of Firing Pin.

Then withdraw the Cocking Piece until the Pin is clear of the Bolt Sleeve holding it.

Then push the Pin out and withdraw the Cocking Piece and the Bolt.



Fig. 109.

Turn the Safety Catch to a perpendicular position and, striking the handle a light rap with a piece of wood, the Safety Catch is dismounted. Turn the Bolt Sleeve bottom upward, when the Safety Catch Plunger and Spring will drop out.

Take the Bolt in the left hand and with the Retainer Key remove the Mainspring Retainer. Care must be taken in remov-

ing Retainer to preserve the Washer and prevent the Mainspring from flying out. Fig. 109.



## TO ASSEMBLE THE BOLT ACTION.

Insert the Firing Pin in the Bolt, holding the latter in the left hand. Place Mainspring over Firing Pin. Insert the Washer with the Indents pointing away from the Mainspring.

Place the Retainer over the Indents and, taking the key in the right hand, screw it home, care being taken that the Lug on the Washer enters the Slot in the Bolt.

Hold the Bolt Sleeve in the left hand, insert the Safety Catch Plunger Spring in the Plunger and place them in their seat. Then insert the Safety Catch in its hole with the handle up and force the Plunger down until the Safety Catch will pass it.

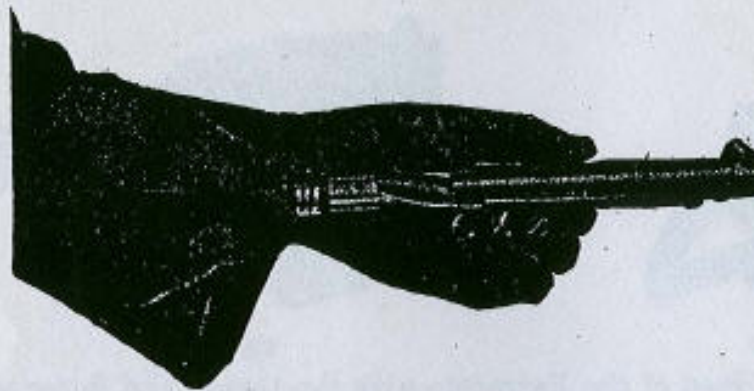


Fig. 110.

Take the Bolt in the right hand and enter it in the Sleeve with the gas hole in the Bolt downwards. Fig. 110. Enter the Spirals until the plain cylinder just enters the Sleeve. Then turn the Bolt Head to the right, when it will turn into its proper position. Fig. 111.



Fig. 111.



Fig. 112.

Turn the Sleeve in the hand so that the lower part is uppermost. See that the Cut on the Firing Pin is uppermost and can be seen through the Cocking Piece Slot of the Sleeve. Place Cocking Piece on Firing Pin, insert Hook in the hole through end of Firing Pin, withdrawing the Cocking Piece until the hole in the Cocking Piece and Cut in the Firing Pin are clear of the Bolt Sleeve, securing them in that position by turning the Safety Catch. Then insert the Pin, remove the Hook and release the Safety Catch.



Turn the Bolt and Sleeve in hand again so that the Head is to the front, then place the Extractor in the Slot of the Sleeve and press it home with the right thumb until the Lug snaps into the Slot in Bolt Head. Withdraw the Bolt as shown in Fig. 112 and replace same in Receiver.

### TO STRIP RIFLE.

1. Remove Band Screws and drive the Bands forward.
2. Remove Hand Guard. It may be necessary to tap gently on the Guard Clips to loosen the Guard in order to remove it.
3. Remove Rear and Front Receiver Screws.
4. Remove Barrel and Receiver from Stock, taking care not to lose the nuts for the Band Screws that lie in the Stock under the Bent.
5. Remove Magazine.
6. Unscrew Butt Swivel Screw.
7. Unscrew Butt Plate Screws and remove Butt Plate from Stock.
8. Unscrew Butt Plate Spring Screw and remove Butt Plate Spring and Trap.
9. Unscrew Stock Clamp Nut on right side and remove Stock Clamp Screw and Nut.
10. To remove the Sight Leaf, drive the Pin out with a drift.
11. Unscrew Charger Guide Sight Spring Screw and drive Spring to the rear to remove it.

(NOTE.—THE CHARGER-GUIDE SIGHT-BASE AND SPRING OR THE LEAF SHOULD NEVER BE REMOVED EXCEPT FOR THE PURPOSE OF MAKING REPAIRS.)

12. Remove the Bolt Stop by pressing the Hinge Pin to the rear as far as it will go and driving out the Retainer Pin with a drift inserted in the Hole for that purpose at the rear of the Retainer Pin. The Hinge Pin, Bolt Stop and Spring are then free for removal.

13. The Ejector is removed by compressing the Ejector in the hole for the Retainer Spring and removing the Pin by a tool inserted in the Groove cut for that purpose in the Pin. The Ejector and Spring are then free for removal.

14. Drive Sear Pin out from Lugs in Receiver, which releases Trigger Action. (Take care not to lose Sear Spring.)

15. To remove Trigger and Yoke Roll from Yoke, drive out Pins with drift.

Drive out Pin and remove Pawl from Sear Spring, taking care not to lose Pawl Spring.

16. To remove Bands and Foresight, drive out Cross Pin and the Foresight is removed by driving out the rear bevelled surface on the Sight Sleeve with a piece of brass or soft metal with the Muzzle of barrel placed on a block of hardwood.

17. To remove the Foresight Blade, drive out the Hood Hinge Pin and loosen the Sight Clamp Screw. To assemble this, follow the reverse order of Dismounting, but THE FORESIGHT AND SLEEVE IS NEVER TO BE REMOVED EXCEPT FOR REPAIRS TO THE SLEEVE OR BANDS.

THE BARREL SHOULD NEVER BE UNSCREWED FROM THE RECEIVERS BY ARMOURER.



## TO ASSEMBLE AFTER DISMOUNTING.

### *First the Stock.*

Assemble Stock Clamp Screw from left side; screw the Nut on the right side.

Assemble Butt Plate Trap and Spring, and with Butt Screws fasten to Butt of Stock.

Re-assemble Trigger Action in reverse order to Dismounting, care being taken that the Pins are re-staked in order to secure them firmly in position. *Place Sear Spring in Seat. Hold Pawl and Yoke between thumb and forefinger of left hand*, place them between the Lugs on the Receiver, compress Pawl and Yoke together and insert the Pin tapered end first, taking care that the location point of the Yoke bears against the bottom of the Receiver.

TO ASSEMBLE EJECTOR—Insert Ejector Spring in its seat, place the Ejector in its Slot, and force the Ejector to the rear until the Large Hole lines up with the Ejector Pin Hole, and then insert the Pin.

TO ASSEMBLE BOLT STOP—Place Bolt Stop Hinge Spring on Bolt Stop Hinge Pin. Place Bolt Stop in position. Insert Hinge Pin, compress until you can enter the Retainer Pin in Hole in Hinge and drive it into position.

Replace the Band Screw Nuts in Stock.

Place Magazine in the Magazine opening of Stock.

Assemble Barrel and Receiver to Stock and Trigger Guard.

Replace Front and Rear Receiver Screws. Replace Hand Guard; secure Band in place with Band Screws.

Replace Bolt Action in Receiver and turn Bolt Stop down.

CAUTION.—NEVER CLOSE THE BOLT WITH THE SAFETY CATCH SHOWING "SAFE."

## TO STRIP LONG ROSS MARK II.

1. Remove the Bolt.
2. Unscrew the *Front and Rear Band Screw* and slide Bands to the Muzzle and remove Hand Guards.
3. Take out Lock Nut Screw and remove Lock Nut from Trigger Guard.
4. Take out the two (2) front Receiver Screws.
5. Take out Rear Receiver Screws; the Trigger Guard is then loose and can easily be removed.
6. Remove Barrel and Receiver from Stock, taking care that the Nuts of the Band Screws do not fall out.
7. Remove Bolt Stop from Receiver. It is unnecessary to remove the Bolt Stop Spring and Plunger from the Stock except for repairs.
8. To remove the Lifter, unscrew the Lifter Bearing Clamp Screw and Nut.
9. Remove the Lifter Bearing Screw and the Lifter is then free, but it is unnecessary to remove the latter, except for repairs.



10. To remove the Butt Plate, take out the two Butt Plate Screws, care being taken not to lose the Butt Trap.

11. The Charger-Guide Sight Base can be removed, if necessary for repairs, by taking out the four Screws. In reassembling, these screws should be staked with a prick punch in order to firmly secure them.

12. The Front Sight Hood can be removed by taking out the four Screws.

13. To remove the Front Sight, loosen the Front Sight Clamp Screw and drive the Sight from either side.

14. The Front Sight Sleeve is removed by driving out the Cross Pin and striking the Sleeve a sharp rap with a wooden mallet on the rear face. Except for repairs to Bands or the Sleeve itself, it is unnecessary to remove this piece.

15. Drive Sear Pin out from Lugs in Receiver, which releases Trigger Action. Take care not to lose Sear Spring, which is loose.

16. Press down the Ejector Pin and remove the Ejector and Ejector Spring. The Ejector Pin can then be removed by being pushed upwards out of its seating.

17. To remove Trigger and Yoke Roll from Yoke, drive out Pins with drift.

Drive out Pin and remove Pawl from Sear Spring, taking care not to lose Pawl Spring.

### TO STRIP THE BOLT.

18. (a) Pull the Bolt Head forward.

(b) Spring the Lug on the Extractor over the Bolt Head and remove the Extractor.

(c) Return the Bolt Head to ease the Mainspring.

19. Pull back Cocking Piece until it is clear of the Bolt Sleeve, securing it in that position by giving it a quarter turn right or left. Drive out Cross Pin, care being taken not to lose it.

20. Remove the Bolt from the Bolt Sleeve.

21. With a Retainer Wrench unscrew the Mainspring Retainer, when the Firing Pin Washer, Mainspring and Firing Pin can be removed. Care must be taken in this operation not to lose the components by the sudden releasing of the Mainspring.

22. To remove the Safety Catch, turn the Handle upright and hit it a slight rap and it will come out.

23. To remove the Safety Catch Plunger and Spring, turn the Bolt Sleeve bottom upwards, when they will drop from their seat.

### TO ASSEMBLE THE BOLT ACTION.

1. Insert the Firing Pin in the Bolt, holding the latter in the left hand. Place Mainspring over Firing Pin. Insert the Washer with the Indents pointing away from the Mainspring. Place the Retainer over the Indents and, taking the key in the right hand, screw it home, care being taken that the Lug on the Washer enters the Slot in the Bolt.



2. (a) Enter the Bolt into the front of the Bolt Sleeve with the largest Lug on the same side as the handle.

(b) Push the Bolt in as far as possible, then continuing the pressure give the Bolt a right-handed twist until the Spirals on the Bolt take the corresponding Grooves in the Bolt Sleeve and the Bolt Head comes against the Front End of the Sleeve.

(c) Pull the Bolt Head slowly forward and at the same time give the Bolt a right-handed twist.

(d) As soon as the Bolt turns slightly, push the Bolt Head back against the end of the sleeve (when correctly assembled, the gas escape hole in the Bolt Head should be underneath.)

3. Place the Cocking Piece over the Firing Pin. Insert a hook in the hole at the end of the Firing Pin. Withdraw Firing Pin and Cocking Piece clear of the Slot on the Bolt Sleeve, when the Cross Pin can be easily inserted in its proper position.

4. (a) Pull the Bolt Head forward only just sufficiently to retain the Lugs in a vertical position.

(b) Insert the Extractor in the Extractor Grooves of the Bolt Sleeve, springing the Lug on the Extractor over the Bolt Head.

5. Assemble the Safety Catch Spring and Safety Catch Plunger to the Bolt Sleeve (Plunger uppermost).

6. Insert the Safety Catch from the right into the Bolt Sleeve, taking care that the point of the Plunger engages firmly in the Grooves of the Safety Catch.

#### TO ASSEMBLE THE RIFLE.

7. Replace Butt Plate and Trap and screw home.

8. Put in the Lifter, insert the Lifter Bearing Screw and Nut from either side; see that the Lifter works freely, locking them in position by the Lifter Bearing Clamp Screw.

9. Put the Ejector Pin (point upwards) in its recess in the Receiver.

10. Put in the Ejector Spring.

11. Put the Ejector into its Slot in the Receiver, securing it against the Ejector Spring by the point of the Ejector Pin. See that it works freely.

12. Reassemble Trigger Action in reverse order to Dismounting, care being taken that the Pins are restaked in order to secure them firmly in position. *Place Sear Spring in seat. Hold Pawl and Yoke between the thumb and forefinger of left hand, and place them between the Lugs on the Receiver; compress Pawl and Yoke together and insert the Pin tapered end first, taking care that the location point of the Yoke bears against the bottom of the Receiver.*

13. Assemble the Trigger Guard. See that the Strap Link revolves freely round the Strap Link Stud on the Trigger Guard.

14. Put in the Lifter Spring with its coil towards the Muzzle and square end downwards.

15. Insert the Bolt Stop in the Receiver, thumb piece upwards.

16. Assemble the Barrel and Receiver to the Stock, taking care that the Band Screw Nuts are in place.



17. Insert the Receiver Rear Screw and Front Screws (2) with Lock Nut and Screw.
18. Assemble the Hand Guards (front and rear), being careful that the recessed ends are properly fitted.
19. Assemble the Rear Band, inserting the screw from the bottom.
20. Assemble the Front Band with Piling Swivel assembled, inserting the Screw from the bottom.
21. Assemble the Front Sight to the Front Sight Sleeve (slope towards Muzzle).
22. Screw in the Front Sight Clamp Screw.
23. Screw the Front Sight Hood to the Front Sight Sleeve (slope towards Muzzle).
24. Pull out Bolt Head sufficiently to retain the Lugs in a vertical position. Replace Bolt Action in Receiver and release Bolt Stop.

### AMMUNITION.

	Mark VI.	Mark VII.
Charge.....	31 grs. Cordite.....	38 grs. Cordite M. D. T.
Bullet.....	215 grs.....	174 grs.
Total weight.....	415 grs.....	382 grs.
Shape.....	Blunt nose.....	Pointed.
Cartridges issued.....	In boxes of 1,100, containing packages of 10 rounds.	In boxes of 1,000, containing 20 bandoliers holding 10 chargers (each with 5 rounds).

### TOOLS ISSUED TO ARMOURERS.

Description.	Quantity allowed.	Remarks.
<i>Small Arm Section.</i>		
Boxes:—		
Tool, empty, regimental armourers'.....	1	Gunmetal for attaching butts.
Oilstone, dust, Mark II (containing 6 oz.).....	1	
Anvil, stock, butt, M. R.....	1	
Awls, blades, armourers'.....	2	
Braces, armourers'.....	1	
Braces, armourers', bits—		
Countersunk, rose.....	1	
Rimer—		
Half-round.....	1	
4-square.....	1	
5-square.....	1	
Screw-driver—		
Butt plate, screw.....	1	
Stick, cleaning chamber .303-in. arms; also for cutter, countersunk cartridge head, M. M. & M. E.	1	
Stock bolt, M. L. M. rifle.....	1	
Spoon (with washer).....	1	



Description.	Quantity allowed.	Remarks.
Cans, oil, lubricating, armourers'.....	1	
Chisels, hand, cold—		
$\frac{1}{2}$ -inch x 7-inch.....	1	
$\frac{1}{4}$ -inch x 7-inch.....	1	
Clams, regimental armourers'—		
Parallel vice—		
Wood, buff-lined.....prs.	1	
" cork-lined....."	1	
Corks, clam (single).....	4	
Drifts, fore-end, Mark II.....	1	
Drifts—		
Magazine, catch-pin, M. L. M.....	1	
Sight, axis pin, M. L. M.....	1	
Wire, small.....	1	
Screw-driver, armourers'—		
Large.....	2	
Small.....	1	
Extractor, axis, M. L. M.....	1	
Fork, screw—		
Dial sight, M. L. M.....	1	
Nut, screw, grip-sword-bayonet, '88, Mk. III....	1	
Floats, fore-end, M. L. M.....	1	
No. 1 (large).....	1	
No. 2 (medium).....	1	
Gauges, armourers'—		
Distance of bolt from end of chamber, M. L. M—		
.064-in.....	1	This also serves as a gauge, cartridge, dummy, M.M. for testing, loading and firing positions of M.M. and M.E. arms:
.074-in.....	1	
Pistol, Webley—		
Hammer projection and radius of point.....	1	
Distance of cylinder from face to body, .052in. rejecting.....	1	
Striker point—		
Pattern "C".....	1	
Projection of stock bolt through body, rifle short, M. L. E.....	1	For all magazine arms fitted with stock-bolt keeper plate.
Implements, action—		
M. L. M., pattern D.....	1	
Mandrels—		
Scabbard—		
Sword-bayonet, patt. '88, Mark I, blocking leather.....	1	
Locket.....	1	
Tip (or chape).....	1	
Sight protector, M. L. M., pattern B.....	1	
Guides, muzzle—		
No. 1.....	1	Remove the nose cap before attaching the muzzle guide.
No. 2.....	1	
Pincers, armourers'.....prs.	1	
Planes, smoothing, armourers'.....	1	
Plates, screw.....		
20 taps, 20-hole.....sets	1	
Plugs, clearing—		
Plain—		
.303-inch arms.....	1	Tapped at end to fit on rod.
Split, M. L. M. rifle.....	1	
Pots, glue, $\frac{1}{2}$ -pint.....	1	



Description.	Quantity allowed.	Remarks.
Pressers, extractors, spring, M. L. M. rifle.....	1	To be replaced by "tool extractor spring" when store is exhausted.
Rods, cleaning cylinder, pistol, Webley.....	1	
Rods, cleaning, .303-inch—		
No. 1.....	1	For jute. Suitable for rifle and carbine.
No. 2.....	1	For use with brass wire rifle. Can be used for M. L. E. short rifles only when fitted with "Bush stop rod No. 2."
No. 3.....	1	For use with brass wire carbine
Saws, slitting, 7½-inch.....	1	
Scriber tool, sight-line rifle.....	—	This should be made by Armourer.
Sticks—		
Buff.....	3	
Cleaning chamber, .303-in. arms.....	1	
Gauze wire..... pieces	1	
Stones, oil—		
Armourers'.....	1	
Slips, arkansas, large.....	1	
Testers, trigger pull, M. L. M. rifle, Mk. II.....	1	
Tools, extractor spring, Mk. II.....	1	To replace "presser extractor spring" when the store of the latter is used up.
Tools, clearing, .303-inch, arms—		
Bits—		
Spoon.....	1	
Screw.....	1	
Bushes, bit, screw.....	1	
Rods, No. 2.....	1	Screwed at end to take clearing bits and plugs.
Tools, removing and replacing protectors, front sight, Nos. 1 and 2.....	1	
Tool, removing—		
Handguard No. 2.....	1	
Striker, pattern A or B.....	1	
Wad, stock bolt.....	1	
Tools, sight line—		
Rifle.....	1	
.03-inch. left.....	1	For rifles M. L. E., Marks I and I* and rifles M. L. M., Marks II and II* fitted with barrels having Enfield rifling with foresight .05-inch left leaf marked with A* on right bottom corner.
Vices, parallel, regtl. armourers', with spanners..	1	
Wrenches, removing screws, bolt-head, rifle, M. L. M. Mark I*, with 3 spare screwdrivers...	2	To be obtained on loan from C. O. C. if required.
<i>Section No. 7.</i>		
Awls, handles, brad, small.....	2	
Chisels, firmer—		
½-inch.....	1	
¾-inch.....	1	
1-inch.....	1	
Files, bastard—		
Flat 6-inch.....	2	
Half-round, 10-inch.....	2	
" 6-inch.....	1	
" 8-inch.....	2	
" 4-inch.....	2	



Description.	Quantity allowed.	Remarks.
Files, bastard—		
Pillar 6-inch.....	1	
Round 8-inch.....	1	
" 4-inch.....	2	
" 3-inch.....	2	
Hand safe edge, 10-inch.....	2	
" 8-inch.....	2	
3-square, 6-inch.....	2	
Files, dead smooth, 3-square, 6-inch.....	1	
Files, smooth—		
Flat, 6-inch.....	1	
Half-round, 8-inch.....	1	
" 6-inch.....	2	
" 4-inch.....	1	
Pillar, 6-inch.....	2	
" 3-inch.....	1	
Hand safe edge, 8-inch.....	2	
" 6-inch.....	1	
3-square, 5-inch.....	1	
" 4-inch.....	2	
Gimlets, common, Nos. 2, 3 and 5.....	3	
Gouges, handles firmer—		
1-inch.....	1	
1-inch.....	1	
1-inch.....	1	
Hammer, riveting—		
24-oz.....	1	
4-oz.....	1	
Handles, file—		
Large.....	6	
Small.....	6	
Irons, soldering, tinman's.....small.	1	
Pliers, flat nose, pairs.....	1	
Rasps, second cut, half-round, 8-inch.....	1	
Saws, hand, 23½-inch.....	1	
Stock drill hand, Mark II.....	1	
Vices, hand, 16-oz.....	1	



## TOOLS FOR CIRCUIT ARMOURERS.

The following additional tools will be supplied to Armourers when they become Circuit Armourers:—

### Small Arm Section.

Description.	Quantity allowed.	Remarks.
<i>Small Arms Section.</i>		
Boxes, component, empty circuit, Armourers'....	1	
Braces armourers bits screw-drivers, stop nut....	1	
Gauges, armourer:—		
Plugs—		
.303-inch.....	1	} To be obtained from C.O.C. when required by circuit, district and departmental armourers.
.307-inch Mark I.....	1	
.308-inch.....	1	
.310-inch Mark I.....	1	
Lead No. 2, Mark I.....	1	
Rods, plug.....	1	
Mallets, scabbard sword, cavalry.....	1	
Mandrills, scabbard sword:—		
Staff Sergeants'—		
Patt. '89.....	1	
Patt. '97 and '98.....	1	
Cavalry, Patt. '85—		
Mark II (also for patt. '99 and household cav- alry patt. '92).....	1	
Mandrills, scabbard sword, cavalry, patt. '08.....	1	
Punches, depressing, lever.....	1	
Rasps, fine, half-round, 9-inch.....	1	
Stones, oil, slips, arkansas small.....	1	
Stamps, steel, for metal—		
$\frac{1}{4}$ -inch figures 0 to 8, set.....	1	
$\frac{1}{4}$ -inch letter, set.....	1	
Dash lines, $\frac{1}{4}$ -inch.....	1	