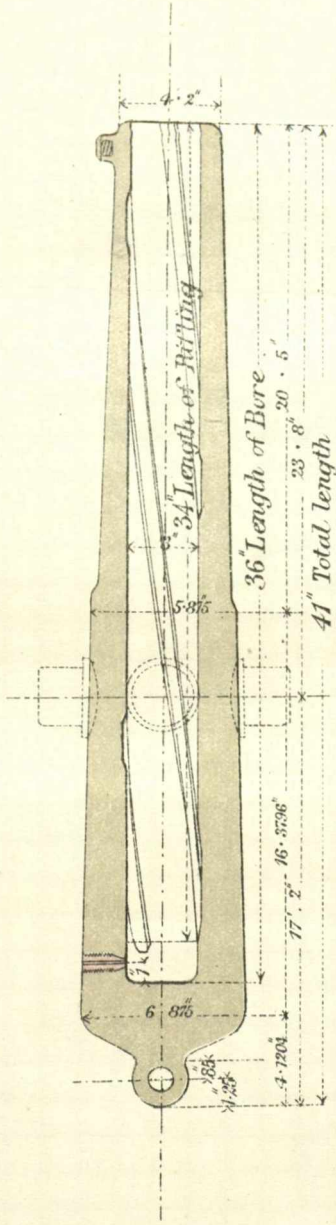


Frontispiece

GUN, 7 PR. STEEL OF 200 LB.

SCALE . $\frac{1}{8}$





To Handbook for 7-pr. R.M.L. Steel Gun of 200 lbs., on Colonial Carriage, 1882.

In the description of Gun at page 3, read as follows:—

Grooves	{	depth	::	::	::	0·1 inch.
		width	::	::	::	0·6 inch.

40185
1028

6074

HANDBOOK

FOR

7-Pr. RIFLED M.L. STEEL GUN OF 200 lb.

ON COLONIAL CARRIAGE.

1882.



LONDON:

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1882.

(3657)

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N.B.—This Handbook is corrected up to June 10th, 1882.

7-PR. MUZZLE-LOADING STEEL GUN OF 200 lb.

Description of Gun and Sights.

GUN (*See FRONTISPIECE*).

Material, steel.

Total	....	....	....	....	41 inches	
Preponderance, average	....	....	....	....	5 lb.	
Weight, average	....	....	....	....	201 "	
Bore	{	calibre	....	....	....	3 inches
		length	....	....	....	36 "
Rifling	{	system, French twist, uniform one turn in 20 calibres	....	....	....
		length	....	....	....	34 inches
Grooves	{	number	....	....	....	3
		depth	....	....	....	1 inch
		width	....	....	....	6 inches

Vent of hardened copper 1.0 inch from bottom of bore.*

SIGHTS.

The gun is sighted centrally, and the tangent scale set at an angle of 3° to correct permanent deflection.

The following sights are provided with the gun.

Two tangent scales of steel, graduated in degrees on one face, and with yards and lengths of fuze on the other faces for charges of 4 oz., 8 oz., and 12 oz. respectively.

One sight reads from 0 to 8° , and the other from 0 to 12° .†

The tangent scales are of the SS pattern, with a plain head, without deflection leaves.

One foresight, a small hog-backed sight, which screws on to the dispart patch near the muzzle.

* This vent bush is exceptional, having 18 threads to the inch, and being only 0.625 inch in diameter.

† Elevations above 12° will be given by clinometer.

Colonial Carriage and Limber, 7-pr. Steel Gun of 200 lb. (See PLATES 1 AND 2.)

The carriage is similar in construction to the 9-pr. Mark II, §§ 2660 and 2917.

The elevating arrangement consists of a toothed arc, attached to the cascable of the gun, and worked by a pinion on the spindle, driven by a worm-wheel with friction cone, similar to that on wrought-iron siege carriages (§ 3005).

The axle-boxes are arranged to carry three rounds (including cartridges in two tin boxes) of either common shell or case shot; and are fitted with guard-irons and foot-rests similar to the 9-pr.

The wheels are 5 feet diameter, with 3-inch ring tires, and have metal naves for 3rd class arms.

The traversing handspike, &c., is similar to that of the 9-pr.

A drag-shoe and chain for the "off" side, and a drag-chain for the "near" side of the carriage are attached to a loop-plate under the trail; and hooks for carrying them when not in use are fixed on the sides and front of the brackets,

Height to axis of gun	....	....	....	3 ft. 8 $\frac{3}{4}$ in.
Track of wheels	....	....	....	5 " 2 "
Elevation	....	....	....	35 degrees.
Depression	....	....	....	10 "
Weight of carriage, empty	....	....	....	9 $\frac{1}{2}$ cwt.
" " packed complete	....	....	....	11 cwt. 2 qrs. 25 lb.
Angle of trail with ground	....	....	....	28 degrees.

The limber is similar to that for the 0.45-inch Gatling field carriage (§ 2642), differing from it only in certain dimensions.

The wheels are identical with those on the carriage.

It is fitted for a pole for bullock draught.

The ammunition boxes are of the same external dimensions as those for 9-prs. and 16-prs., and are each fitted internally to carry 30 common or Shrapnel shells, or double shells when required; with 30 cartridges in canvas cartouche, and 1 tin cylinder, containing 5 5-seconds time fuzes. The lids are fitted for small stores.

For instructions for fitting the boxes to hold double shell, see Plate 3.

The boxes are so placed on the limber that the weight on the shafts is 60 lb.

The centre box is of the same external dimensions as that for 9-prs. and 16-prs. but is fitted internally to carry—

4 cylinders, containing	20	9-sec. time fuzes.
4 " " "	20	5 " "
3 " " "	75	friction tubes.
1 tin box	16	percussion fuzes.

Weight of limber, empty, complete				cwt.	qrs.	lb.
" " packed	"	"	"	9	1	0
				14	0	2
		Carriage	Limber.	Carriage and limber.		
		tons.	tons.	tons.		
Tonnage for shipment	....	1.854	2.196	3.959		
Tonnage for transport in boats	....	....	....	9.029		

DETAIL of STORES carried by Gun Carriage and Limber, 7-pr. Rifled M.L. Steel Gun, Colonial Equipment.

Stores.	Gun and Limber.
<i>Camp Equipment.</i>	
Axes, felling, helved, 4½-lb.	1
Blankets, grey, general service	4
Buckets, leather, Cavalry	2
Covers, waterproof, saddle	8
Hooks, handled { bill	1
{ reaping	—
Kettles, camp, Flanders	1
Mauls, wood, helved	—
Posts, wood, picket, 2½-feet	—
Ropes, picket, tarred, 3-inch 25 yards	—
Sacks, corn, jute	4
<i>Tools, Intrenching.</i>	
Axes, pick, helved, 6½-lb.	1
Shovels, helved, universal	1
Spades, helved, common	1
<i>Harness and Saddlery.</i>	
Couples, trace	2
<i>Tools, Artificers.</i>	
Hammer, handled, claw, small	1
Pincers, carpenter's	1
Spanners, MacMahon	1
<i>Miscellaneous.</i>	
Brushes, water, carriage	1
Clothes, sponge	2
Grease, in tin lb.	3
Knives, clasp, with spike	1
Needles, brass, 4-inch	2
Oil, Lucca quart	1
Scissors, laboratory	1
Worsted, white No. 14	2
<i>3 Ordnance Stores.</i>	
Boxes, tin { cartridge, axletree, 2 large, 2 small	4
{ travelling, carriage, fuze, percussion, R.L.*	1
Brushes, gun, pisaba, with stave	1
Cans, tin, oil, lubricating	1
Caps, sponge	2
Carriages, iron, wrought, travelling, with limber, fitted with shafts } and pole for bullock draught	1
Cartouches, canvas	2

* When direct-action fuzes are carried, the box to hold 15 direct-action fuzes is substituted for this.

Stores.		Gun and Limber.
Cartridges, filled, in paper covers,	{ flannel, 12 oz.	96
	{ shalloon, do. †	—
Cases, leather, tube pocket		1
Clinometers		1
Fuzes,	{ percussion, R.L.	30
	{ time, wood, M.L. { 9 seconds †	30
	{ direct-action	30
Handspikes, traversing		2
		6
Implements,	{ bits, hook-borer	1
	{ cylinders, wood, common	2
	{ drifts, wood.. .. .	1
	{ drivers, screw, large	1
	{ extractors, fuze, small	1
	{ funnels, leather, common	1
	{ handles, hook-borer	1
	{ hooks, hook-borer	1
	{ keys, iron, plug, G.S	1
Keys, spring lock		2
Lanyards, friction tube		2
Ordnance, rifled, M.L., complete, with sights		1
Pins {	linch, spare	1
	keep, for elevating bolt	1
Pockets, leather {	fuze	1
	tube	1
Portfires, common		2
Prickers, priming, iron		2
Primings, gun-cotton cylinders		1
Ropes, drag, light		1
*Shells, fitted with plugs {	common	30
	double †	—
	Shrapnel	60
	star †	—
Shot, case		6
Sights, tangent scale 8°, spare		1
Spikes, gun {	common	2
	spring	1
Sponges, with staves, 7-pr.		2
Straps, leather, tube pocket		1
Swingletrees		1
Tubes, friction, copper, 7 pr.		75
Washers, iron drag, spare		1
Worms, wadhook		1

* The proportions and natures of shell to be carried in limber boxes may be varied by Officer Commanding, according to the requirements of the Service.

† If double shell are carried, only one-half the numbers can be taken in the limber boxes. A 4-oz. charge and Direct-action fuze to be carried for each shell.

‡ If star shell are carried, each star shell will take the place of one common or Shrapnel shell. Star shell are fired with 4-oz. charges and 9 seconds fuzes.

7 PR CARRIAGE & LIMBER (COLONIAL.)

LIMBER.

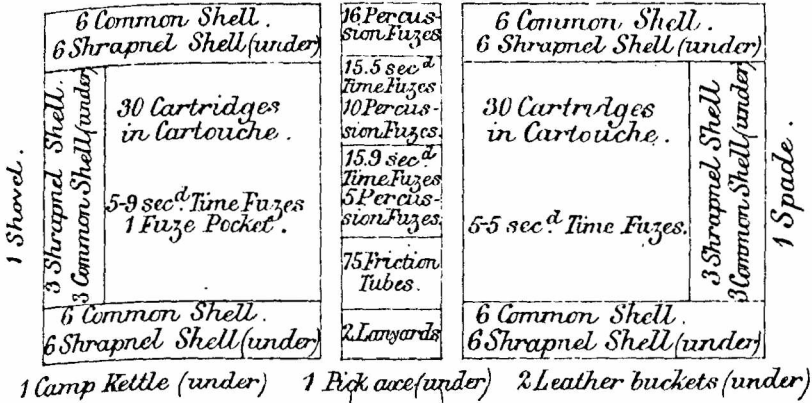
NEAR BOX.

1 Half round, grease tin box. 3 lbs. (under)

1 Pair Drag Ropes,
1 felling axe (under)
(footboard)

OFF BOX.

1 Swingletree
1 Bill hook (under)



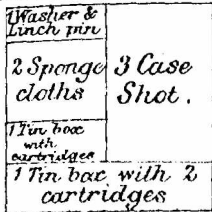
ON LID.

- 1 Hook borer.
- 1 Pocket leather with hold all
- 1 Funnel.
- 1 Instructions.
- 1 Drift.
- 1 Knife clasp.
- 1 Key plug.
- 1 Wood cylinder with bits.

ON LID.

- 1 Drift.
- 2 Portfires.
- 1 Pair of Scissors.
- 1 Screw driver.
- 1 Clinometer.

NEAR AXLETREE BOX.

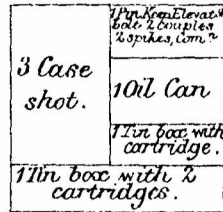


1 Wadhook, worm, (under.)

ON LID.

- 1 Fuze Extractor.

OFF AXLETREE BOX.



ON LID.

- 1 Tangent scale.
- 1 Spike spring.

PROJECTILES (See PLATE 4).

				WEIGHT.	
				lb. oz.	
Shells.	Common	....	Mark IV ¹	empty	6 14
				filled with 6½ oz. bursting charge	7 7
	Double	....	Mark V ¹	empty	11 4½
				filled with 15 oz. bursting charge	12 6
	Shrapnel	....	Mark VII ¹	filled with 42 mixed metal bullets, 21 of 18 to the lb., and 21 of 34 to the lb., and ½ oz. bursting charge	7 14
Star	....	Mark III ²	filled with 13 stars of magnesium light composition, with bursting charge of ½ dram R.F.G. powder	5 7½	
Shot, case, filled with 70 mixed metal bullets, 16½ to the lb., clay and sand				6 4	

Common shells are used against earthworks, buildings, &c.

Double shells are used with low charges and high-angles of elevation, they would be effective against buildings or troops under cover.

Shrapnel shells are used against bodies of troops in the open, when the range is beyond the effective power of case shot.

Star shells are used for lighting up an enemy's position at night.

Case shot are used at close quarters against troops.

FUZES (See PLATES 5 and 6).

Percussion R.L., Mark II,³ for use with common shells, intended to burst on impact, or on graze, and for Shrapnel shells intended to burst on graze.

Percussion, direct-action,⁴ for use with double shell intended to burst on impact or on graze.

Time wood Boxer M.L. 15 secs., Mark I,⁵ and 9 secs., Mark II.⁶

Instructions for Preparation of Shells and Fuzes, and the Examination of Filled Shells.

(Extract from Instructions issued with Clause 160, Army Circulars, 1881.)

FILLING AND SECURING SHELLS.

Common and Double Shells.

Remove the plug from the fuze-hole, insert the leather funnel and pour in the bursting charge, the shell should be tapped with a mallet or a piece of

¹ See § 3366.

² § 3788—other patterns are obsolete.

³ See § 2621.

⁴ See § 3821.

⁵ § 3306.

⁶ See § 3742.

wood to ensure its being completely filled, not leaving room for the fuze if it is to be fuzed with a time fuze, this can be ascertained by inserting a piece of wood the same size as the fuze; after filling the shell carefully wipe every portion of powder from the fuze-hole, then fix the fuze or plug as may be required.

Insert the wad, papier-mâché, G.S., with the side on which the shallon is cemented downwards, *i.e.*, next the powder; drive it in with the "Drift, wood, G.S.," as far as the shoulder on the drift will allow, and then screw in the fuze or plug, as may be required.

Shrapnel Shells.

Remove the plug from the fuze-hole, and after seeing that the fuze-hole is clear of any dirt, &c., insert the leather funnel and pour in the bursting-charge. This must be done gradually, for if the whole of the powder is put in at once the tube will probably become choked. Shake the shell from side to side on its base, until the whole of the bursting-charge has passed down the tube, taking care that none of the powder is left at the bottom of the socket. Drop in the metal primer, and, by means of the large diaphragm Shrapnel screw-driver, screw it tightly into the tube, and then screw in the fuze or plug as may be required.

Star Shells.

These shells do not require to be filled—they are ready for the insertion of the fuze when the plug is removed.

FIXING PLUGS AND FUZES.

When plugs or metal fuzes are screwed into shells they will be lubricated with Field's grease, No. 3, or in hot climates with Price's composite grease.

Projectiles fitted with plugs and kept in exposed situations where the plugs are liable to become set fast by corrosion from the action of salt water, or otherwise, should have their plugs unscrewed once, at least every six months, and the screws cleaned and re-lubricated as above.

DISTINGUISHING MARKS.

All filled shells must be marked with the word "Filled" and date, and also "Bag" if a bag is used. The colour of the paint will be red on a black ground, or black on a red ground. At stations where means are available the monogram is to be painted.

PREPARING FUZES.

Fuze, Time, Wood, Boxer, M.L.O.

The fuze is prepared for any desired time of flight by boring through the side-hole corresponding to the required time, into the composition.

When using the hook-borer, place the fuze in the hook of the hook-borer in the proper position for boring the required hole; enter the bit into the side-hole, screwing up until the bit has entered as far as the borer will allow, taking care to press upon the fuze with the fingers so as to ensure its bedding fairly in the hook.

Unscrew, and when the bit is quite clear, remove the fuze from the hook. The length of the bit is so regulated that, when placed in the handle, it will enter sufficiently far into the composition when screwed down to the shoulder. If the bit should become unserviceable, the handle must be detached from the

shank and the tightening screw unscrewed, the square hole in the hook being made for that purpose. Care must be taken when substituting another bit that it is properly placed in the handle, and that the tightening screw firmly presses upon it, for if any space be left between the handle and the head of the bit, the end will not enter a sufficient depth into the composition. The borer should be occasionally examined and cleaned. The operation of preparing the fuze and fixing it in the shell takes, on an average, about 15 seconds; with a little practice these operations may be performed in a shorter time.

When using the gimlet-borer, hold the fuze in the hollow of the hand, enter the borer into the side-hole, pressing it in perpendicular to the axis of the fuze; when it has reached the bottom of the hole, use it as a gimlet to complete the communication with the composition, boring up to the handle; then pull the borer straight out.

The most frequent source of "blind" time fuzes is boring the fuze too long. If this is done the shell either bursts beyond the mark, or has its fuze knocked out on striking the ground.

If "blind" shell are taking place, the first remedy is to shorten the fuze.

In boring the fuze with the gimlet-borer, the bit should always be entered at right angles to the composition, and no attempt should be made to lengthen or shorten the fuze by boring at an angle.

FIXING FUZES.

Fuze, Percussion, R.L.

These fuzes require no preparation except the removal of the safety-pin; they are screwed firmly into the fuze-hole by means of the "Key, iron, plug, G.S."

The safety-pin will *not be* removed until after entering the shell into the muzzle.

Fuze, Percussion, Direct-action.

These fuzes require no preparation, except the removal of the metal cap; they are screwed firmly into the fuze-hole by means of the "Key, iron, plug, G.S.," which fits in the square hole in the cap. This cap is fastened on to the head of the fuze by two double bayonet joints, which enable the cap to be used either in fixing or unfixing the fuze. The cap can be removed by bringing the centre of the bayonet joints in line with the studs on the side of the head of the fuze.

The cap will not be removed until after entering the shell into the muzzle.

Fuze, Time, Wood, Boxer, Muzzle-Loading.

These fuzes are fixed in the fuze-hole by screwing the fuze round by hand until it is held firmly in the fuze-hole, or by giving the head of the fuze two or three smart taps with a mallet, or suitable piece of wood, or by striking them against the gun-carriage if more convenient; this operation should be performed fairly, and not so as to split or injure the top of the fuze; the fuze must not be uncapped until the shell is placed in the muzzle of the gun. These fuzes are "uncapped" by taking hold of the small end of the copper band, which is left exposed, and unwinding from left to right smartly, so as to thoroughly detach the band from the head of the fuze, and to leave the priming fully exposed.

When firing at high angles of elevation with reduced charges, uncapp the fuze as above, open out the priming, and wind about 10 inches of the gun-cotton round it, bringing the ends of the priming between the strands of gun-cotton; tie the two ends of the latter together, leaving about 2 inches loose, then fix the whole firmly by tying over it a piece of silk.

Wad, Papier-Mâché, in Fuze-Hole.

When fixing fuzes in shells having a wad in the fuze-hole it is not necessary to remove the wad, as the explosion of the fuze is sufficient to force it into the shell, if using percussion fuzes; and if using wood time fuzes, the wad is driven into the shell in the operation of fixing the fuze.

EXTRACTING WOOD FUZES.

Apply the fuze-extractor to the head of the fuze and unscrew.

EXAMINATION OF FILLED SHELLS.

Whenever it may be considered necessary to examine the interior of filled shells, and it is found that the powder is caked from the effects of damp, the shells, with the exception of the Shrapnel, will be emptied, cleaned out, and refilled; the Shrapnel will be exchanged.

Common and Double Shells.

Remove the fuze-hole plug, pass the "metal hook for removing wads" through the hole in the centre of the wad, and draw the wad out of the fuze-hole; if the powder charge is in a serviceable condition, insert a new papier-mâché wad, and replug the shell as for filling. If the powder charge is found to be caked from the effects of damp, empty the shell and clean it out, using a "copper scraper for shells" to remove any grains of powder that may be adhering to the sides of the shell, and refill with serviceable powder.

The papier-mâché wad at the bottom of the socket of the 20-pr. L.S., 12-pr. and 9-pr. R.B.L. common shells will be driven into the shell by means of a piece of wood. These shells, however, will not be thus examined, unless there are evident signs of their being affected by damp.

Shrapnel Shells.

Remove the fuze-hole plug, unscrew the primer with the "large screw-driver," and lift out the primer with the "metal pincers for removing primers"; turn the shell nose downwards, and if the powder charge flows out and is serviceable, refill and replace primer and plug; the shell would be well shaken if the powder does not come out quite freely, as a portion of the powder may possibly be jammed in the tube; if the powder cannot be extracted as above, being caked from the effects of damp, &c., the primer and plug will be replaced, and steps taken for the exchange of the shell.

CHARGES.

Service flannel or silk cloth	....	....	....	12 oz. F.G. or R.F.G. powder
„ shalloon for double, or star shells	....	....	4	„ „

NOTE.—An 8-oz. charge, for which the sights are marked, is only used in sea service.

DIRECTIONS FOR MAKING UP CARTRIDGES.

(See Appendix to Clause 287 A.C., 1879.)

Filling.

Care will be taken to see that the cartridge bags are properly dry before being filled, and the proper charge will be carefully weighed out and inserted in the bag by means of the "Funnel, copper, cartridge." Cartridges are choked by drawing together the mouth of the cartridge into several pleats with a brass needle, threaded with silk twist; after drawing together the mouth of the cartridge, three turns are taken round the pleats, and the choke thus formed is further secured by passing the needle five times through it, alternately above and below the turns, thereby stitching down the turns round the choke at four points equi-distant from each other.

Hooping.

1st. With braid hoops.—Draw the braid through the serge or silk cloth until the knot of the loop comes home to the serge or silk cloth, the single end being already passed through the loop from underneath; pass the single end to one side of and under the loop, then draw the loop tight and keep it so by placing the forefinger of the left hand firmly on the loop; bring the running end between itself and the loop, and draw tight the single bend thus formed, *taking care that the bend bites on the loop and not on the single end*, otherwise the knot will slip. The maintenance of the proper form of the cartridge depends on the hooping being thus secured.

2nd. With worsted or silk twist.—After making the last stitch in choking the needle will be turned downwards and carried through the powder and out at the seam in the line for the front hoop, the worsted or silk twist will then be carried tightly round the cartridge so as to form a hoop, and will be stitched to the cartridge at two or three points in the same way as the turns at the choke were secured, and the remainder of the hoops will then be similarly formed.

Examining.

¶ All cartridges will be very carefully examined and gauged as to length and diameter previous to packing.

RANGE TABLE FOR 7-PR. R.M.L. GUN OF 200 lb.

Based on Practice of 25.8.76 and Range Tables of former handbooks.

Charge, 12 oz.

Projectile, Common Shell.

Muzzle velocity, 968 f.s.

Range.	Elevation.	Angle of descent.	Remain- ing velocity.	5 minutes elevat on increases or decreases the range by	5 minutes will alter point of impact vertically or laterally at each range.	50 per cent of rounds should fall within			Time of flight.	Fuze Scale.	
						Length.	Breadth.	Height.		Range.	Tenths of Fuze.
yards	° /	° /	f. s.	yards	yards	yards	yards	yards	seconds		
0											
100											
200	0 34	0 34	932	29	0.29	13.7	0.84	.14	.6	160	1.
300	0 51	0 52	911	28	0.43	13.9	0.88	.21	.95	240	1.5
400	1 9	1 12	891	26	0.58	14.1	0.92	.3	1.3	320	2.
500	1 27	1 35	872	25	0.72	14.3	0.96	.4	1.6	400	2.5
600	1 46	1 59	853	24	0.87	14.6	1.00	.52	1.95	470	3.
700	2 6	2 26	836	23	1.01	15.0	1.05	.68	2.3	550	3.5
800	2 27	2 54	819	22	1.16	15.5	1.1	.86	2.7	620	4.
900	2 49	3 26	802	21	1.31	16.3	1.15	.98	3.05	700	4.5
1,000	3 11	3 54	786	20	1.45	17.2	1.2	1.2	3.4	770	5.
1,100	3 34	4 28	772	19	1.60	18.1	1.25	1.45	3.8	840	5.5
1,200	3 59	5 4	757	19	1.74	19.3	1.32	1.70	4.2	910	6.
1,300	4 23	5 43	743	18	1.89	20.8	1.36	2.10	4.6	970	6.5
1,400	4 49	6 24	730	18	2.03	22.3	1.42	2.55	5.0	1,040	7.
1,500	5 16	7 7	717	17	2.18	24.0	1.48	3.00	5.45	1,100	7.5
1,600	5 44	7 52	705	17	2.32	26.1	1.55	3.65	5.89	1,170	8.
1,700	6 13	8 41	693	16	2.47	28.3	1.62	4.45	6.3	1,230	8.5
1,800	6 40	9 32	681	16	2.61	30.8	1.70	5.30	6.75	1,291	9.
1,900	7 10	10 25	670	15	2.76	33.3	1.79	6.20	7.2	1,350	9.5
2,000	7 43	11 20	659	15	2.91	36.1	1.88	7.30	7.7	1,410	10.
2,100	8 19	12 17	648	14	3.05	39.0	1.97	8.50	8.2	1,470	10.5
2,200	8 53	13 17	633	14	3.20	42.0	2.08	9.9	8.7	1,530	11.
2,300	9 28	14 19	628	13	3.34	45.5	2.2	11.5	9.2	1,580	11.5
2,400	10 6	15 24	619	13	3.49	49.0	2.33	13.5	9.73	1,649	12.
2,500	10 47	16 33	609	12	3.63	52.6	2.44	15.7	10.27	1,690	12.5
2,600	11 30	17 45	600	12	3.78	56.5	2.56	18.0	10.81	1,750	13.
2,700	12 15	19 1	591	11	3.92	60.8	2.68	21.0	11.4	1,800	13.5
2,800	13 2	20 21	583	11	4.07	65.5	2.8	24.5	12.0	1,860	14.
2,900	13 51	21 47	574	10	4.21	70.5	2.93	28.5	12.6	1,910	14.5
3,000	14 42	23 19	566	10	4.36	75.8	3.07	32.5	13.2	1,960	15.
										2,000	15.5
										2,060	16.
										2,110	16.5
										2,160	17.
										2,210	17.5
										2,260	18.
										2,300	18.5
										2,350	19.
										2,390	19.5
										2,440	20.
										2,480	20.5
										2,530	21.
										2,570	21.5
										2,610	22.
										2,650	22.5
										2,690	23.
										2,730	23.5
										2,770	24.
										2,810	24.5
										2,850	25.
										2,920	25.5
										2,960	26.
										2,990	26.5
										3,030	27.

RANGE TABLE FOR 7-PR. R.M.L. GUN OF 200 lb.

Based on Practice of 26.8.76.

Charge, 4 oz.

Projectile, Double Shell.

Range.	Elevation.		5 minutes elevation increases or decreases the range by	5 minutes will alter point of impact vertically or laterally at each range.	Time of flight.	Fuze Scale.	
						Range.	Tenths.
Yards.	°	'	Yards.	Yards.	Seconds.		
0							
700	8	12	10·	1.01	5·	700	8·5
750	9	0	10·	..	5·3	730	9·
800	9	48	10·	1·16	5·6	760	9·5
850	10	36	9·5	..	5·9	800	10·
900	11	24	9·5	1·31	6·3	830	10·5
950	12	12	9·	..	6·6	860	11·
1,000	13	0	9·	1·45	7·0	900	11·5
1,050	13	49	8·5	..	7·4	930	12·
1,100	14	38	8·5	1·60	7·8	960	12·5
1,150	15	37	8·	..	8·2	1,000	13·
1,200	16	36	8·	1·74	8·6	1,030	13·5
1,250	17	37	7·5	..	9·1	1,060	14·
1,300	18	38	7·5	1·89	9·6	1,100	14·5
1,350	19	43	7·	..	9·11	1,130	15·
1,400	20	48	7·	2·03	10·6	1,160	15·5
1,450	21	59	6·5	..	11·1	1,200	16·
1,500	23	10	6·5	2·18	11·7	1,230	16·5
1,550	24	24	6·	..	12·3	1,260	17·
1,600	25	41	6·	2·32	12·9	1,300	17·5
1,650	27	11	5·5	..	13·5	1,320	18·
1,700	28	50	5·5	2·47	14·2	1,350	18·5
1,750	30	38	4·5	..	14·9	1,370	19·
1,800	32	46	4·5	2·61	15·6	1,400	19·5
						1,420	20·
						1,450	20·5
						1,470	21·
						1,500	21·5
						1,520	22·
						1,550	22·5
						1,570	23·
						1,600	23·5
						1,620	24·
						1,650	24·5
						1,670	25·
						1,700	25·5
						1,720	26·
						1,740	26·5
						1,760	27·
						1,780	27·5
						1,800	28·

Drill for Gun on Colonial Carriage.

DRILL.

The detachment consists of five numbers, and falls in two deep in rear of the gun which is limbered up.

TO TELL OFF.

Officer.
Tell off.

No.—1.

At "*Tell off*," No. 1 (who is on the left of the detachment) takes a pace to his front, turns to his right, and numbers himself 1; the right-hand man of the rear rank numbers 2, the right-hand man of the front rank 3, the second man from the right of the rear rank 4, the man in his front 5. After the detachment is told off, No. 1 falls in again on the left of the front rank.

No. 1 then straps on the fuze pocket on his right side, and No. 3 the tube pocket.

The front is that direction in which the gun is pointed when unlimbered, or to which, when limbered up, the horses' heads are turned.

POSITION OF DETACHMENT WHEN LIMBERED UP.

In order of march.

No. 1 in line with the point of the near shaft and 2 yards to the left of it.

Nos. 2 and 3 in line with the axletree of the gun-carriage.

Nos. 4 and 5 in line with the centre of the trail.

The Nos. stand covering, 1 yard from the wheels.

In front.

Two deep 2 yards in front of the shaft.

In rear.

Two deep 2 yards in rear of the muzzle of the gun.

Right or left.

Two deep in line, with the axletree of the gun-carriage, 1 yard to the right or left of the wheel.

Mounted.

No. 1 on his horse, 4 and 5 on the gun-limber, 2 and 3 on the axletree seats, 2 and 4 on the near, 3 and 5 on the off side.

TO MOUNT.

Officer.
Prepare to mount.
Mount.

No.—1.
Prepre to mount.
Mount.

"*Prepare to mount*."—No. 1 runs to his horse, the other Nos. to their places, 2 and 3 to the axletree seats, 4 and 5 to the gun-limber, 3 and 4 lay

hold of the guard-irons with their left hands, 2 and 5 with their right, 4 places his right, and 5 his left post on the trail handle, 2 his right, and 3 his left foot on the stirrups.

"*Mount.*"—The whole spring into their places (the Nos. on the gun-limbers facing to the rear, but turning round to the front, lifting their feet close together, and throwing them over the guard-irons), and when seated lay hold of the hand-strap with the inner hand, and guard-iron with the outer hand, and sit upright.

At the word "*March,*" the gunners seated on the ammunition boxes and axletree seats, are to lay hold of the guard-irons with their outward hands, and when going over rough ground, they should slightly raise themselves so as to avoid being jolted.

"*Sit at ease.*"—Drop the hand-straps, and sit well back, both hands remaining between the thighs.

TO DISMOUNT.

<u>Officer.</u>		<u>No.—1.</u>
<i>Prepare to dismount.</i>		<i>Prepare to dismount.</i>
<i>Dismount.</i>		<i>Dismount.</i>

"*Prepare to dismount.*"—Nos. 4 and 5, throwing their legs over the guard-irons, turn to the rear, the other Nos. stand up, keeping their outward hands on the guard-irons.

"*Dismount.*"—The whole jump off and form the order of march, but if for action, they go to their posts at the gun.

EXERCISE WITH DRAG-ROPES.

When drag-ropes are used, Nos. 4 and 5 pass them towards 2 and 3, who hook them to the drag washers of the gun on their own side. The Nos. manning them on their own sides. No. 1 in the shafts.

TO ADVANCE WITHOUT DRAG-ROPES.

Nos. 4 and 5 at the shafts, No. 5 between, No. 4 the point of the near, No. 1 the point of the off shaft; Nos. 2 and 3 man the gun-wheels.

CHANGE OF POSITION OF DETACHMENTS.

To form the order of march from detachment front.

<u>Officer.</u>		<u>No. 1.</u>
<i>Form the order of march.</i>		<i>Right turn, double march.</i>

"*Right turn, double march.*"—No. 1 turns with the detachment; 2 and 3 wheel to their right and open out. Each number halts when at his post; they turn to the front together, looking to 2, who turns about immediately he arrives at his station.

To form the order of march from detachment rear, right, or left.

<u>Officer.</u>		<u>No. 1.</u>
<i>Form the order of march.</i>		<i>Left turn, double march.</i>

When the detachments are in rear, or on the right, they proceed direct; but when on the left they countermarch to the left. No. 1 heads the rear rank. Each number halts when at his post.

To change from front to rear.

<u>Officer.</u>		<u>No. 1.</u>
<i>Detachment rear.</i>		<i>Right turn, double march. Rear turn. Right turn, halt, front.</i>

When the detachment is clear of the gun it turns to the rear; when in line with the position of "*Detachment rear*" it turns to the right, and when in rear of the muzzle it halts and fronts.

To change from rear to front.

<u>Officer.</u>		<u>No. 1.</u>
<i>Detachment front.</i>		<i>Right turn, double march. Front turn. Left turn, halt, front.</i>

When the detachment is clear of the gun it turns to its front, when in line with the position of "*Detachment front*" it turns to its left, and when in front of the leading horses it halts and fronts.

To change from rear to right or left.

<u>Officer.</u>		<u>No. 1.</u>
<i>Detachment right (left)</i>		<i>Right (left) turn, double march front turn, halt.</i>

The detachment turns to its front when one yard clear of the gun-wheel, and halts when in line with the axletree.

To form detachment rear from the order of march.

<u>Officer.</u>		<u>No. 1.</u>
<i>Detachment rear.</i>		<i>Right about turn, double march, halt, front.</i>

Nos. 2 and 3 close to the centre, and wheel to their left, marking time when opposite the off wheel and two yards from it; as soon as the detachment has closed up it is halted and turned to the front.

To form detachment front from the order of march.

<u>Officer.</u>		<u>No. 1.</u>
<i>Detachment front.</i>		<i>Double march, halt, front.</i>

No. 1 doubles out two yards in front of the near shaft, turns to his right and gives the order "*Double march.*" Nos. 4 and 5, followed by Nos. 2 and 3, double out. As soon as 4 is clear of the shafts, he inclines towards 5. When 4 and 5 arrive in line with No. 1, they wheel to their left and mark time. When the detachment is closed up, No. 1 gives "*Halt, front,*" turning himself to the front at the same time.

TO CHANGE ROUNDS WHEN THE GUN IS LIMBERED UP.

No. 2	becomes	No. 4.
" 4	"	" 1.
" 1	"	" 5.
" 5	"	" 3.
" 3	"	" 2.

TO UNLIMBER.



"*Action, front.*"—No. 5 unkeys and lifts the trail ; 2 and 3 man the wheels. When the trail is clear, No. 5 gives "*Limber drive on,*" the limber moves forward a yard, then reverses to the right, and the trail is carried round a half circle to the left. The numbers then place themselves as detailed for "*Action.*" When the limber is sufficiently to the rear, it reverses to the right, and halts ten yards in rear of the trail eye covering the gun.

"*Action, rear.*"—The gun is unlimbered by No. 5 as in "*Action, front,*" but the trail is not thrown round ; the limber moves forward one yard, inclines to its left, and then reverses to its right, and halts ten yards from the trail eye covering the gun.

"*Action, right*" is the same as "*Action, front,*" but the trail is carried round a quarter of a circle only, the limber drives on one yard, then takes ground to its left and reverses to its left.

"*Action, left.*"—The trail is taken to the right, No. 5 shifting round the end as soon as the limber makes room. The limber takes ground to its right and reverses to its right.

POSITION OF DETACHMENT.

The position of the detachment in action is as follows :—

No. 1 at the point of the trail.

Nos. 2 and 3 outside, and in line with the front of the wheels.

No. 4 five yards in rear of the left wheel.

No. 5 at the limber.

GENERAL DUTIES.

No. 1 commands, directs, or superintends boring and fixing fuzes, attends to vent, lays and runs up.

No. 2 searches, sponges, rams home, and runs up.

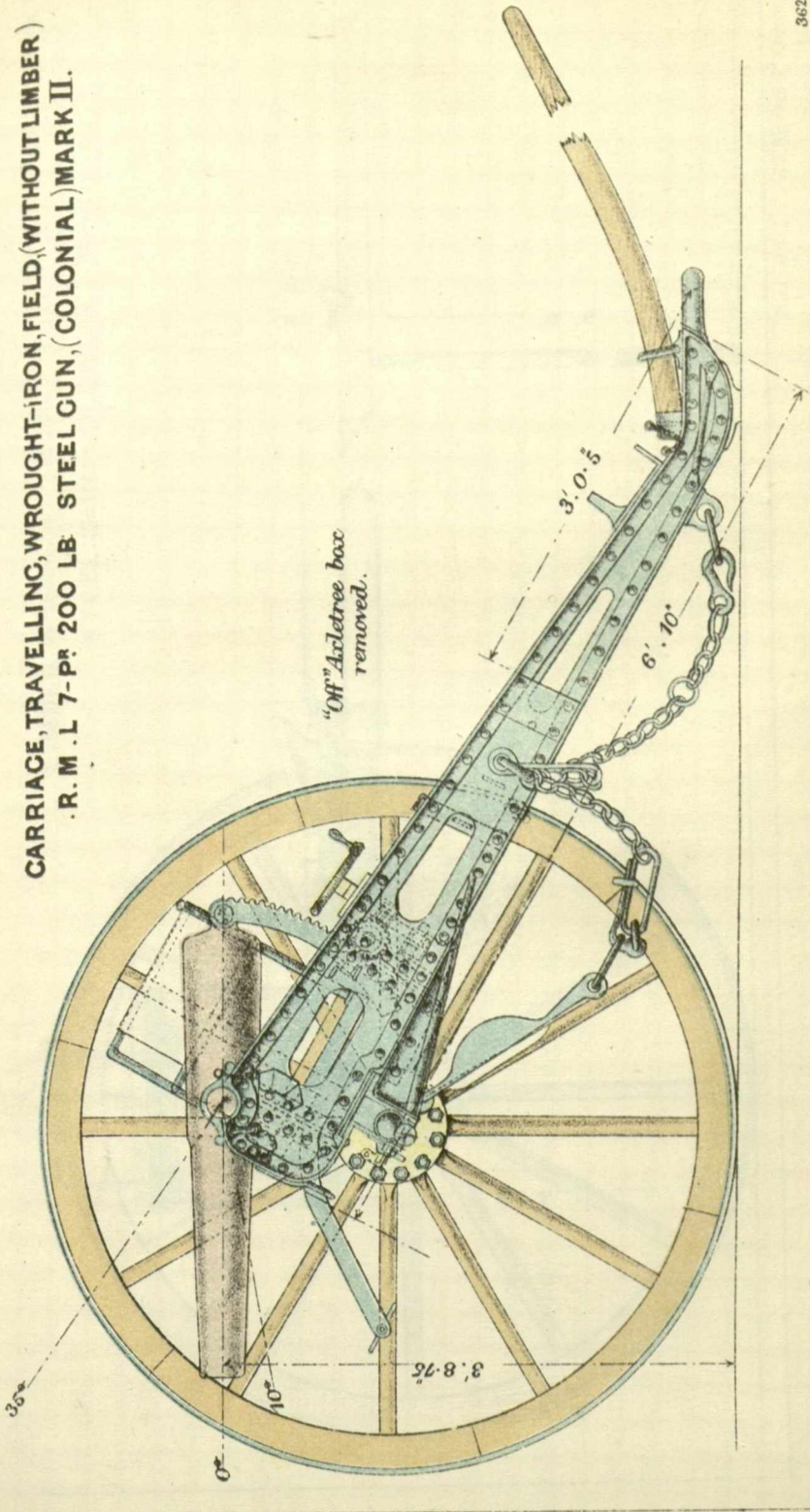
No. 3 loads, uncaps fuze when in bore, traverses (if required), runs up, makes ready, and fires.

No. 4 supplies 3 with ammunition.

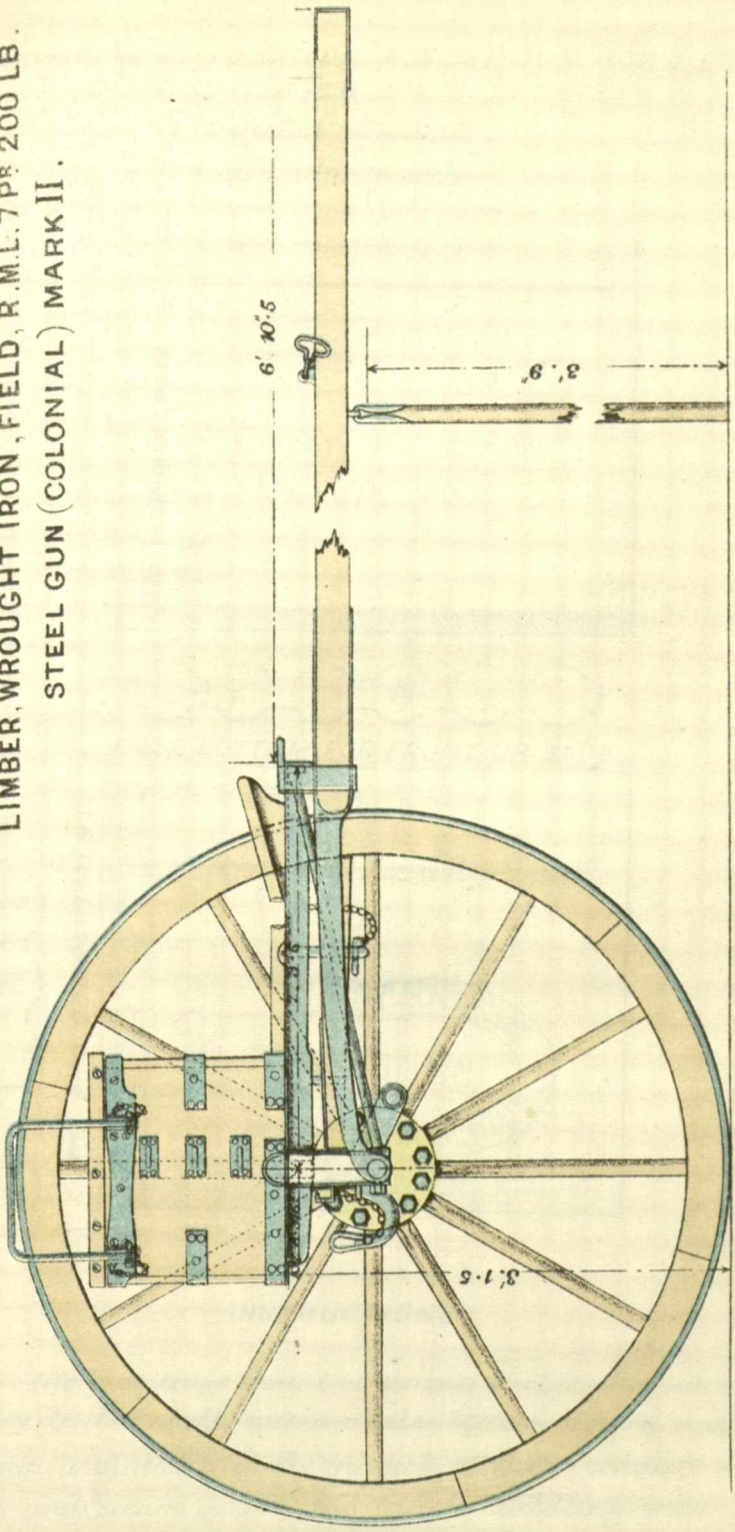
No. 5 serves out ammunition, and when shells are fuzed at the limber, bores and fixes fuzes.

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CARRIAGE, TRAVELLING, WROUGHT-IRON, FIELD, (WITHOUT LIMBER)
. R. M. L. 7-P. 200 LB STEEL GUN, (COLONIAL) MARK II.



LIMBER, WROUGHT IRON, FIELD, R.M.L. 7 PR 200 LB.
STEEL GUN (COLONIAL) MARK II.

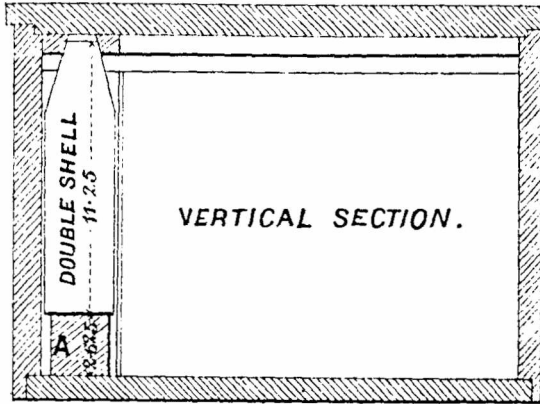


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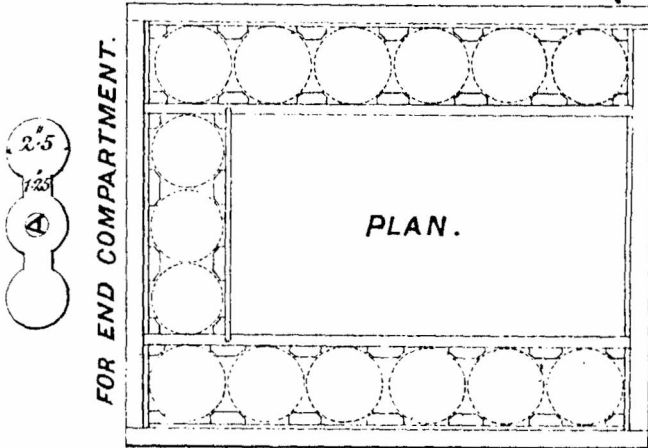
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN.

INSTRUCTIONS TO GUIDE ALTERATION FOR 7 P^r
 COLONIAL LIMBER BOXES TO CARRY
 DOUBLE SHELLS.

Scale 1½ Ins to a foot.



FALSE BOTTOM FOR FRONT OR BACK.



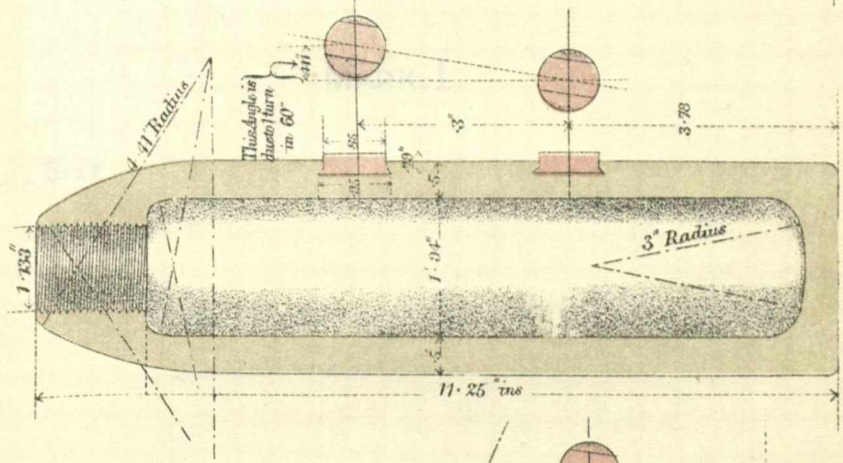
FOR END COMPARTMENT.

PLAN.

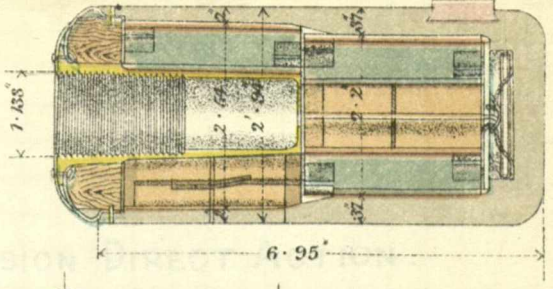
INSTRUCTIONS.

Remove the loose trays from the compartments which are to carry double shell; make a false bottom of hard wood as shown at A, to fit loosely in each of these compartments and secure each by two 2 inch middling wood screws passing through the bottom of box.

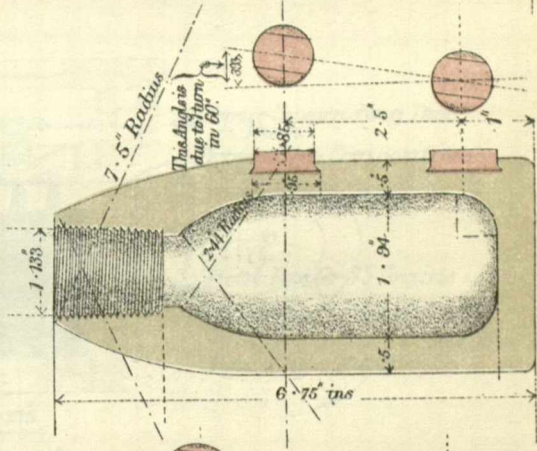
DOUBLE SHELL



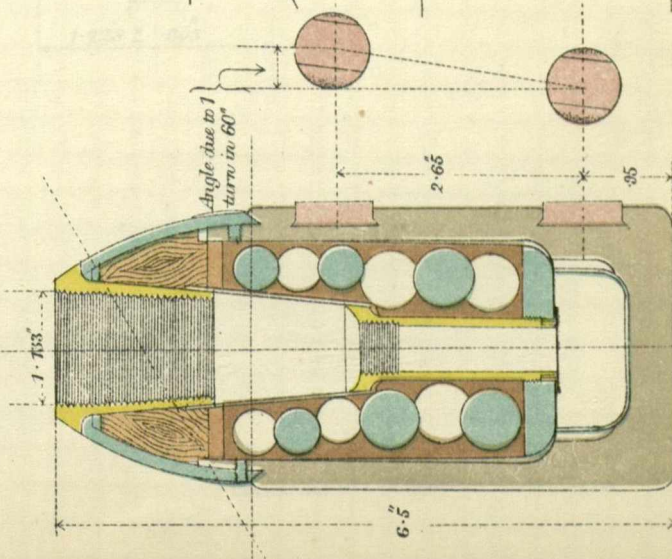
STAR SHELL



COMMON SHELL.



SHRAPNEL SHELL



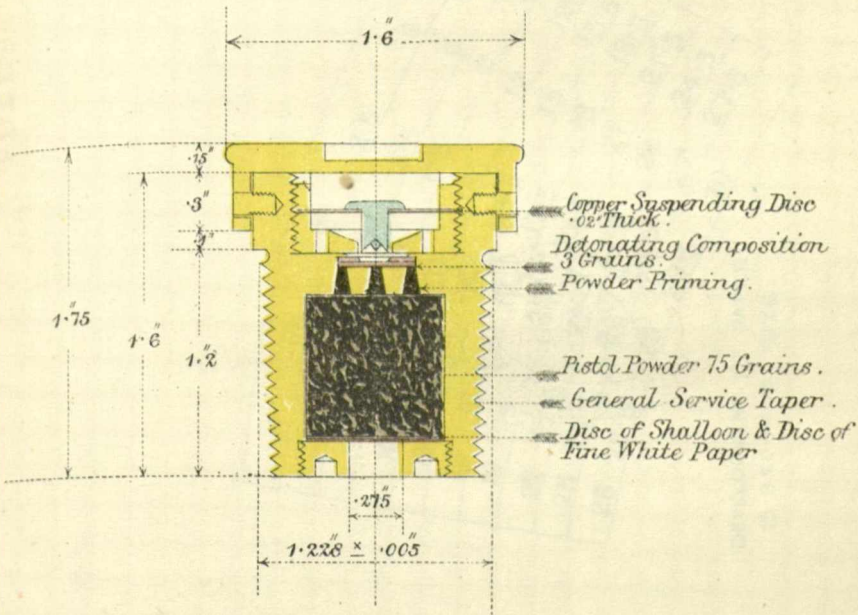
Nº 2757 $\frac{F}{298}$ PART OF

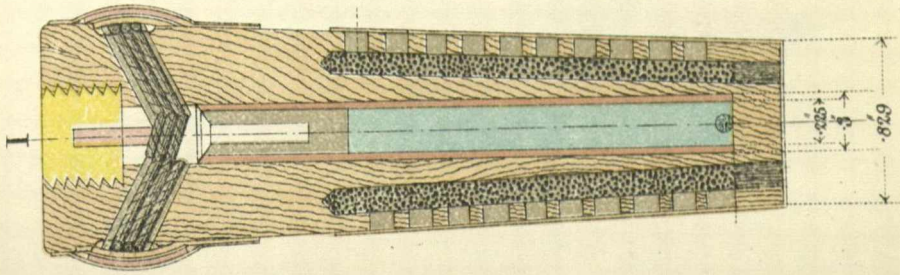
ROYAL LABORATORY DEPARTMENT.

FUZE PERCUSSION DIRECT ACTION.

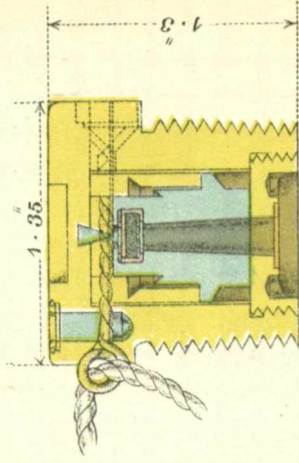
MARK. I.

FULL SIZE.





PERCUSSION.
R.L.II.



1	1.5	2	2.5	3	3.5
4	4.5	5	5.5	6	6.5
7	7.5	8	8.5	9	9.5
10	10.5	11	11.5	12	12.5
13	13.5	14	14.5	15	15.5
16	16.5	17	17.5	18	18.5
19	19.5	20	20.5	21	21.5
22	22.5	23	23.5	24	24.5
25	25.5	26	26.5	27	27.5
28	28.5	29	29.5	30	

DEVELOPMENT OF PAPER.
15 SECONDS FUZE.