(No Model.) 3 Sheets—Sheet 1.

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CARRIAGE FOR QUICK FIRING GUNS.

No. 566,138. Patented Aug. 18, 1896.

Fig. 1.

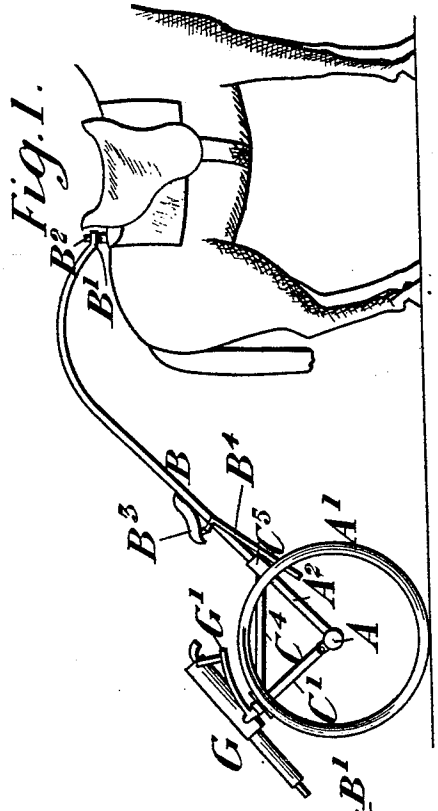

Fig. 2.

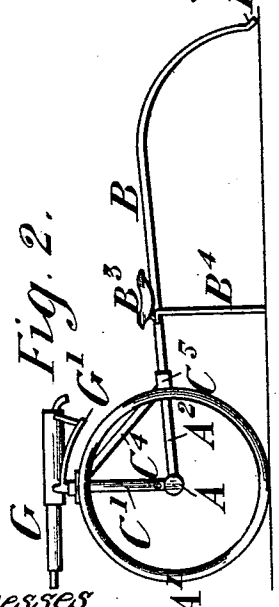

Fig. 3.

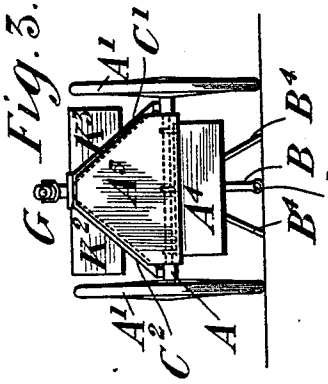

Fig. 5.

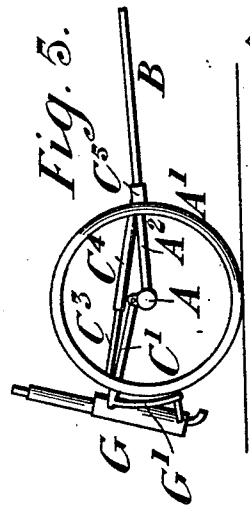

Fig. 6.

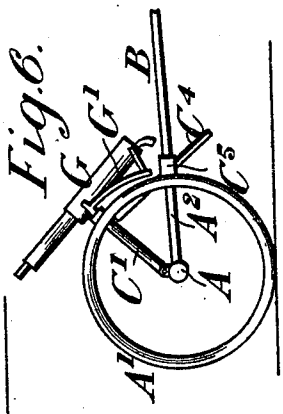

Fig. 4.

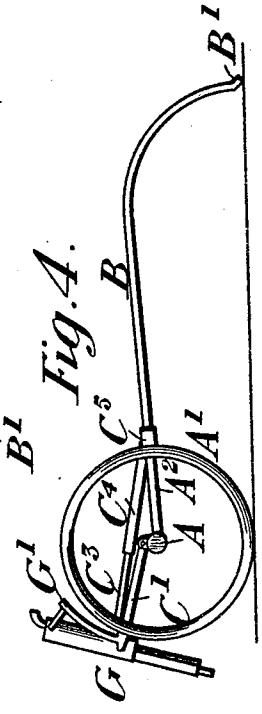

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Fig. 9.

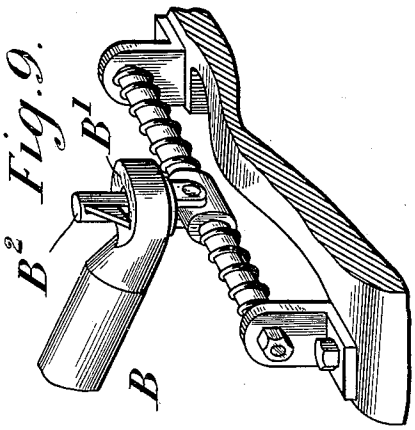
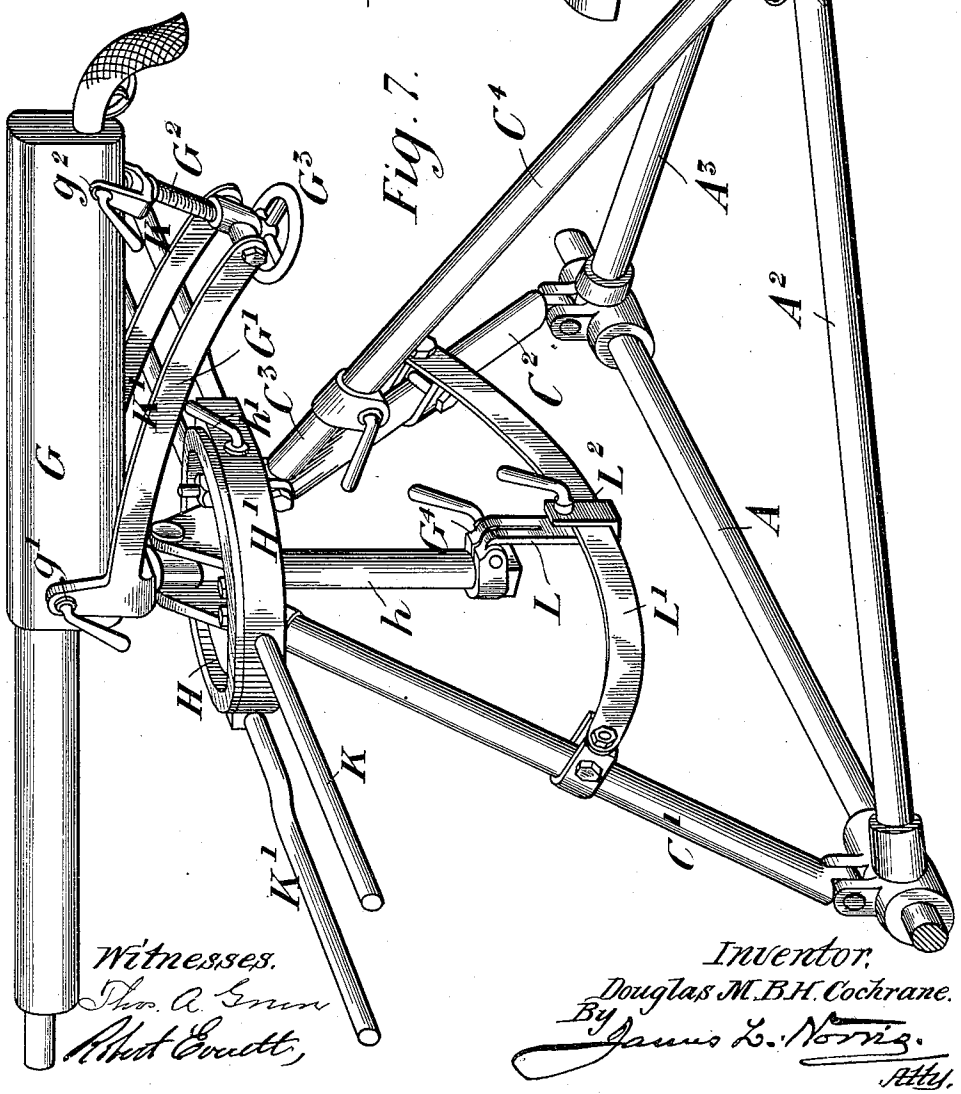


Fig. 7.



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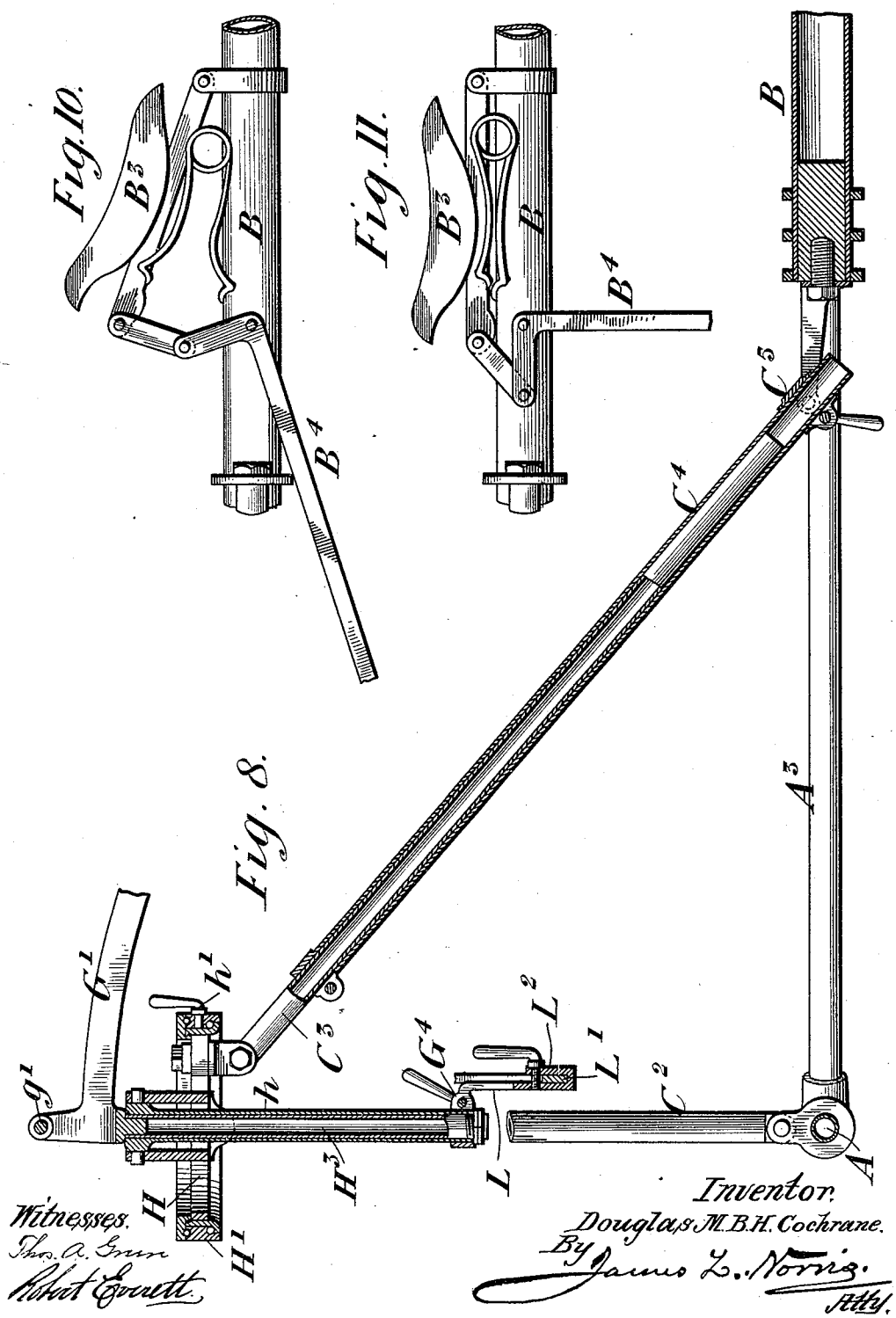

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UNITED STATES PATENT OFFICE.

DOUGLAS M. B. H. COCHRANE, OF LONDON, ENGLAND.

CARRIAGE FOR QUICK-FIRING GUNS.

SPECIFICATION forming part of Letters Patent No. 566,138, dated August 18, 1896.

Application filed February 21, 1896. Serial No. 580,215. (No model.) Patented in England February 10, 1896, No. 3,001; in France February 10, 1896, No. 253,825; in Belgium February 10, 1896, No. 119,767; in Italy March 17, 1896, LXXX, 78; in Austria April 2, 1896, No. 1,288/46, and in Canada May 7, 1896, No. 52,210.

To all whom it may concern:

Be it known that I, DOUGLAS MACKINNON BAILLIE HAMILTON COCHRANE, Earl of Dundonald, a citizen of Scotland, residing at 34 Portman Square, London, in the county of London, England, have invented a certain new and useful Carriage and Traction Arrangement for a Quick-Firing Gun, (for which I have obtained Letters Patent in Great Britain, dated February 10, 1896, No. 3,001; in France, dated February 10, 1896, No. 253,825; in Belgium, dated February 10, 1896, No. 119,767; in Italy, dated March 17, 1896, Vol. LXXX, No. 78; in Austria, dated April 2, 1896, No. 1,288/46, and in Canada, dated May 7, 1896, No. 52,210,) of which the following is a specification.

My invention relates to a construction of carriage and arrangement of the traction for a quick-firing gun in such a manner that the whole structure is light, yet strong; that a single horse or draft-animal can be readily attached for traction and detached when the gun is to be served; that a single gunner can drive during traction, can rapidly put the gun in condition for service, and can then work the gun without other aid; that the gun can be readily trained, laterally leveled, and elevated or depressed to such an extent as to be capable of giving vertical fire; that a considerable store of ammunition can be carried and portions of this can be readily put in convenient position for serving the gun, and that the gunner is shielded while working the gun. I shall describe the carriage and traction arrangement according to my invention, referring to the accompanying drawings.

Figure 1 is a side view showing the carriage in condition for traction. Fig. 2 is a side view showing the carriage in condition for serving the gun. Fig. 3 is an end view. Figs. 4, 5, and 6 show the gun in various elevations. The other figures are drawn to an enlarged scale. Figs. 7 and 8 are respectively a perspective view and a longitudinal section of the stand for the gun. Fig. 9 is a perspective view showing one mode of attaching the pole to the saddle. Figs. 10 and 11 show the two positions of the gunner's seat and strut.

A is the axle, having at each end bearings, preferably ball-bearings, for wheels A′, which are preferably of light construction, such as those used for velocipedes having wire spokes and elastic tires. To the axle, near the wheel-bearings, are fixed two diagonal stays A^2 A^3, and to them at their meeting-point is fixed, preferably in a detachable manner, a vertically-curved pole B, having swiveled to its end a ring B′, which can be engaged on a stud B^2, projecting upward from a sleeve that can turn and slide between springs on a cross-bar fixed on the rear part of the riding-saddle, as shown in Fig. 9. When the ring B′ is engaged on the stud B^2, it is held by a spring-latch fitted in the stud.

To the axle A, near the wheel-bearings, are hinge-jointed two diagonal stays C′ C^2, and near to them at their meeting-point is jointed a rod or tube C^3, which is fitted to slide within an outer tube C^4, this outer tube sliding through an eye C^5, which is hinge-jointed to the rear end of the pole B.

The axle A and stays A^2 A^3 constitute a triangular base, and these, with the stays C′ C^2 and tubes C^3 C^4, constitute a pyramidal frame, which carries the gun G.

For the sake of lightness I prefer to make the parts A A^2 A^3 C′ C^2 C^3, as well as C^4 and also the pole B, all of steel tube.

On the pole B, at a convenient distance in rear of the gun, I mount a saddle B^3, like that of a velocipede, on which the gunner sits while serving the gun. Connected to the saddle are a pair of arms B^4, which during traction are raised by a spring under the saddle, as shown in Figs. 1 and 10; but when the saddle B^3 is sat upon by the gunner these arms B^4 are turned vertically downward, so as to form a pair of oblique struts or legs, as shown in Figs. 2, 3, and 11, giving the carriage stability while the gun is being served.

On the axle A are hung ammunition-boxes A^4, Fig. 3, which, being plated with steel, serve to shield the lower limbs of the gunner. In front of the stays c' c^2 is fixed a steel plate A^5, which shields the upper parts of the gunner's body.

The gun is mounted on the pyramidal framing in the following manner: The gun G is

held by pins g' g^2, passing through the eyes of the gun, the front pin g' also passing through the front fork of a frame G′ and the rear pin g^2 through a fork swiveled at the top of a screwed stem G^2. This stem screws through a swivel mounted at the rear end of the frame G′ and can be turned by a hand-wheel G^3, so as to raise or lower the breech of the gun. To the sliding rod or tube C^3 is jointed a disk frame H, on the boss of which is swiveled the upper end of tube h. Through this tube h passes another tube, or it might be a rod, H^3, in the top of which is fixed the frame G′. The tube or rod H^3 is held down by a nut at its lower end, but is free to turn within the tube h, and can be clamped in any position by a screw-clamp G^4. On a lower lip of the disk frame H, between it and a cover-ring, is mounted free to turn, preferably on and under balls, a ring H′. From the ring H′ project on each side a pair of arms K K′, on which are held by staples triangular boxes K^2 K^3 to contain the ammunition for serving the gun, the one box, K^2, on the right hand holding the cartridge-carrying belt which for the time is supplying the gun, the other box, K^3, holding a charged belt ready for use when the former is exhausted, the box K^3 being in that case brought around into the position of K^2 by turning the ring H′ half around.

The boxes K^2 K^3 are made triangular in shape, so that they can turn clear of the stays C′ C^2. They are plated with steel on both sides, so that when they are hung on the arms K′ K^2 in whichever attitude they present themselves they form parts of the shield protecting the gunner. The ring H′ can be held in position by a clamping-screw h', or a fork may be jointed to the side of the frame G and dropped so as to engage one of the arms K or K′, thus holding these arms in the position suitable for supplying the ammunition to the gun and when the gun is trained one way or the other causing the ring H′ with its arms and ammunition-boxes to turn with the gun. To the lower end of the tube h is attached an arm L, which engages a circularly-curved guide L′, attached to the stays C′ C^2. As the tube h is turned on the swivel at its top the arm L travels along the guide L′, to any part of which it can be fixed by a clamp L^2. By this means the gun can be laterally leveled, thus providing for one of the wheels A′ being on a different level from the other. The training of the gun is effected by turning the frame G′ and its axis H^3, which can be fixed by the clamp G^4.

The elevating or depressing of the gun is roughly effected by pushing down or drawing up the tube c^4, through its eye c^5, and clamping it in any position, as shown in Fig. 6, a more delicate adjustment being effected by turning the hand-wheel G^3. In extreme cases where the depression of the muzzle has to be such that the fire shall be vertically downward, then the outer tube c^4, being fully drawn up through its eye c^5, the inner tube c^3 is also drawn a certain distance out of c^4 and clamped there, so that the pyramidal framing is thus turned forward to such a position that the axis of the gun is vertical and its muzzle presented downward, as shown in Fig. 4. In this condition of the frame, if the gun be turned one-half around, its axis still remains vertical, but its muzzle is presented upward, as shown in Fig. 5. Instead of or in addition to the screw adjustment for elevation G^2 G^3, a screw-swivel may be adapted to the upper part of the sliding tube or rod c^3, by turning which this may be pushed into or drawn out of the tube c^4.

The gun is worked in the following manner: During traction the pole-ring B′, being engaged on the stud B^2 of the saddle, and the gun and its supporting-frame being canted over so far as nearly to balance the pole, as shown in Fig. 1, the gunner occupies the saddle, riding the horse which draws the carriage after it. When the gun is to be served, the gunner dismounts, releases the spring-latch of the stud B, and disengages the pole-ring B′, allowing the horse to move away. He then rests the end of the pole on the ground and seats himself on the saddle B^3, putting the arms B^4 into position to form supporting-legs, as shown in Figs. 2 and 3. The gunner can then level the gun laterally, train it in any direction, elevate or depress it, and start it into action, and when the belt held in box K^2 is exhausted of its cartridges he can swing around the arms K K′, so as to bring the box K^3, containing another belt, into position for feeding, and while this is supplying the gun he can remove the empty belt from K^2, placing it, if desired, in one of the boxes a^4, and putting into K^2 a fresh belt taken from A^4. When the gun has to be removed, the gunner moves the horse and pole into such relative positions that he can engage the pole with the saddle, which he can do whether the horse faces forward or sidewise, and he can then mount and drive off with the gun.

In some cases I provide a seat or saddle over the part where the rear end of the pole is attached to the base of the carriage, near the place marked c^5, so that the gunner may sit on it instead of on the saddle, or one of two gunners may sit on it while the other rides the horse.

Although I have shown in Fig. 9 one mode of attaching the pole to the saddle by engaging a ring swiveled at the end of the pole upon a stud projecting upward from the saddle, the attachment may be effected in other ways. For instance, the pole may terminate in a pin end, which is inserted in a ring suspended by springs in a framing carried by the saddle, the pin end of the pole being furnished with a spring-latch, which yields as it is being introduced into the ring, but after it is introduced prevents it from being withdrawn unless the spring is pressed back. According to another method the pole may have a fork at-

tached to its end by a swivel, which allows the fork to turn partly around, and a more or less elastic cord connecting the prongs of the fork may be engaged on a pair of forwardly-projecting hooks fixed on the saddle.

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

1. The combination with a wheeled carriage, of a pyramidal framing hinged to the carriage-axle and operating as a support for a gun, and a vertically-curved pole attached at one end to said framing and provided at its other end with means for attachment to a riding-saddle, substantially as described.

2. The combination of the axle A, the diagonal stays A^2 A^3 rigidly attached to the axle, the diagonal stays C′ C^2 hinged to the axle and the double tube C^3 C^4 adapted to slide through the eye C^5, substantially as described.

3. For laterally leveling and training the gun and adjusting its elevation, the combination of the arm L its guide L′ and clamp L^2, the axis H^3, disk frame H and frame G′, screwed stem G^2 and hand-wheel G^3, substantially as described.

4. The combination with a wheeled carriage and a frame hinged to the axle thereof, of the disk frame H supported by said frame, the ring H′ rotatably mounted on said disk frame and provided with two pairs of arms K, K′, and ammunition-boxes K^2, K^3, carried by said rods, whereby either of said boxes may be turned into operative position to serve the gun, substantially as described.

5. The combination with a wheeled carriage, of a pyramidal framing hinged to the carriage-axle, the triangular plate A^5 attached to said framing, the rotatable arms K, K′, supported on said framing, armored, triangular ammunition-boxes K^2, K^3 suspended from said arms, and an armored ammunition-box A^4 hung on the carriage-axle beneath the plate A^5, substantially as described.

6. The combination with a wheeled carriage, of a frame hinged to the carriage-axle and operating as a support for a gun, a draft-pole attached at one end to said frame, legs B^4 pivoted to said pole, a spring-supported saddle mounted on the pole, and means operating when the saddle is occupied to force said legs down into position to support the operator and steady the carriage, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of February, A. D. 1896.

DOUGLAS M. B. H. COCHRANE.

Witnesses:
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