July 24, 1923. 1,462,852

A. T. DAWSON ET AL

AUTOMATIC GUN

Filed May 22, 1923

Fig. 1.

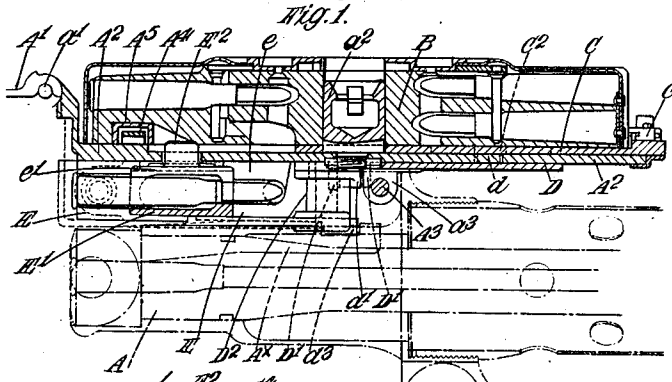


Fig. 2.

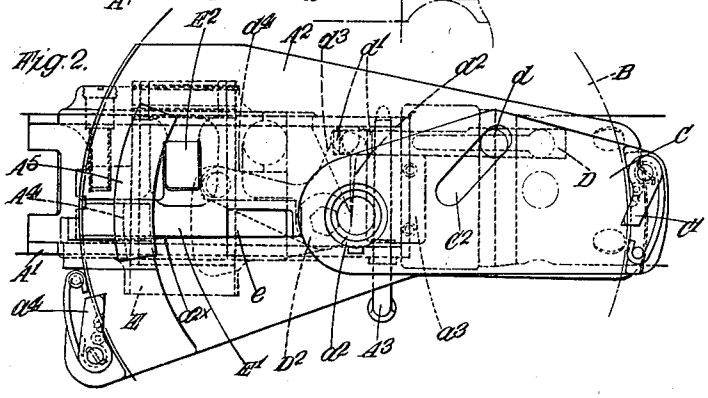


Fig. 3.

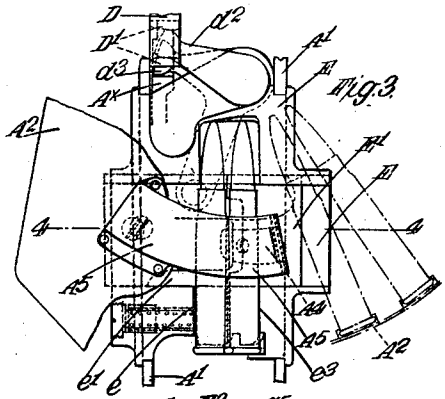


Fig. 5.

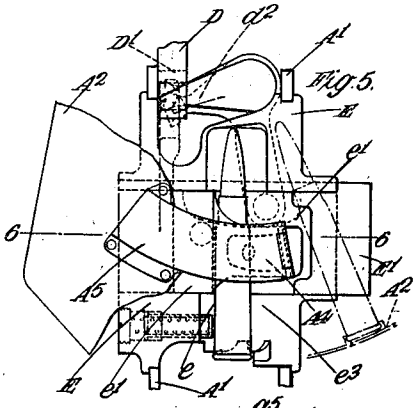


Fig. 4.

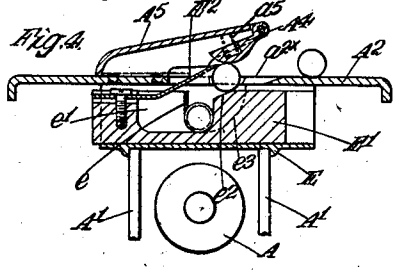
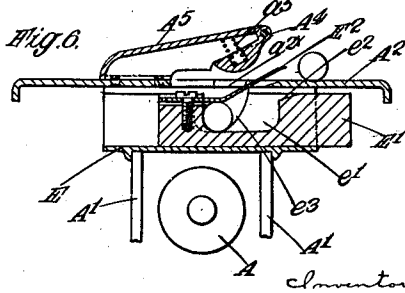


Fig. 6.



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UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON, GEORGE THOMAS BUCKHAM, AND CARL ALFRED LARSSON, OF WESTMINSTER, LONDON, ENGLAND, ASSIGNORS TO VICKERS LIMITED, OF LONDON, ENGLAND.

AUTOMATIC GUN.

Application filed May 22, 1923. Serial No. 640,717.

To all whom it may concern:

Be it known that we, Sir ARTHUR TREVOR DAWSON, Bart., Sir GEORGE THOMAS BUCKHAM, Knight, and CARL ALFRED LARSSON, all subjects of the King of Great Britain, residing at Vickers House, Broadway, Westminster, in the county of London, England, have invented certain new and useful Improvements in or Relating to Automatic Guns, of which the following is a specification.

This invention relates to automatic guns of the barrel recoiling type, particularly to the Vickers' automatic gun.

According to the invention there is mounted on the mechanism casing, preferably upon the front hinged cover thereof, a cartridge drum which may be of the ordinary or other type, and means are provided whereby the cartridges are moved one at a time into a position for engaging with the extractor of the lock, by the movements of the barrel during the firing of the gun. The said means may comprise a device for angularly displacing the cartridge drum step by step during the return movements of the barrel after recoiling and a feed slide into which a cartridge is deposited from the drum by a spring contrivance during each recoil movement of the barrel and which serves to carry the said cartridge into the required position for engaging with the extractor.

In order that the said invention may be clearly understood and readily carried into effect the same will be more fully described with reference to the accompanying drawings in which:—

Figure 1 is a vertical longitudinal section showing a construction in accordance with this invention.

Figure 2 is a plan of Figure 1 with the cartridge drum removed.

Figure 3 is a plan of the feed box and its associated parts, this view being for convenience drawn at right angles to the corresponding plan view of Figure 2, and illustrating the condition of affairs when the gun is at rest.

Figure 4 is a section taken approximately on the line 4, 4 of Figure 3.

Figure 5 is a view similar to Figure 3 but showing the condition of affairs with the gun barrel in the recoiled position, and

Figure 6 is a section taken approximately on the line 6, 6 of Figure 5.

A is the barrel, A^1 is part of the mechanism casing and A^2 is the front hinged cover pivoted at a^1 to the mechanism casing. B is the aforesaid drum which is shown as being of the well known Lewis type.

In the example shown the cartridge drum B is mounted on a spigot a^2 which projects upwardly from the front hinged cover A^2 and is situated somewhat to one side of a vertical plane containing the axis of the barrel. At its rear part this cover has a slot a^{2x} for the passage of a cartridge from the drum B. The said cover (pivoted at a^1 as aforesaid) is secured in the closed position by a pin A^3 passing through a lug a^3 on the under side of the cover and through parts of the mechanism casing. The said cover is provided with a spring controlled retaining pawl a^4 for the cartridge drum and with a feed arm C pivoted on the aforesaid spigot a^2 and provided with a spring controlled feed pawl C^1 for the cartridge drum. If desired this feed pawl could be mounted on a rearward extension of the feed arm so as to engage with the rear part of the drum. The feed arm is formed with an inclined slot C^2 with which a pin d on the upper portion of a sliding rod D engages the cover A^2 being cut away for the passage of this pin therethrough. The said rod is situated on the under side of the cover A^2 and is provided at its rear end with downwardly projecting lugs d^1 d^1 which engage with one arm d^2 of a bell crank lever D^2 pivoted in a feed box E which has a cartridge way e and is carried by the mechanism casing. The said bell crank lever has a pair of arms d^3, d^4 arranged at a lower level than the first mentioned arm d^2. The arm d^3 engages in a slot in one of the recoil plates A^x of the gun and the other arm d^4 engages with a feed slide E^1 working in the aforesaid feed box. This slide is formed with a recess e^1 to receive a cartridge and has a cartridge deflector in the form of a flat spring E^2. The aforesaid cover A^2 has a cartridge guide device A^4 which is indicated diagrammatically in Figures 1 and 2 but is shown in detail in Figures 3 to 6 from which it will be seen that this device is in the form of a curved member pivoted to a bracket A^5 on the cover

A^2 with a coiled spring a^5 interposed between this bracket and the guide member A^4. The operation of this guide member and of the deflector spring E^2 will be described later with reference to Figures 4 to 6, it being observed that in these figures (which show the preferred construction) the position of the guide member A^4 in relation to the deflector spring E^2 is slightly different from that illustrated in Figures 1 and 2.

When the cartridge drum is in position the first cartridge therein is held underneath the aforesaid guide member A^4 and the deflector spring E^2 and rests on an inclined surface e^2 on the feed slide E^1 as shown in Figures 4 and 5. When the gun is fired the bell crank lever D^2 is operated as aforesaid and moves the sliding rod D to the rear, thereby moving the feed arm C about its spigot a^2 by means of the aforesaid pin d and inclined slot C^2 arrangement. The angular movement thus given to the feed arm corresponds to or is slightly more than the pitch of the cartridge in the drum B. During this motion the drum is prevented from moving angularly by the aforesaid retaining pawl a^4. Simultaneously the bell crank lever D^2 moves the aforesaid feed slide E^1 to the right and the cartridge deflector spring E^2 forces the cartridge (already retained by the guide member A^4) downwardly in contact with the inclined surface e^2 on the feed slide E^1. When the feed slide moves clear of the cartridge the downward movement of the latter is continued by the action of the deflector spring E^2, the cartridge then moving in contact with a curved surface e^3 in the cartridge way e of the feed box E, this curved surface imparting a bodily movement to the cartridge in a direction towards the vertical plane containing the axis of the barrel. The return movement of the barrel moves the aforesaid parts in the reverse direction, and causes the feed pawl C^1 to impart angular movement to the cartridge drum B. The cartridge that had been engaged by the deflector spring E^2 is also forced into the position shown in Figures 4 and 5 by the engagement with this cartridge of the right hand wall of the recess e^1 in the feed slide E^1 to assume a position ready for engagement by the extractor of the lock. The next recoil and forward movement of the barrel causes the said cartridge to be withdrawn from the cartridge way and inserted into the barrel and a second cartridge to be brought into the position previously occupied by the first cartridge.

What we claim and desire to secure by Letters Patent of the United States is:—

1. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a rotary cartridge-holding member and means for moving the cartridges one at a time by the movements of the barrel, into a position for engaging with the extractor of the lock.

2. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a cartridge drum, means for angularly displacing said drum step by step by the movements of the barrel, a feed member operated by the movements of the barrel and means for depositing a cartridge from said drum into said member.

3. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a cartridge drum, means for angularly displacing said drum step by step by the return movements of the barrel after recoiling, a feed member operated by the movements of the barrel and means for depositing a cartridge from said drum into said member during each recoil movement of the barrel.

4. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a cartridge drum, means for angularly displacing said drum step by step by the return movements of the barrel after recoiling, a feed member operated by the movements of the barrel and a spring contrivance for depositing a cartridge from said drum into said member during each recoil movement of the barrel.

5. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a cartridge drum, means for angularly displacing said drum step by step by the return movements of the barrel after recoiling, a transversely movable feed slide operated by the movements of the barrel and a spring contrivance for depositing a cartridge from said drum into said slide during each recoil movement of the barrel.

6. In an automatic gun of the barrel recoiling type having a lock provided with an extractor, the combination of a cartridge drum, a spigot on which said drum is mounted, a feed arm pivoted on said spigot, means for operating said feed arm by the movements of the barrel so as to angularly displace said drum step by step during the return movements of the barrel after recoiling, a transversely movable feed slide operated by the movements of the barrel and a spring contrivance for depositing a cartridge from said drum into said slide during each recoil movement of the barrel.

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