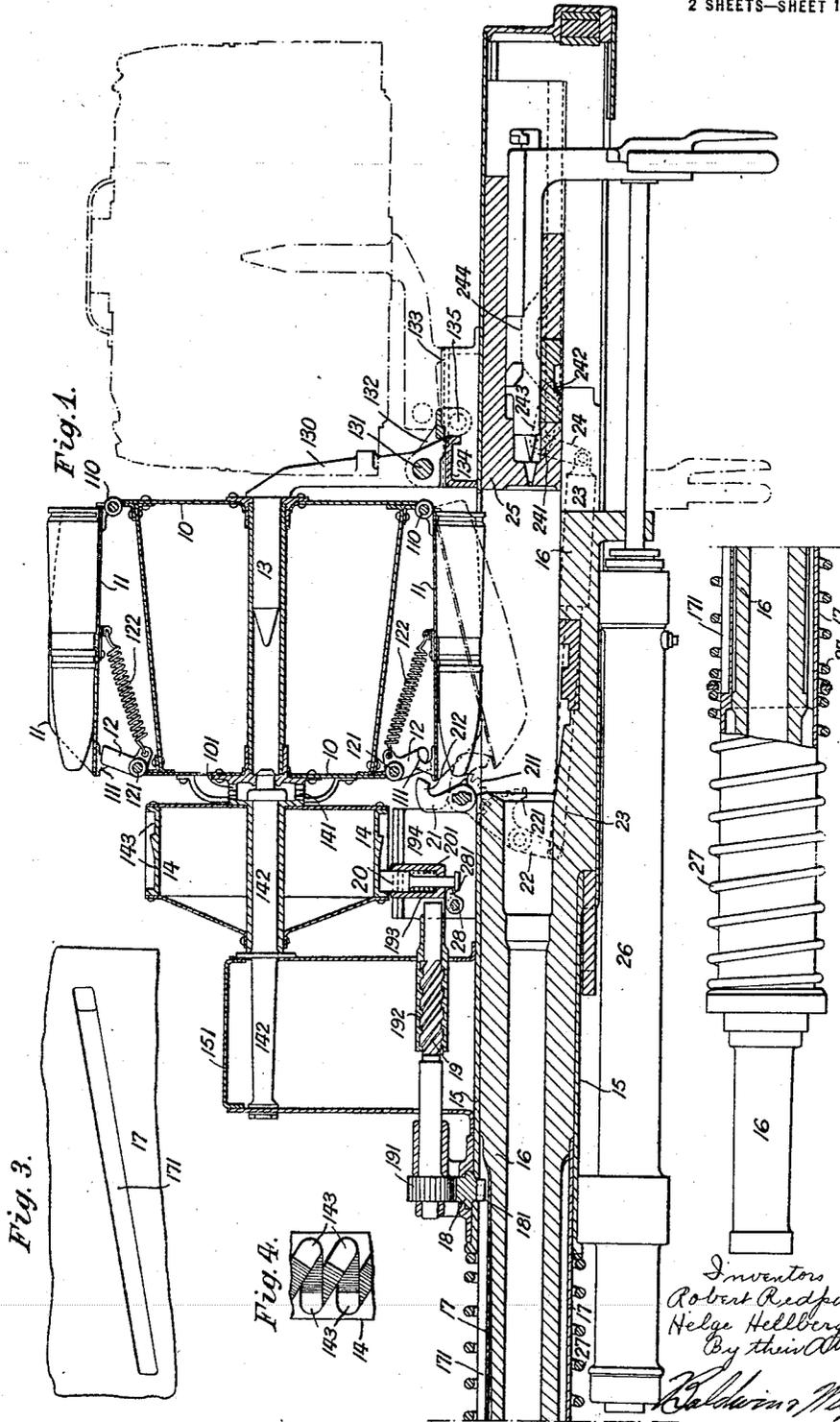


R. REDPATH & H. HELLBERG.
 FEED MECHANISM FOR AUTOMATIC GUNS.
 APPLICATION FILED JUNE 24, 1918.

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Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.

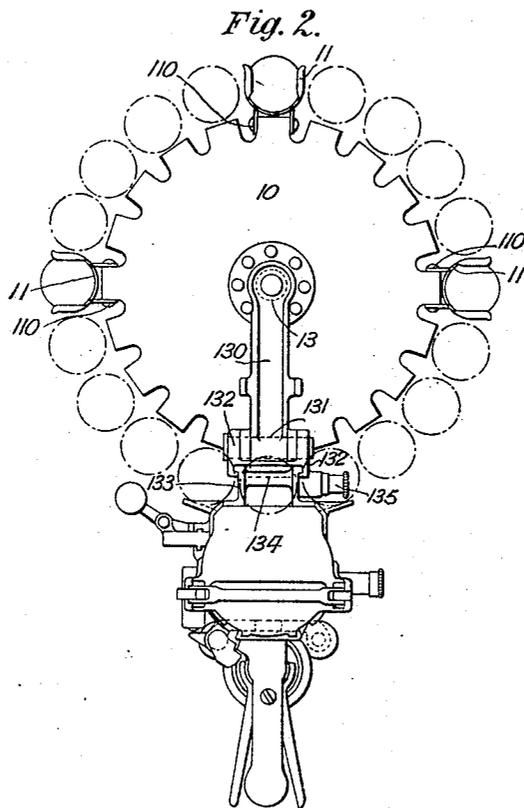


Inventors
 Robert Redpath &
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 By their Attorneys
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UNITED STATES PATENT OFFICE.

ROBERT REDPATH AND HELGE HELLBERG, OF COVENTRY, ENGLAND, ASSIGNORS TO
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FEED MECHANISM FOR AUTOMATIC GUNS.

1,298,091.

Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed June 24, 1918. Serial No. 241,583.

To all whom it may concern:

Be it known that we, ROBERT REDPATH and HELGE HELLBERG, subjects of the King of Great Britain, residing at Ordnance Works, Coventry, England, have invented a new and useful Improvement in Feed Mechanism for Automatic Guns, of which the following is a specification.

This invention relates to feed mechanism for automatic guns.

According to this invention the magazine consists of trays pivoted at their rear ends to a drum and having their front ends locked to the drum by means of catches. On the running-out of the gun the magazine is turned by means of a spring plunger actuated by a sleeve on the gun, the catches being released and the trays turned downward by means of a pivoted lever actuated by the breech block.

The annexed drawings show feed mechanism made in accordance with this invention.

Figure 1 is a section partly in elevation showing the feed mechanism applied to the gun, and Fig. 2 is an end elevation. Fig. 3 shows the groove cut in the sleeve keyed to the gun and Fig. 4 shows the cam groove in the cam cylinder.

The magazine consists of a drum 10 having a number of trays 11 pivoted to it at their ends at 110. The front ends of the trays are locked to the drum 10 by catches 12 pivoted to the drum at 121 and maintained in connection with projections 111 on the under side of the trays by means of springs 122. The drum 10 is mounted upon an arm 13 fixed to a lever 130 pivoted at 131 to a slide 132 mounted upon a guide 133 and prevented from turning when the drum 10 is in its operative position by the front part 134 of the guide 133, the slide 132 being locked to it by a plunger 135. On the front side of the drum 10 are teeth 101 which gear with teeth 141 on a cam cylinder 14 mounted on a spindle 142 carried by a frame 151 on the cradle 15. To the gun 16 is keyed a sleeve 17 having a groove 171. 18 is a circular rack having a projection 181 entering the groove 171 and the circular rack 18 is in gear with a pinion 191 on a quick pitch screw 19 in gear with a sleeve 192 connected to a slide 193 mounted on a guide 194. The slide 193 carries a plunger 20 which is continually held by a spring 201 in a cam groove 143 in the cam cylinder 14, as particularly shown

in Fig. 4. The cam groove 143 is so formed that when the gun recoils the cam cylinder 14 is not moved, but on the running-out of the gun the plunger 20 causes the cam cylinder to be turned. 21 is a pivoted lever having at its lower end a rack 211 and at its other end a projection 212 adapted to trip the catches 12. The rack 211 gears with another rack 221 on a pivoted lever 22 connected by a rod 23 to one arm 24 of a bell crank lever pivoted at 241, a projection 242 on the other arm 243 entering a cam groove 244 in the breech block 25. 26 is the cylinder containing the firing spring and 27 is the running-out spring. For withdrawing the plunger 20 from the cam groove 143 a shaft 28 having a projection 281 is provided.

In operation, when the gun recoils the movement of the sleeve 17 by reason of the groove 171 causes the rack 18 to turn which, being in gear with the pinion 191, causes the screw 19 also to turn, thereby causing the plunger 20 to move along one of the axial portions of the cam groove 143, no motion of the cam cylinder taking place. On the gun being run-out the plunger 20 is moved forward along one of the helical portions of the groove 143 thereby causing the cam cylinder 14 and the drum 10 to turn a distance corresponding to the distance between two trays 11 on the drum 10. A full tray is thus placed above the gun, and one of the catches 12 is moved out of engagement with its projection 111 by the pivoted lever 21 operated by the breech block 25, which lever also turns the tray 11 upon its pivot 110 into the position shown in dotted lines (Fig. 1). The breech block 25 then comes into contact with a cartridge and pushes it into the breech of the gun and causes the tray 11 to be turned into its former position where it is locked by means of the catch 12.

To change drums, the slide 132 is unlocked by pulling out the plunger 135 and the drum 10 is pulled back until the teeth 101 are out of gear with the teeth 141 on the cam cylinder. The drum can then be turned into the position shown in dotted lines in Fig. 1 and a full drum mounted on the arm 13.

What we claim is:—

1. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to

secure the front ends of the trays, means for releasing the catches and means for turning the drum.

2. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, means actuated by the breech block for releasing the catches, and means for turning the drum.

3. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one being adapted to release the catches and the other actuated by the breech block, racks upon the pivoted levers and means for turning the drum.

4. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one being adapted to release the catches and the other actuated by the breech block, racks upon the pivoted levers, a bell crank lever, a connection between the second pivoted lever and the bell crank lever, a projection on the bell crank lever adapted to enter a cam groove in the breech block and means for turning the drum.

5. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, means for releasing the catches, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum and means actuated by a sleeve on the gun for turning the cam cylinder.

6. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, means for releasing the catches, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, a slide, a plunger on the slide, a sleeve fixed to the slide, a quick threaded screw adapted to actuate the sleeve, a pinion on the screw, a rack gearing with the pinion and a projection on the rack entering a groove in a sleeve on the gun.

7. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, means actuated by the breech block for releasing the catches, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, and means actu-

ated by a sleeve on the gun for turning the cam cylinder.

8. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, means actuated by the breech block for releasing the catches, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, a slide, a plunger on the slide, a sleeve fixed to the slide, a quick threaded screw adapted to actuate the sleeve, a pinion on the screw, a rack gearing with the pinion and a projection on the rack entering a groove in a sleeve on the gun.

9. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one adapted to release the catches and the other actuated by the breech block, racks upon the pivoted levers, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum and means actuated by a sleeve on the gun for turning the cam cylinder.

10. In a feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one adapted to release the catches and the other actuated by the breech block, racks upon the pivoted levers, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, a slide, a plunger on the slide, a sleeve fixed to the slide, a quick threaded screw adapted to actuate the sleeve, a pinion on the screw, a rack gearing with the pinion and a projection on the rack entering a groove in a sleeve on the gun.

11. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one adapted to release the catches, racks upon the pivoted levers, a bell crank lever, a connection between the second pivoted lever and the bell crank lever, a projection on the bell crank lever adapted to enter a cam groove in the breech block, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, and means actuated by a sleeve on the gun for turning the cam cylinder.

12. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to

secure the front ends of the trays, two pivoted levers, one adapted to release the catches, racks upon the pivoted levers, a bell crank lever, a connection between the second pivoted lever and the bell crank lever, a projection on the bell crank lever adapted to enter a cam groove in the breech block, teeth on the drum, a cam cylinder, teeth on the cam cylinder adapted to mesh with the teeth on the drum, a slide, a plunger on the slide, a sleeve fixed to the slide, a quick threaded screw adapted to actuate the sleeve, a pinion on the screw, a rack gearing with the pinion and a projection on the rack entering a groove in a sleeve on the gun.

13. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one adapted to release the catches and to turn the trays downward and

the other actuated by the breech block, racks upon the pivoted levers and means for turning the drum. 25

14. In feed mechanism for guns, a drum, a number of trays pivoted at their rear ends to the drum and each adapted to receive a cartridge, catches on the drum adapted to secure the front ends of the trays, two pivoted levers, one adapted to release the catches and to turn the trays downward and the other actuated by the breech block, racks upon the pivoted levers, a bell crank lever, a connection between the second pivoted lever and the bell crank lever, a projection on the bell crank lever adapted to enter a cam groove in the breech block and means for turning the drum. 30 35

In testimony that we claim the foregoing as our invention, we have signed our names this eighteenth day of May, 1918. 40

ROBERT REDPATH.
HELGE HELLBERG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."