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H. O. RUSSELL ET AL

MACHINE GUN AND HOPPER FEED BOX THEREFOR

Filed April 18, 1922

Fig. 1.

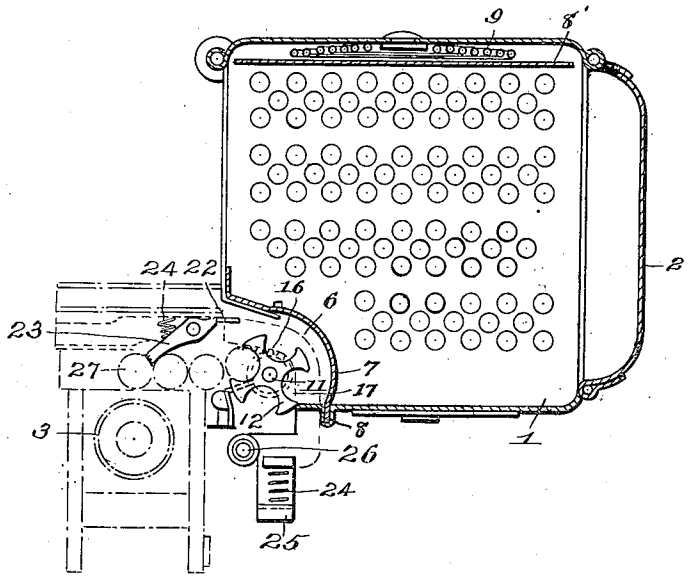
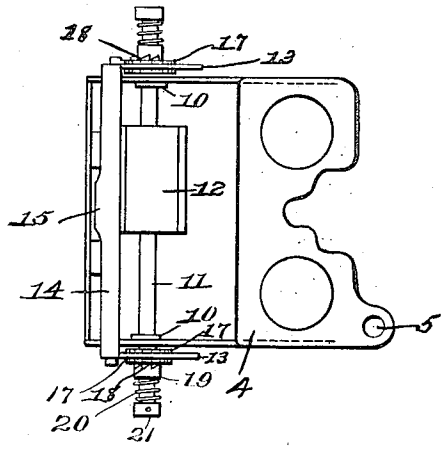


Fig. 2.



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MACHINE GUN AND HOPPER FEED BOX THEREFOR.

Application filed April 18, 1922. Serial No. 555,401.

To all whom it may concern:

Be it known that we, HERBERT O. RUSSELL and CHARLES LEIGH PAULUS, citizens of the United States, residing, respectively, at Detroit and Dayton, in the counties of Wayne and Montgomery and States of Michigan and Ohio, have invented certain new and useful Improvements in Machine Guns and Hopper Feed Boxes Therefor, of which the following is a specification.

This invention relates to a hopper feed box for machine guns, the object in view being to produce a feed box adapted to be removably attached to a flexibly mounted machine gun for feeding loose cartridges to the gun.

A further object of the invention is to produce a feed box of the character above referred to which may be applied to any machine gun combined with a cartridge feeding means which receives the cartridge from the feed box and transfers them to the cartridge feeding means of the gun, the cartridges being fed successively with a step by step movement into the feed way of the gun during the firing operation. The special feeding mechanism employed insures the cartridges being delivered into the feed way of the gun in proper alignment and at the right time.

With the above and other objects in view the invention consists in the novel construction, combination and arrangement herein described, illustrated and claimed.

In the accompanying drawings:

Figure 1 is a vertical transverse section through the improved feed box, also showing the gun in dotted lines in cross section and the cartridge feeding mechanism.

Figure 2 is a plan view of the mounting bracket for the cartridge feed box and the feed mechanism for transferring the cartridges from the feed box to the gun.

The hopper feed box 1 may be of any suitable shape or formation but for the purpose of illustration it is conveniently shown as substantially rectangular in shape with round corners and is provided with a carrying handle 2 which facilitates the mounting and demounting of the box.

The feed box 1 is supported in fixed relation to the gun indicated at 3 by means of a mounting bracket 4, the latter being secured to the gun by a pin 4′ or in any suitable or preferred way. The mounting bracket 4 is shaped so that the box 1 will fit securely thereon, the box being locked in position on the mounting bracket by means of a spring pin on the box which fits a hole 5 in the bracket 4. In the lower corner of the box 1 adjacent to the gun, the box is formed with a large cartridge outlet opening 6 which is adapted to be closed by a fore and aft sliding door 7 operating in suitable guideways 8, said door being curved or arcuate in cross section as shown in Figure 1. The box 1 contains a follower 8′ shown in the form of a plate which is pressed downwardly by means of a follower actuating spring 9, thereby assisting gravity by pressing the cartridges toward the outlet opening 6 to insure the proper feeding of the cartridges to the feed way of the gun.

Journaled in bearings 10 on the mounting bracket 4 is the shaft 11 of a rotatable cartridge feeding wheel 12. A step by step rotary movement is imparted to the wheel 12 by means of rack levers 13 arranged at opposite ends of the feed wheel 12, the levers 13 being interconnected by means of a yoke bar 14 having a contact shoulder or face 15, the purpose of which will presently appear. The teeth 16 of the rack members 13 engage pinions 17 adjacent to the opposite ends of the shaft 11 and said pinions have lateral ratchet shaped teeth 18 which are engaged by other ratchet members or collars 19 on the shaft 11 as shown in Figure 2. The collars 17 are pressed yieldingly into engagement with the ratchet faces 18 by means of springs 20, which bear at their outer ends against collars 21 on the extremities on the shaft 11, the inner ends of the springs 20 pressing against the collars 19 and serving to force the same into engagement with the ratchet faces 18.

The rachet levers 13 are moved outwardly by the slide 22 of the cartridge feeding mechanism of the gun, said slide carrying the cartridge feeding pawl 23 which acts in the reciprocatory movement of the slide 22 to feed the cartridges successively into line with the firing chamber. The return movement of the levers 13 is effected by an expansion spring 24 which is confined between the fixed shoulder 25 on an extension of the mounting bracket and the respective rack lever 13 as seen in Figure 1.

The operation of the mechanism is as

follows: In the outward movement of the cartridge feeding mechanism of the gun, the slide 22 bears against the shoulder 15 and causes the rack levers 13 to move in a corresponding direction around the pivots 26 of said levers. When the slide 22 moves inwardly, the spring 24 serves to return the levers 13 to their inward positions as shown in Figure 1, during which time the foremost cartridge 27 has been advanced to firing position. The sliding door or closure 7 may be shut at any time and the hopper feed box removed from the mounting bracket, permitting another feed box to be substituted therefor.

Having thus described our invention, we claim:

1. A machine gun having a cartridge feed way extending laterally therethrough, in combination with a hopper feed box detachably secured thereto and having a cartridge discharge opening, a cartridge-feeding wheel arranged to transfer the cartridges from the hopper feed box to the feed way of the gun, and a cartridge-feed element carried by the gun and operating to rotate said cartridge-feeding wheel.

2. A machine gun having a cartridge feed way extending laterally therethrough, in combination with a hopper feed box detachably secured thereto and having a cartridge discharge opening, a cartridge-feeding wheel arranged to transfer the cartridges from the hopper feed box to the feed way of the gun, and a cartridge-feed element carried by the gun and operating to rotate said cartridge-feeding wheel with an intermittent movement.

3. A machine gun having a cartridge feed way extending therethrough from side to side, and a reciprocatory cartridge-feeding element operating in said feed way, in combination with a hopper feed box detachably secured to the gun, and a cartridge feeding wheel arranged to transfer the cartridges from the hopper feed box into the feed way of the gun and operated intermittently by said reciprocatory cartridge-feeding element.

4. A machine gun having a cartridge feed way extending therethrough from side to side, and a reciprocatory cartridge-feeding element operating in said feed way, in combination with a mounting bracket fastened to the gun, a hopper feed box detachably supported by said bracket, a cartridge-feeding wheel adapted to transfer the cartridges from said hopper feed box to the gun feed way, and means operable by said reciprocatory cartridge-feeding element to impart intermittent rotary movement to said cartridge feeding wheel.

5. In combination with a machine gun, a mounting bracket detachably secured thereto, a hopper feed box detachably held on said bracket and having a cartridge outlet opposite the feed way of the gun, a rotatable cartridge feeding wheel carried by said bracket and positioned between said outlet and feed way, and means controlled by the cartridge feeding means of the gun for rotating said wheel to transfer the cartridges from the feed box to the gun feed way, the wheel rotating means embodying rack and pinion mechanism.

6. In combination with a machine gun, a mounting bracket detachably secured thereto, a hopper feed box detachably held on said bracket and having a cartridge outlet opposite the feed way of the gun, a rotatable cartridge feeding wheel carried by said bracket and positioned between said outlet and feed way, and means controlled by the cartridge feeding means of the gun for rotating said wheel to transfer the cartridges from the feed box to the gun feed way, the wheel rotating means embodying rack and pinion mechanism and a rack return spring.

In testimony whereof we affix our signatures.

HERBERT O. RUSSELL.
CHARLES LEIGH PAULUS.