

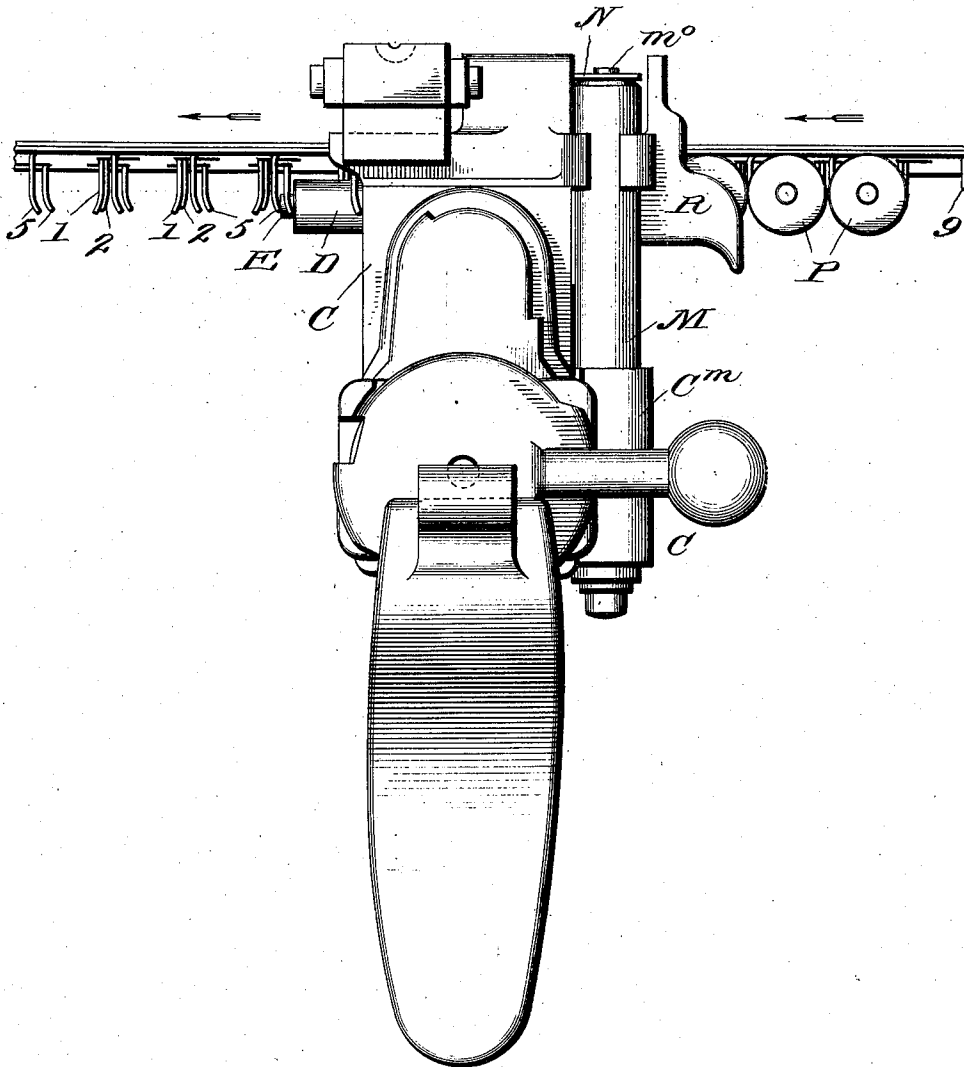
L. V. BENÉT.
 FEED APPARATUS FOR AUTOMATIC GUNS.
 APPLICATION FILED MAR. 20, 1909.

958,078.

Patented May 17, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

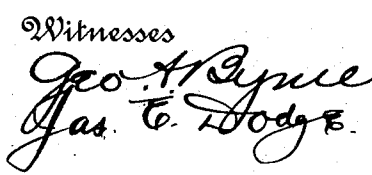


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958,078.

3 SHEETS--SHEET 2.



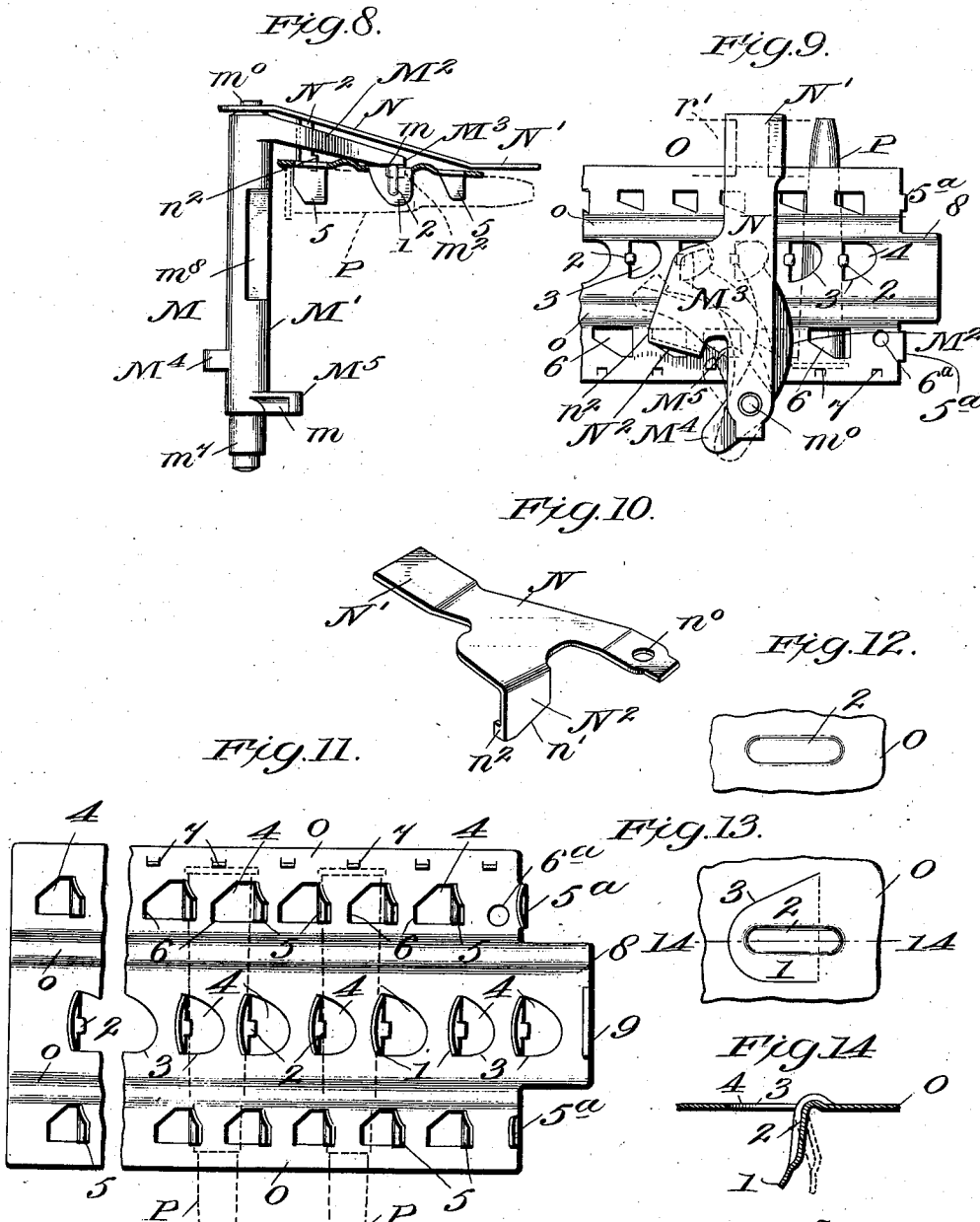
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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FEED APPARATUS FOR AUTOMATIC GUNS.

958,078.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed March 20, 1909. Serial No. 484,604.

To all whom it may concern:

Be it known that I, LAURENCE V. BENÉT, a citizen of the United States, residing at Paris, France, have invented certain new and useful Improvements in Feed Apparatus for Automatic Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in feed apparatus for automatic guns, and it relates more especially to a suitable form of feed strip intended for use in semi-automatic guns of the general type, illustrated and described in the patent to Benét & Mercié, gas-operated gun, No. 861,939, granted July 30, 1907.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters and numerals throughout the several views.

Figure 1 is a rear elevation of the gun showing the feed strip in place in the gun, with most of the cartridges fired. Fig. 2 shows a cross section through the receiver of the gun, looking toward the breech, with the feed strip, cartridges and feed piece in elevation. In this figure, the cartridge fired has just been extracted, and the feed strip has not been moved to supply a fresh cartridge to the chamber. Fig. 3 shows a similar section to Fig. 2, but with the feed strip moved so that the next cartridge is in the loading position. Fig. 4 is a perspective view of the motor piston for operating the various parts of the automatic gun. Fig. 5 shows a section along the line 5—5 of Fig. 2, looking down. Fig. 6 shows a similar section to Fig. 5, but with the feed piece rocked to another position. Fig. 7 shows a section along the line 7—7 of Fig. 6, and looking in the direction of the arrows. Fig. 8 is a detail view showing the coaction of the feed piece, feed strip and feed spring. Fig. 9 is a plan view showing the parts indicated in elevation in Fig. 8. Fig. 10 is a detail showing in perspective the feed spring. Fig. 11 is an inverted plan view of the feed strip, parts being broken away, and Figs. 12, 13 and 14 indicate the method of reinforcing one of the holding clips of the feed strip.

The operation of the several parts is substantially identical with that fully illus-

trated and described in the Benét & Mercié Patent, No. 861,939, aforesaid, and for convenience of reference the various parts of the gun and receiver will be referred to by the same letters as in the drawings and specification of the aforesaid patent.

C represents the receiver of the gun, having a casing C^m for the feed-piece M. The receiver is also provided with a wedge-shaped tongue C^o , which projects between the bottom of the feed strip and the top of the cartridge.

D represents a hollow cylindrical housing screwed into the side of the receiver, and carrying a plunger E, having its head e pressed forward by a spring e' , as shown in Figs. 2 and 3.

F represents the motor piston having the cam faces f^8 , f^9 and f^{10} , as described in the patent aforesaid.

G represents the breech block, which is operated by the motor piston, as fully described in the patent aforesaid.

R represents the loading guide for the feed strip, the forward end of which is provided with overhanging ribs r' engaging the end of the feed spring (see Figs. 2 and 9). This loading guide is fully described in the patent aforesaid.

M represents the feed piece, which is journaled at its lower end in the casing C^m , as shown in Fig. 2, and its upper end n^o projects through the hole in the end of the feed spring N. The feed piece consists of a vertical shaft M' , carrying an arm M^2 having a feed lug M^3 , which is beveled upward, as at m , and has an engaging face m^2 , (see Fig. 2). The vertical shaft M' also carries two arms M^4 and M^5 , both of which have rounded ends, and the latter of which is provided with two beveled faces m^5 and m^6 , as shown most clearly in Fig. 7. The feed piece has a lower bearing m^7 , which projects downward through the socket c^{23} in the supporting piece C^m , and the arm M^5 , when there is no feed strip in the gun, will normally drop down to the position shown in Fig. 7, owing to the pressure downward of the spring N, whose free end presses downward on the upper end of the feed piece, and whose fixed end is held beneath the guide ribs r' , as shown in Fig. 9.

When in the position shown in Fig. 7, the arm M^5 will drop in the way of the cam face f^8 of the motor piston, and will arrest

the forward movement of the motor piston in returning to the initial position, said arm then being held between the beveled faces c^{24} of the receiver and f^8 of the motor piston, thus holding the motor piston against further travel. Now, however, if the feed piece be lifted, either by hand, or by inserting a fresh feed strip, then this arm M^5 will be released from engagement with the motor piston, and the latter will return forward to the initial or closed breech position, as fully described in the patent aforesaid.

The feed spring N not only tends to press down the feed piece M until the same is lifted, as by the insertion of a fresh clip, but it also has another function,—that is, it acts as a pawl to prevent the backward motion or back lash of the feed strip O. This result is obtained by providing a downwardly-projecting claw N^2 having an inclined face n' , and a holding edge n^2 , which latter is projected downward into one of the openings 6 in the feed strip, while the inclined face n' is wedged upward as the feed strip is fed forward, as will be hereinafter described.

The feed strip O is preferably made of a single piece of sheet metal, corrugated as at o , to increase the stiffness of the same, and having a plurality of holding clips 1 and 5, stamped out of the same. Each cartridge is held between two clips 5, engaging one side thereof, and a third clip 1, engaging the opposite side between the two clips 5. This clip 1 is preferably provided with a rib 2, to make the same more rigid, and this rib may be conveniently constructed, as shown in Figs. 12 to 14. In Fig. 12, the plate O has a hollow boss 2 stamped out of it. In Fig. 13, the cut 3 is made through the plate, and in Fig. 14, the clip is shown in full lines as partly pressed down through the plate, the final form taken by the clip being shown in dotted lines in said figure. This rib 2 then becomes in fact a double rib connected by an arch at its back, and adds great stiffness to the clip 1. This increased stiffness is especially desirable, since in the rapid firing of the gun the feed strip is fed forward violently, tending to throw the cartridges out of alinement with the loading apparatus. The feed strip O is also provided with lugs 7 stamped out of the same to engage in rear of the rim of the cartridge, with a hole 6^a near the end of the plate to receive the engaging arm of the feed spring when the last cartridge has been fired, and with a projection 8 having a thumb lug 9. The end clips 5^a are stamped out of the end of the plate O, as shown in Fig. 11.

The operation of the device is as follows—Suppose the feed strip to be inserted by hand, with the cartridge in the loading position, and the motor piston to be with-

drawn to the rearward position; as the motor piston goes forward it will force the cartridge into the chamber, close the breech block, and fire the gun, as fully described in the patent aforesaid, and in its forward travel the cam f^9 will strike the arm M^5 , which is automatically lifted out of engagement with the face c^{24} (see Fig. 7) by the insertion of the cartridge case as aforesaid, and this cam f^9 will rock the feed piece M, causing the wedge face m on the arm m^2 to slide back over the edge of the holes 4, lifting the feed piece slightly against the action of the spring N, and when the holding face m^2 reaches the next hole 4, it snaps down into the same, and remains in the engaging position until the motor piston flies backward again. In its backward movement, the cam face f^{10} engages the arm M^4 on the feed piece and rocks the same in the reverse direction, causing the arm M^2 to push the feed strip forward and feed a fresh cartridge. As the feed strip moves forward, it presses up the inclined face n' of the feed spring N until the holding face n^2 snaps into the next hole 6, and this holding face n^2 will prevent back lash of the feed strip when the arm M^2 once more rocks back to the engaging position. Thus it will be seen that the arm M^2 pushes the feed strip forward with a step by step motion while the arm N^2 of the feed spring holds the said strip against back lash. Since the gun fires very rapidly, and the cartridges are fed forward violently. This requires a stiff holding clip on the rear side of each cartridge, and the same is reinforced, as hereinbefore described. To ease the shock of the movement of the cartridge forward, the spring plunger E is provided, which bears against the forward side of the cartridge case, as shown in Fig. 3, as the same nears the loading position. Thus it will be seen that the cartridges are securely held in the clip until pried loose by the tongue C^o , and are steadied to the loaded position by means of the yielding plunger E, from which position they are pressed into the chamber of the gun, as fully described in the patent aforesaid. In order to remove a feed strip from the gun when the cartridges carried by the same have not all been fired, it will only be necessary to lift the feed piece by hand and take out the strip. This lifting of the feed piece will raise the feed lug M^3 , and will also raise the lug N^2 on the spring N, thus removing all obstacles to the withdrawal of the feed strip from the gun.

It will be seen that I provide a simple, durable and effective cartridge clip, which may be cheaply made by being stamped out of a single strip of metal, and which may be used over and over again, if desired.

Having thus described my invention, what

I claim and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the character described, the combination with the motor piston, a feed strip, means operated by said motor piston for moving said feed strip forward, means for detaching the cartridges from the feed strip and for feeding the cartridges *seriatim*, and a spring plunger engaging each cartridge as it is detached from the feed strip near the loading position, substantially as described.

2. An apparatus of the character described, comprising a motor piston, a feed strip, means operated by said motor piston for imparting a step by step motion to said feed strip, clips carried by said feed strip, cartridges held between said clips, means for detaching the cartridges from the feed strip, and a spring plunger engaging each cartridge as it is detached from the feed strip near the loading position, substantially as described.

3. An apparatus of the character described, comprising a motor piston, a feed strip, means operated by said motor piston for imparting a step by step motion to said feed strip, resilient clips carried by said feed strip for engaging one side of the cartridge, and a reinforced clip carried by said feed strip engaging the opposite side of the cartridge, cartridges held between said clips, means for detaching the cartridges *seriatim* from the feed strip, and a spring plunger engaging each cartridge as it is detached from the feed strip near the loading position, substantially as described.

4. A feed strip for use in a gun of the character described, comprising a metal sheet, resilient clips stamped out of said

sheet for engaging one side of the cartridge, and other clips also stamped out of said sheet and provided with a hollow reinforced portion in the back thereof to stiffen same, the said strips engaging the opposite side of said cartridge, substantially as described.

5. A feed strip for use in a gun of the character described, comprising a metal sheet corrugated longitudinally, resilient clips stamped out of the sides of said sheet exterior to said corrugations and adapted to engage one side of the cartridge, other clips also stamped out of said sheet between said corrugations and adapted to engage the other side of the cartridge, said latter clips being provided with a hollow reinforced portion to stiffen same, and lugs stamped out of said sheet and adapted to engage the rims of the cartridges, substantially as described.

6. A feed strip for use in a gun of the character described, comprising a metal sheet corrugated longitudinally, resilient clips stamped out of the two sides of said sheet and adapted to engage one side of each cartridge, and reinforced strips provided with double ribs impressed therein stamped out of said sheet between said corrugations, and adapted to engage the other side of the cartridge case, with end lugs stamped out of the side of the sheet and adapted to engage the rim of the cartridge, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

LAURENCE V. BENÉT.

Witnesses:

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T. A. WITHERSPOON.