

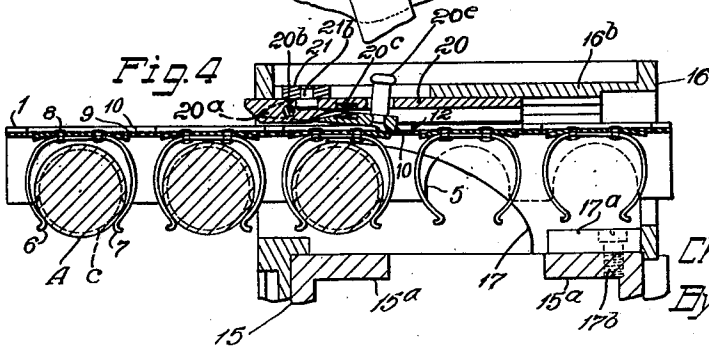
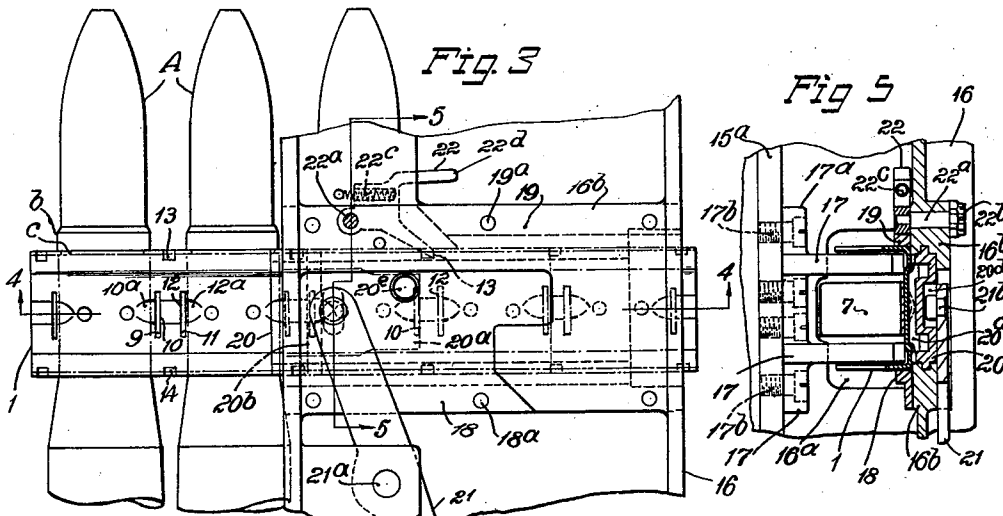
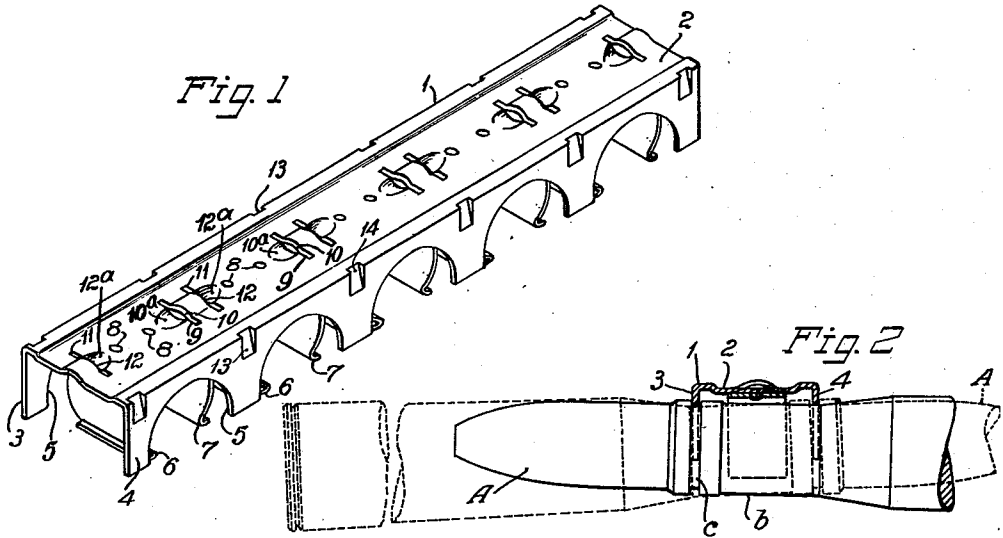
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CARTRIDGE FEEDING DEVICE FOR AUTOMATIC FIREARMS

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UNITED STATES PATENT OFFICE.

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CARTRIDGE-FEEDING DEVICE FOR AUTOMATIC FIREARMS.

Application filed August 29, 1927. Serial No. 216,166.

The invention relates generally to cartridge feeding devices for automatic firearms and more particularly to such a device in which a holder carrying a plurality of cartridges is moved transversely of the axis of the firearm and in which the cartridges are successively removed from the holder and transferred downward into the chamber of the barrel. A device embodying the present invention is in some respects similar to that disclosed in the application of John M. Browning for cartridge feeding devices for automatic firearm, Serial No. 141 filed January 2, 1925. Feeding devices of this type are particularly adapted for use with an automatic firearm similar to that disclosed in the patent of John M. Browning, No. 1,525,065 dated Feb. 3, 1925.

A feeding device such as disclosed in the aforesaid Browning application could be fed into the gun in one direction only and it would, therefore, be necessary to provide left hand feeding devices for guns having feed mechanisms operating from left to right and to provide right hand feeding devices for guns having feed mechanisms operating from right to left. One of the objects of the present invention is to provide a feeding device which can be operated in either direction thus avoiding the necessity of providing two different kinds of feeding devices and avoiding any inconvenience or delay which might result from inadvertently attempting to use a left hand feeding device with a right hand gun or a right hand feeding device with a left hand gun.

With a feeding device such as shown in the Browning application it was necessary to use extreme care in order to properly position the cartridges with respect to the feeding device. It was possible for a careless operative to place the cartridges in the feeding device in positions reversed from the proper positions thus making it impossible for the cartridges to enter the gun and making the entire device inoperative. A further object of the present invention is to provide a feeding device of this type which is so constructed that cartridges can be placed therein in either of the two possible relative positions without interfering with the operativeness of the device.

Further objects of the invention will be ap-

parent from the following specification and claims.

In the accompanying drawing I have shown the embodiment of the invention which I now deem preferable, but it will be understood that the drawing is intended for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a perspective view of a feeding device embodying the invention.

Fig. 2 is a transverse sectional view of the feeding device showing a cartridge in place therein.

Fig. 3 is a plan view of the feeding device shown in conjunction with a portion of the gun with which it is used.

Fig. 4 is a vertical sectional view taken along the line 4—4 of Fig. 3.

Fig. 5 is a vertical sectional view taken along the line 5—5 of Fig. 3.

The cartridge holder or feeding device embodying the invention is represented as an entirety by 1, the device preferably comprising a strip of sheet metal having a top portion 2 and depending side portions or flanges 3 and 4. The two flanges 3 and 4 are provided with pairs of aligned recesses 5, 5 which extend upward from the bottom edges of the said flanges. As shown there are five pairs of such recesses but this number may be varied as desired. The pairs of recesses 5, 5 are adapted to form seats for the cartridges, one cartridge A being shown in Fig. 2. Preferably as shown the recesses 5, 5 are of somewhat greater depth than the radius of those portions of the cartridges which are to be entered therein. The upper portions of the recesses conform approximately to the shape of the cartridges preferably being approximately semi-circular as clearly shown in the drawing.

It will be observed that the cartridges A are entered in the recesses from the bottom. I provide suitable means for holding the cartridges in the said recesses, and as shown this means comprises spring fingers 6, 6 and 7, 7 arranged in oppositely disposed pairs corresponding in number and position to the said

pairs of aligned recesses 5, 5. The two fingers 6 and 7 of each pair may conveniently be formed of a single piece of metal forming a clip, this being riveted to the top body portion 2 of the holder as shown at 8, 8. The lower ends of the clips are preferably flared outward slightly to facilitate insertion of the cartridges and the shape of the clips is such that after insertion the cartridges are held in proper position in the seats as clearly shown.

The frictional engagement of the clips with the cartridges is such as to normally prevent any relative longitudinal movement of the latter. Preferably, however, I provide for the positive locking of the cartridges against longitudinal movement. As clearly shown in Fig. 2, the portion *b* of each cartridge A is provided with an annular groove *c*. This groove is so positioned as to register with the forward flange of the holder. By reason of the excessive weight of the rear portion of the cartridge as compared with the front portion thereof the cartridge takes a position in which its axis is slightly out of parallelism with the top portion 2 of the holder, the rear portion of the cartridge being lower than the front portion by reason of its greater weight. The result of this slight tilting of the cartridge is to cause the grooved portion of the cartridge to rise so that the edge of the forward flange enters the said grooves as indicated in Fig. 2. This definitely positions the cartridge and positively holds it against relative longitudinal movement.

The holder 1 is formed with suitable means for engagement with the feeding mechanism of the firearm with which it is adapted to be used. Two sets of oppositely positioned shoulders are provided on the holder, the shoulders of one set being used for feeding in one direction and the shoulders of the other set being used for feeding in the other direction. Preferably slots 9, 9 are formed in the top portion 2 of the holder these slots corresponding in number and in spacing to the pairs of cartridge holding recesses 5, 5. Preferably the metal adjacent one side of each of the slots is slightly raised as indicated at 10, 10 to provide a shouldered lug ensuring more positive and reliable engagement with the feed mechanism of the gun as will presently be described. The shoulders at 10, 10 provide for feeding in one direction, that is, from left to right. The said top portion 2 is formed with other similar slots 11, 11 with adjacent raised portions 12, 12 which provide for feeding in the opposite direction, that is, from right to left. It will be understood that with two sets of shouldered lugs as shown and described the holder can be fed in either direction. To still further provide for the engagement of the feed mechanism of the gun with the holder the metal at the sides of the slots opposite the

lugs 10, 10 and 12, 12 is depressed as shown at 10^a, 10^v and 12^a, 12^a.

Preferably the central section of the top body portion 2 of the holder is slightly depressed so that the shouldered lugs 10, 10 and 12, 12 do not project above the edge portions of the holder. These lugs are thus protected from any injury due to careless handling. It will be noted that the lugs 10, 10 and 12, 12 are formed by striking up relatively small portions of the metal of the holder. These lugs are sufficiently strong for ordinary feeding purposes but they are intentionally made relatively small so that in case of unusual resistance of the feeding movement of the holder they will give way and thus prevent possible injury to the feeding mechanism of the firearm. The damaged holder can be discarded and replaced by another one.

Notches 13, 13 are provided at the top edge of the holder adjacent the front flange thereof. These notches are for cooperation with a stop pawl of the firearm to prevent rearward movement of the holder. The notches 13, 13 are so located as to be engaged by the stop pawl of either a left hand feed mechanism or of a right hand feed mechanism.

Preferably and in accordance with the invention the holder 1 is so constructed that the cartridges can be inserted therein in either of the two possible positions, that is, they may be inserted therein in the position shown by full lines in Fig. 2 or in the position shown by dotted lines in Fig. 2. It will be observed that the two flanges 3 and 4 and the recesses therein are exactly alike and that it is therefore entirely immaterial as concerns the engagement of the flanges in the grooves *c* of the cartridges whether the said cartridges be located in one relative position or in the other. The slight tilting of the cartridges as already described serves to ensure the engagement of the front flange (whether the flange 3 or the flange 4) in the grooves *c* of the cartridges.

It will be understood that with the cartridges in reversed positions in the holder the holder will be reversed with respect to the gun. The functions of the shoulders 10, 10 and 12, 12 will then be reversed, the shoulders 10, 10 serving for right-to-left feed and the shoulders 12, 12 serving for left-to-right feed. The notches 13, 13 along one edge of the holder have already been described. Similar notches 14, 14 are provided at the other edge of the holder. One set of notches serves to prevent rearward movement of the holder when the holder is in one position and the other set of notches serves this purpose when the holder is in the reversed position.

In Figs. 3, 4 and 5 are shown portions of a firearm with which the novel improved holder is adapted to be used although its use is not restricted to any particular type of firearm. The breech casing 15 of the firearm here shown and the mechanism generally (not

shown) is similar in construction to that shown and described in my patent for an automatic firearm, No. 1,525,065 dated February 3, 1925. As in the said patent, the side plates 5 of the breech casing are provided at the top with inturned flanges 15^a, between which is an opening through which the cartridges are adapted to be fed downwardly into position for insertion into the chamber of the barrel. 10 The feed mechanism shown is adapted to feed the holder and cartridges from left to right but it will be understood that a feed mechanism adapted to feed from right to left may be exactly the same in construction except for 15 the reversal of parts.

The feed box 16, which is of a modified construction from that shown in the said patent to adapt it to receive and cooperate with the novel improved holder, is mounted on the top 20 of the breech casing 15 and secured thereto by any suitable means (not shown.) In its left hand side wall the feed box is provided with an elongated opening adapted to permit the passage transversely thereto of a 25 loaded cartridge holder, and on its right hand side wall, an opening 16^a as shown in Fig. 5 is provided for the exit of the empty holder.

Means are provided to cooperate with the holder for supporting and guiding it in its 30 passage through the feed box. In the embodiment of the invention elected for illustration, such means are combined with the means for removing the cartridges from a holder and starting them downward into the 35 breech casing, and comprise a pair of vertically arranged cam plates 17, 17 as shown in Figs. 4 and 5, extending transversely of the feed box 16, and having means, such as the laterally extending lugs 17^a, 17^a, at the 40 bottom of their right-hand ends by means of which the cam plates are secured to the inturned flanges 15^a of the right-hand side plate of the breech casing. As shown the said lugs 17^a, 17^a are engaged by screws 17^b, 17^b.

These cam plates 17, 17 are vertically thin 45 at their left-hand ends to permit these ends to enter the space between the cartridges, and the top of the cartridge holder as the latter is moved from left to right through the feed 50 box. The under sides of the cam plates, from a point some distance removed from the left hand ends, extend downward and toward the right on a gradually increasing curvature until they meet the horizontal lowest surfaces of 55 the cam plates adjacent the inner edge of the inturned flange 15^a of the right hand side plate of the breech casing. The top surfaces of the cam plates are flat and are spaced vertically a distance below the bottom of a horizontal transverse web 16^b of the feed-box sufficient to receive therebetween the top of the 60 cartridge holder 1, and guide the same through said box.

When the cartridge holder is supplied to the 65 firearm the cam plates are located, respective-

ly, just inside the front and rear depending flanges of the holder, the space between the cam plates permitting the spring clips 6 and 7 to pass, as shown in Fig. 5. The top plate 70 of the holder then rests upon the flat top surfaces of the cam plates and is thus supported and guided by said cam plates in its transverse feeding movement. To further guide the holder the transverse guiding brackets 18 75 and 19 are arranged, respectively, at the rear and at the front of the respective cam plates. These guiding brackets are secured to the under side of the transverse web 16^b by any suitable means, such as the rivets 18^a and 19^a.

By the foregoing construction it will be 80 seen that, while the top surfaces of the cam plates 17, 17 support the cartridge holder against downward movement in its passage through the feed box of the firearm, the cam- 85 ming action of the curved under sides of said plates upon the cartridges at points forward and rearward of the spring holding clips 6 and 7 successively depresses said cartridges 90 at the same rate of speed at their front portions as at their rear portions, thereby removing said cartridges downwardly from the recesses 5, 5 against the tension of the spring clips smoothly and without any tendency to bind.

The means for advancing the cartridge 95 holder with a step by step motion may comprise a feed-slide 20 having transverse reciprocating movement in a suitable slide-way provided in the transverse web 16^b of the 100 feed box. The feed slide 20 carries a feed pawl 20^a pivoted in the slide at 20^b and actuated to its operative position by a helical spring 20^c. The nose of the feed pawl is arranged to cooperate with the shouldered 105 lugs 10, 10 on the cartridge holder to move said holder one step to the right on each feeding stroke of the slide 20. A reversely acting feed pawl would engage the lugs 12, 12 with the holder in the position shown in 110 Figs. 3 to 5.

The slide is automatically reciprocated 115 transversely in the operation of the firearm in my usual manner, being connected by suitable means, such as a system of levers similar to those shown in the said patent, to 120 a recoiling part of the firearm, such as the barrel and barrel extension. In the drawings, the first lever 21 of such a system is shown pivoted in the feed box on the vertical pin 21^a, the forward arm of this lever being 125 connected to the feed slide 20 in any suitable manner, as by a stud 21^b on the end of the lever arm projecting into a groove 20^d in the top of the feed slide.

Rearward movement of the holder is pre- 125 vented by a stop pawl 22 pivoted on the under side of the transverse web 16^b of the feed box by means of a vertically extending pivot stud 22^a rigidly connected to said pawl as 130 by a riveted connection. Said stud is

formed at its upper end with a reduced screw-threaded extension adapted to receive a nut 22^b, which is adapted to be turned against the shoulder formed by said reduced end and locked in place.

The forward guide bracket 19 is made in two parts to allow clearance for the stop pawl 22. The pawl 22 is moved to its operative position to cooperate with the shoulders formed by the notches 13, 13 or 14, 14 on the holder 1 by a spring 22^c seated in a recess in the pawl and bearing at one end against an abutment in the feed box. The left hand part of the guide bracket 19 limits the movement of the pawl in one direction.

A finger or extension 22^a permits the pawl 22 to be manually moved to its inoperative position, if it is desired to withdraw a cartridge holder in which some cartridges still remain from the left-hand side of the feed box. The feed pawl 20 is also provided with a stud or projection 20^e having an enlarged head which passes through a hole in the feed slide and projects some distance above the same, where it can be readily grasped between the thumb and forefinger to lift the feed pawl to its inoperative position. By the arrangement shown and described, the operator can move both pawls to their inoperative position and hold them in such position with one hand, while he withdraws the cartridge holder toward the left with his other hand.

What I claim is:

1. A cartridge holder for automatic firearms comprising in combination a normally horizontal plate, means on the plate for holding a plurality of cartridges, and oppositely facing shoulders on the plate for engagement by the feed mechanism of a firearm to feed the holder in either direction relatively thereto as desired.

2. A cartridge holder for automatic firearms comprising in combination a normally horizontal sheet metal top plate having oppositely facing shouldered feed lugs stuck up from the body thereof for engagement by the feed mechanism of a firearm to feed the holder in either direction relatively thereto as desired, and depending means on the plate for holding a plurality of cartridges.

3. A cartridge holder for automatic firearms having an elongated sheet metal body provided with depending flanges having downward opening cartridge seats, the top of the said holder being formed with raised portions at the front and rear thereof respectively, means for holding cartridges in the said seats, and oppositely facing feed lugs projecting upward from the body between the said raised portions thereof, the said lugs lying below the said raised portions and being thus protected against injury.

4. A cartridge holder for automatic firearms comprising in combination a normally horizontal top plate, depending means on the

plate for holding a plurality of cartridges in either of two relatively reversed positions, and means on the holder for engagement by the feed mechanism of a firearm to feed the holder relatively thereto when the holder is in either of two relatively reversed positions with respect to the said firearm.

5. A cartridge holder for automatic firearms comprising in combination a normally horizontal top plate having two similar depending flanges at the edges thereof, the said flanges having similar cartridge receiving recesses therein and being thus adapted for receiving a plurality of cartridges in either of two relatively reversed positions, means on the holder for holding the cartridges in the recesses, and means on the holder for engagement by the feed mechanism of a firearm to feed the holder relatively thereto when the holder is in either of two relatively reversed positions with respect to the said firearm.

6. A cartridge holder for automatic firearms comprising in combination a normally horizontal top plate having two similar depending flanges at the edges thereof, the said flanges having similar cartridge receiving recesses therein and being thus adapted for receiving a plurality of cartridges in either of two relatively reversed positions and the metal of each flange adjacent the recesses therein being adapted to enter annular grooves in the cartridges to hold the cartridges against relative longitudinal movement, means on the holder for holding the cartridges in the recesses, and means on the holder for engagement by the feed mechanism of a firearm to feed the holder relatively thereto when the holder is in either of two relatively reversed positions with respect to the firearms.

7. A cartridge holder for automatic firearms comprising in combination a normally horizontal top plate, depending spring clips on the plate arranged in pairs for holding a plurality of cartridges in either of two relatively reversed positions, and means on the holder for engagement by the feed mechanism of a firearm to feed the holder relatively thereto when the holder is in either of two relatively reversed positions with respect to the said firearm.

8. A cartridge holder for automatic firearms comprising in combination a normally horizontal top plate having two similar depending flanges at the edges thereof, the said flanges having similar cartridge receiving recesses therein and being thus adapted for receiving a plurality of cartridges in either of two relatively reversed positions, depending spring fingers on the plate arranged in pairs for holding the cartridges in either of the said relatively reversed positions in the said recesses, and means on the holder for engagement by the feed mechanism of a firearm to

feed the holder relatively thereto when the holder is in either of two relatively reversed positions with respect to the said firearm.

5 9. A cartridge holder for automatic fire-
arms comprising in combination a normally
horizontal top plate, depending means on the
plate for holding a plurality of cartridges in
either of two relatively reversed positions,
means on the holder for engagement by the
10 feed mechanism of a firearm to feed the
holder relatively thereto when the holder is
in either of two relatively reversed positions
with respect to the said firearm, and means
on the holder adjacent both edges thereof for
15 engagement by a pawl of the firearm to pre-
vent rearward movement when the holder
is in either of the said two relatively reversed
positions.

20 10. A cartridge holder for automatic fire-
arms comprising in combination a normally
horizontal plate, depending means on the
plate for holding a plurality of cartridges in
either of two relatively reversed positions,
and oppositely facing shoulders on the plate

for engagement by the feed mechanism of a 25
gun to feed the holder in either direction rela-
tively thereto as desired when the holder is in
either of two relatively reversed positions
with respect to the said firearm.

11. A cartridge holder for automatic fire- 30
arms comprising in combination a normally
horizontal plate, depending means on the
plate for holding a plurality of cartridges in
either of two relatively reversed positions,
oppositely facing shoulders on the plate for 35
engagement by the feed mechanism of a gun
to feed the holder in either direction rela-
tively thereto as desired when the holder is
in either of two relatively reversed positions
with respect to the said firearm, and means 40
on the holder adjacent both edges thereof for
engagement by a pawl of the firearm to pre-
vent rearward movement when the holder is
in either of the said two relatively reversed
positions. 45

In testimony whereof I have hereunto set
my hand this 26th day of August, 1927.

CHRISTIAN PFEIFFER.