Feb. 3. 1925. 1,525,067

J. M. BROWNING

CARTRIDGE FEEDING DEVICE FOR AUTOMATIC FIREARMS

Filed April 28, 1924

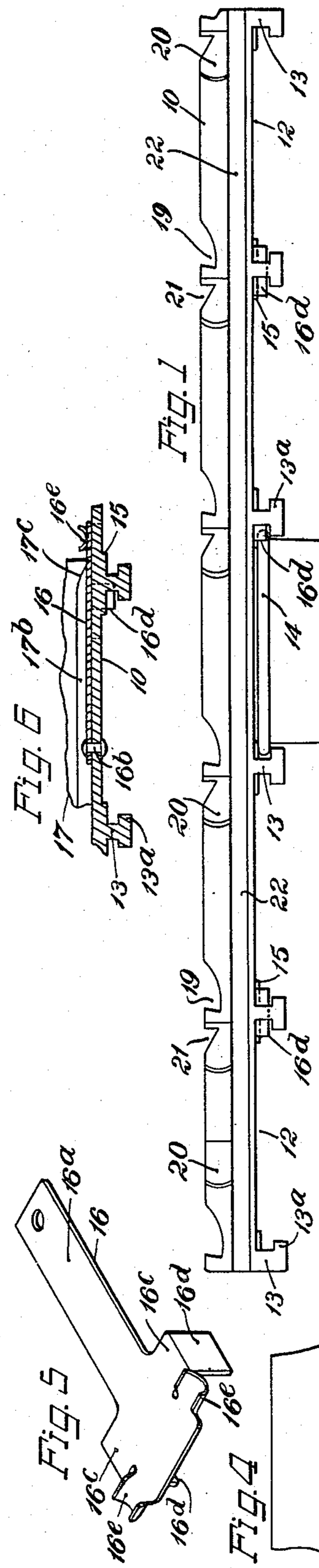

Fig. 1

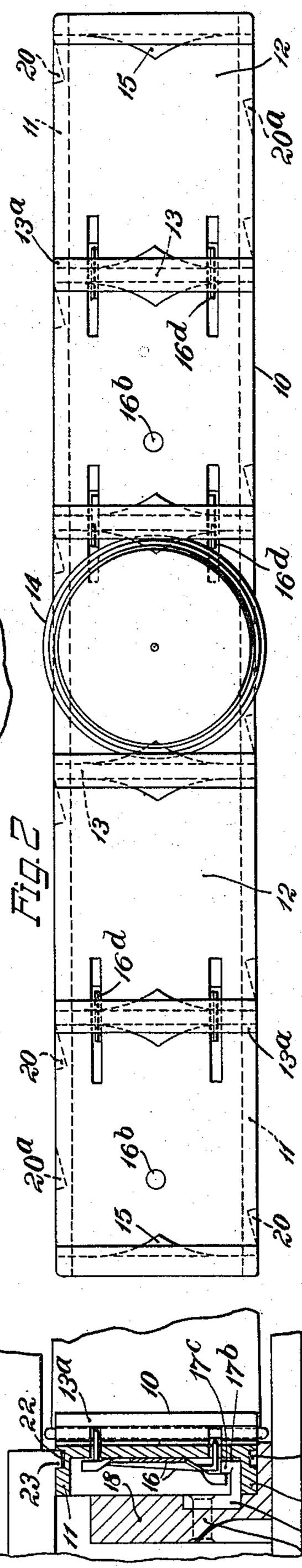

Fig. 2

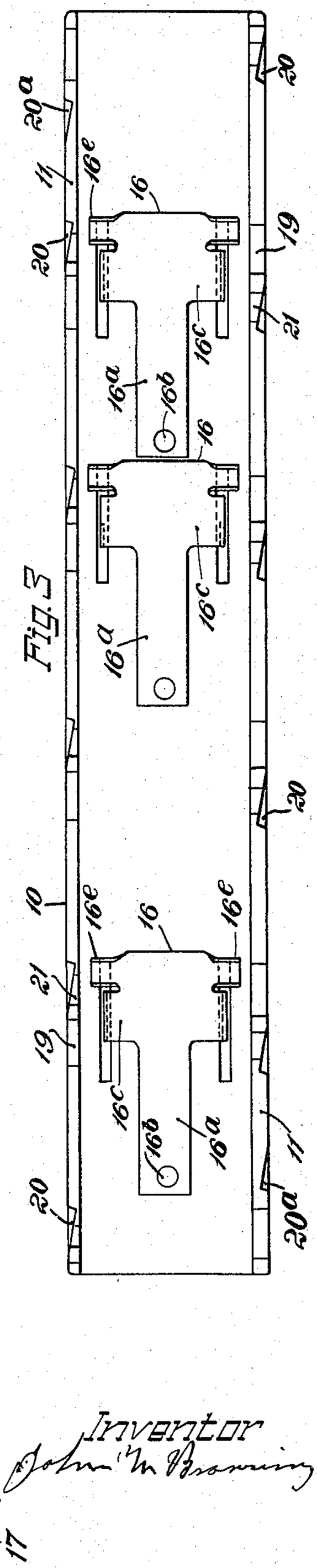

Fig. 3

Fig. 5

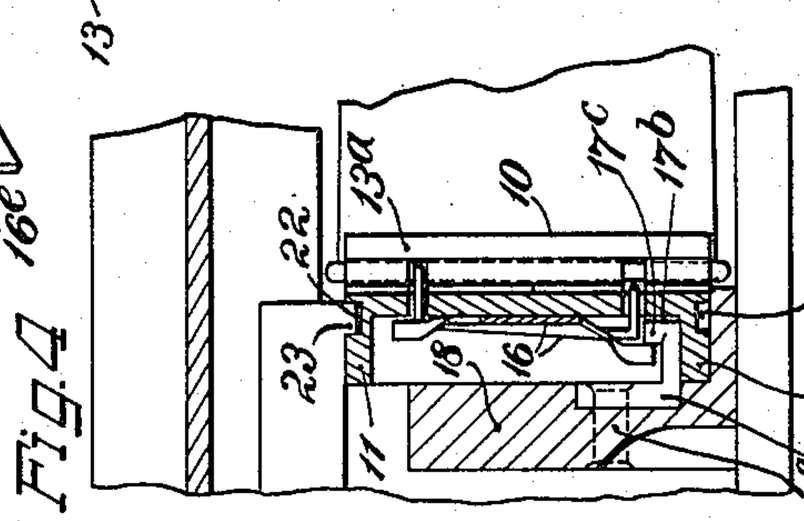

Fig. 4

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CARTRIDGE-FEEDING DEVICE FOR AUTOMATIC FIREARMS.

Application filed April 28, 1924. Serial No. 709,496.

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, a citizen of the United States, residing in Ogden, in the county of Weber and State of Utah, have invented certain new and useful Improvements in Cartridge-Feeding Devices for Automatic Firearms, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

The invention relates generally to automatic firearms, and more particularly to a cartridge feeding device adapted for use with the class of automatic firearms shown, for example, in my pending application Serial No. 680,963, filed December 15, 1923, for automatic firearm.

In that class of firearm, the cartridges are supplied to the gun by a feed plate adapted to be automatically fed step by step through a transverse feed channel of the gun to bring the cartridges successively into the central plane of the gun, where they are automatically removed from the plate and inserted into the barrel chamber. It is an object of the invention to provide a feed plate of this character which can be readily inserted into said feed channel and fed therethrough with either end first, thereby requiring less attention on the part of the operator supplying the loaded feed plates to the gun, and thus aiding in keeping up a continuous automatic fire, when necessary or desirable, as for example, when the gun is being used against a rapidly moving target, such as an airplane. This object is attained by the novel improved feed plate shown in the accompanying drawings and representing a preferred embodiment of the invention.

In the drawings:

Fig. 1 represents a top view of the improved feed plate, showing the rear portion of a cartridge seated therein.

Fig. 2 represents a front view of said feed plate, showing a cartridge seated therein.

Fig. 3 represents a rear view of said plate.

Fig. 4 represents a partial longitudinal vertical section, as seen from the right, through the transverse feed channel of the gun with the improved feed plate therein; the rear portion of a cartridge is shown released ready for downward removal from the plate.

Fig. 5 represents in perspective one of the spring catches for locking the cartridges in the feed plate.

Fig. 6 represents a partial horizontal section through the feed plate, showing the cooperative relation between the cam in the feed channel and the spring catches on said plate.

The novel improved feed plate 10 comprises a substantially flat piece of metal or metal alloy provided with the longitudinal flanges 11 at top and bottom which extend rearwardly when the feed plate is in position in the transverse channel in the gun adapted to receive it.

The front face of the feed plate is provided with seats 12 for receiving the heads of cartridges. These seats are formed by transversely extending ribs 13, having overhanging flanges 13ª for engagement in front of the rims 14 of the cartridges, see Figs. 1 and 2. The two ribs 13 at the ends of the feed plate are provided on their inner sides only with such overhanging flanges 13ª, while the remaining ribs have such flanges on both sides.

By this construction, it will be evident that a cartridge when seated in the feed plate as shown in Figs. 1 and 2, is held against longitudinal displacement therefrom, and that a cartridge can be inserted into or removed from its seat only in a transverse direction but from either of the open ends of said seat. Thus the feed plate is adapted to be fed with either end first through the feed channel of the gun with which it is used, each cartridge being removed from its seat, in either case, through the open end of said seat nearest to the barrel axis.

To make easy the withdrawal of the cartridges from their seats, the greater portion of each seat is of greater depth, see Figs. 1 and 2, than the thickness of the annular rim 14 of the cartridge but, when the cartridge is fully seated centrally of the plate, see Fig. 2, the cartridge rim is firmly held between the overhanging flanges 13ª and the substantially triangular-shaped raised portions 15 provided centrally of the feed plate, one at each side of each cartridge seat, as clearly shown in Figs. 1 and 2.

To hold the cartridges against transverse movement from their seats in the plate 10, means are provided for engaging each cartridge at the opposite sides thereof facing the open ends of its seat. Such means may comprise a series of spring catches 16, one of which is shown detached in Fig. 5. This

catch comprises an elongated spring portion 16[a] adapted to be secured at one end as by a rivet 16[b], centrally of the rear face of the feed plate, see Fig. 3. This elongated portion is normally held by its tension against the rear face of the feed plate and has, near its free end, lateral projections 16[c]. Each of these lateral portions 16[c] is bent at right angles to form stop projections 16[d], which are adapted to extend forwardly through slots in the feed plate and project into the path of the rim of a cartridge, one on each side of the longitudinal axis of the feed plate, thereby holding said cartridge against movement from its seat through either open end thereof.

In the embodiment of the invention selected for illustration, the feed plate is adapted to hold five cartridges, and three spring catches 16 are employed to keep these five cartridges in their seats. The two end catches, one of which is shown detached in Fig. 5, each have wide stop projections 16[d] extending through corresponding slots in the feed plate so as to cause the opposite sides of the stop projections to co-operate with two adjacent cartridges to keep the same in their seats. The intermediate catch, as shown in Figs. 1, 2 and 6, has a narrow stop projection 16[d] which extends into the central cartridge seat only for co-operation with the central cartridge.

This construction and arrangement of the spring catch 16 permits one stop projection 16[d] thereon to be withdrawn rearwardly from a corresponding seat in the feed plate to allow of the insertion into, or removal from, said seat of a catridge through the adjacent open end of the seat, while the other stop projection 16[d] remains in operative position thereby preventing removal of a cartridge from the opposite end of said seat.

In order to so withdraw the inner stop projection 16[d] on a catch 16 rearwardly out of a cartridge seat, as shown in Fig. 4, when said seat reaches the desired position relative to the longitudinal central plane of the gun in the transverse movement of the feed plate through the gun in the manner fully described in my prior application hereinbefore referred to, said catch is provided, at its free end on the opposite sides thereof, with laterally extending rearwardly curved projections 16[e]; the inner one of said projections 16[e] is arranged to co-operate with a fixed cam bracket 17 secured, as by rivets 17[a], to the rear wall 18 of the transverse feed channel of the gun, see Fig. 4. Said bracket 17 is spaced from the bottom of the feed channel so as to permit the inner flange 11 of the feed plate to pass through the space so formed, and it is provided at the front with an upwardly projecting flange 17[b], the forward face of which is in close proximity to the rear face of the feed plate when the same is positioned in the feed channel, see Figs. 4 and 6. This flange has, at each end thereof, a cam surface 17[c] inclined forwardly and outwardly.

As the feed plate is moved toward the right hand side of the gun from the position shown in Fig. 6, for example, the left-hand cam surface 17[c] engages the inner curved projection 16[e] on the catch 16 and thereby moves the inner stop projection 16[d] rearwardly to the position in which the lower stop projection of another catch 16 is shown in Fig. 4, where it is kept by the flange 17[b] until after the cartridge released by said movement of the stop projection, has been moved through the inner open end of its seat in the manner fully disclosed in my prior application hereinbefore referred to.

In this way, all the cartridges in the feed plate will be released, at the proper intervals in the movement of said feed plate through the feed channel of the gun, to permit them to be successively removed therefrom in transverse direction toward the barrel axis as they near the central vertical longitudinal plane of the gun. To prevent the released cartridge from moving downward prematurely, the bottom of a transverse feed channel may be extended laterally toward the left, as fully disclosed in my prior application hereinbefore referred to and also in my prior application Serial No. 705,895, filed April 11, 1924.

The right-hand cam surface 17[c] on the flange 17[b], see Fig. 4, is provided so as to permit withdrawal of the feed plate toward the left, when it is desired to do so, after one of said curved projections 16[e] has passed to the right beyond the right-hand end of the flange 17[b].

The construction and arrangement of the spring catches 16 which permit one of the stop projections 16[d] thereon to be moved from its corresponding seat or seats is advantageous also in loading the feed plate, when it is obviously desirable to prevent movement of a cartridge through the opposite end of the seat from that through which it is inserted. For this purpose, a suitable tool having cam surfaces to co-operate with the rearwardly curved projections 16[e] on the catches 16 and similar to that fully disclosed in my prior application Serial No. 680,963 may be provided for simultaneously moving each of the stop projections 16[d] adjacent one side of the feed plate to inoperative position.

To further adapt the feed plate for being moved through the feed channel edgewise either end first, both the flanges 11 are provided at the rear with a series of equally spaced notches 19 adapted to co-operate alternately with the feed pawl of the gun,

not shown, to advance the plate step by step through the gun. A series of equally spaced notches 20 is also provided in each flange, in the outside face thereof, for co-operation with the stop pawl (not shown) of the gun. It will be noted that weakening notches 21 are provided opposite the shoulders formed by the notches 19, whereby, if the feed plate should jam in the operation of the gun, no serious damage would result, as fully described in my prior application Serial No. 680,963.

The notches 19, 20 and 21 on the flanges 11 of the feed plate are reversely arranged, on one flange, from their arrangement on the other flange so that they co-operate in like manner with the feeding mechanism of the gun, irrespective of which end of the feed plate is foremost.

An additional notch 20^a has been provided near the end of each flange 11 for co-operation with the stop pawl of the gun. These notches are provided to prevent accidental withdrawal of the feed plate after it has been manually inserted into the feed channel far enough to bring the first of the notches 19 thereon into co-operative relation with the feed pawl of the gun.

To assist in guiding the feed plate 10 through the feed channel of the gun it is provided with guide grooves 22, one at the top and one at the bottom of the plate, one of said grooves being adapted to co-operate with a corresponding rib 23 forming a part of the wall of said transverse feed channel of the gun when one end of the feed plate is foremost and the other groove 22 being likewise adapted to co-operate with said rib when the other end of said plate is foremost.

While I have described in this specification and shown in the drawings a reversible cartridge holder or feed plate particularly adapted for use in connection with a gun of the class described in my prior applications, hereinbefore referred to, it is evident that it may be applied to other classes of automatic firearms.

What I claim and desire to secure by Letters Patent is:

1. A cartridge holder for automatic firearms comprising a substantially flat elongated plate having seats in one side thereof to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats opening in transverse directions to permit the insertion of cartridges therein or their removal therefrom alternatively in opposite directions, whereby the holder can be moved through the gun either end foremost.

2. A cartridge holder for automatic firearms comprising a substantially flat elongated plate adapted to be fed edgewise through a transverse feed channel on the firearm with which it is to be used, said plate having seats in its front side to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, but which permit cartridges to be placed therein or removed therefrom by movement transverse to said plate and alternatively in opposite directions.

3. A cartridge holder for automatic firearms comprising a substantially flat elongated plate, said plate having cartridge receiving seats in its front face which prevent endwise movement of the cartridges seated therein and are open at top and bottom, and means for normally keeping said cartridges in said seats.

4. A cartridge holder for automatic firearms comprising a substantially flat elongated plate provided with transverse ribs on its front face having overhanging flanges, thereby forming seats for the heads of cartridges which prevent longitudinal displacement of said cartridges therefrom but permit removal of said cartridges from said plate transversely thereof and alternatively in opposite directions.

5. A cartridge holder for automatic firearms comprising a substantially flat elongated plate, said plate having a plurality of seats in its front face adapted to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats being open at top and bottom, and means for normally preventing movement of said cartridges through said openings, said means comprising spring-actuated catches adapted to engage said cartridges on opposite sides thereof.

6. A cartridge holder for automatic firearms comprising a substantially flat elongated plate adapted to be fed edgewise through a transverse feed channel on the firearm with which it is to be used, said plate having in its front face a plurality of seats adapted to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats being open at top and bottom for the insertion of cartridges into or their removal from said seats by movement transversely of said plate in either direction, and means for holding said cartridges in said seats comprising spring-actuated catches secured to the rear face of said plate and having stop projections extending through slots in said plate into said seats to engage the cartridges on opposite sides thereof.

7. A cartridge holder for automatic firearms comprising a substantially flat elongated plate, said plate having in its front face a plurality of seats adapted to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats being open at top and

bottom, and means for normally preventing transverse movement of said cartridges through either of said openings, said means comprising resilient catches each having stop projections thereon extending into a corresponding seat for engagement with a cartridge on opposite sides thereof.

8. A cartridge holder for automatic firearms comprising a substantially flat elongated plate having in one side thereof a plurality of seats adapted to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats being open at top and bottom, and means for holding said cartridges in their seats comprising spring catches each having stop projections spaced transversely of said plate and extending into a corresponding seat for engagement with a cartridge on opposite sides thereof, each of said catches being constructed and arranged to permit withdrawal of one of its stop projections from its corresponding seat without withdrawing the other of its stop projections from said seat.

9. A cartridge holder for automatic firearms comprising a substantially flat elongated plate adapted to be fed edgewise through a transverse feed channel on the firearm with which it is to be used, said plate having seats in its front side to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, but which permit cartridges to be placed therein or removed therefrom by movement transverse to said plate alternatively in opposite directions, and means for holding said cartridges against transverse movement from said seats comprising spring-actuated catches engaging said cartridges.

10. A cartridge holder for automatic firearms comprising a substantially flat elongated plate adapted to be moved through a transverse feed channel on the firearm with which it is to be used, said plate having seats in its front face to receive the heads of cartridges, said seats opening transversely of the plate in opposite directions, and means on said plate adapted to co-operate with the feeding mechanism of the firearm to move said plate step by step through the feed channel of the arm alternatively with either end foremost.

11. A cartridge holder for automatic firearms comprising a substantially flat elongated plate having in one side thereof a plurality of seats adapted to receive the heads of cartridges and hold said cartridges against longitudinal displacement therefrom, said seats being open at top and bottom, and means for holding said cartridges in their seats comprising catches each having an elongated thin spring portion secured at one end to the rear face of the plate and carrying at its opposite end lateral projections provided with stop projections extending through corresponding slots in the plate into a cartridge seat to engage the cartridge seated therein on opposite sides thereof to prevent movement of the same through said openings, said elongated spring portion permitting one of said stop projections to be withdrawn from holding engagement with said cartridge while the other of said stop projections remains in operative engagement with said cartridge.

12. A cartridge holder comprising a substantially flat elongated plate having cartridge receiving seats in its front face opening transversely of said plate in opposite directions to permit removal of the cartridges therefrom alternatively through either of said openings, whereby said plate is adapted to be fed through the feed channel of a firearm with which it is to be used either end foremost.

This specification signed and witnessed this 26th day of April A. D. 1924.

JOHN M. BROWNING.

In the presence of—
J. CALVIN BRIGHT,
MARY J. SPEIRS.