

Oct. 15, 1946.

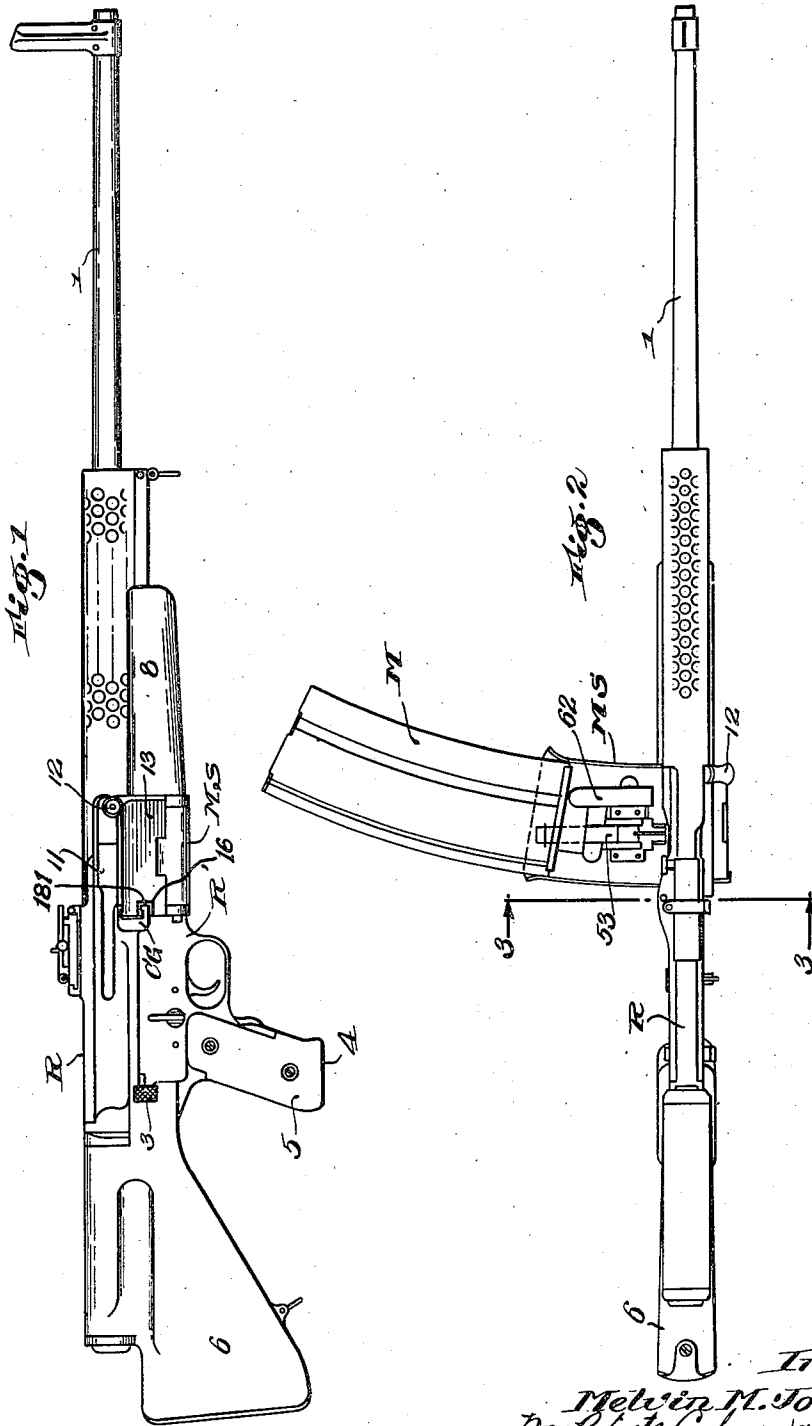
M. M. JOHNSON, JR

2,409,568

FIREARM

Filed March 13, 1941

6 Sheets-Sheet 1



Inventor  
Melvin M. Johnson  
By Robert C. Fishman & Woodbury  
703 City



Oct. 15, 1946.

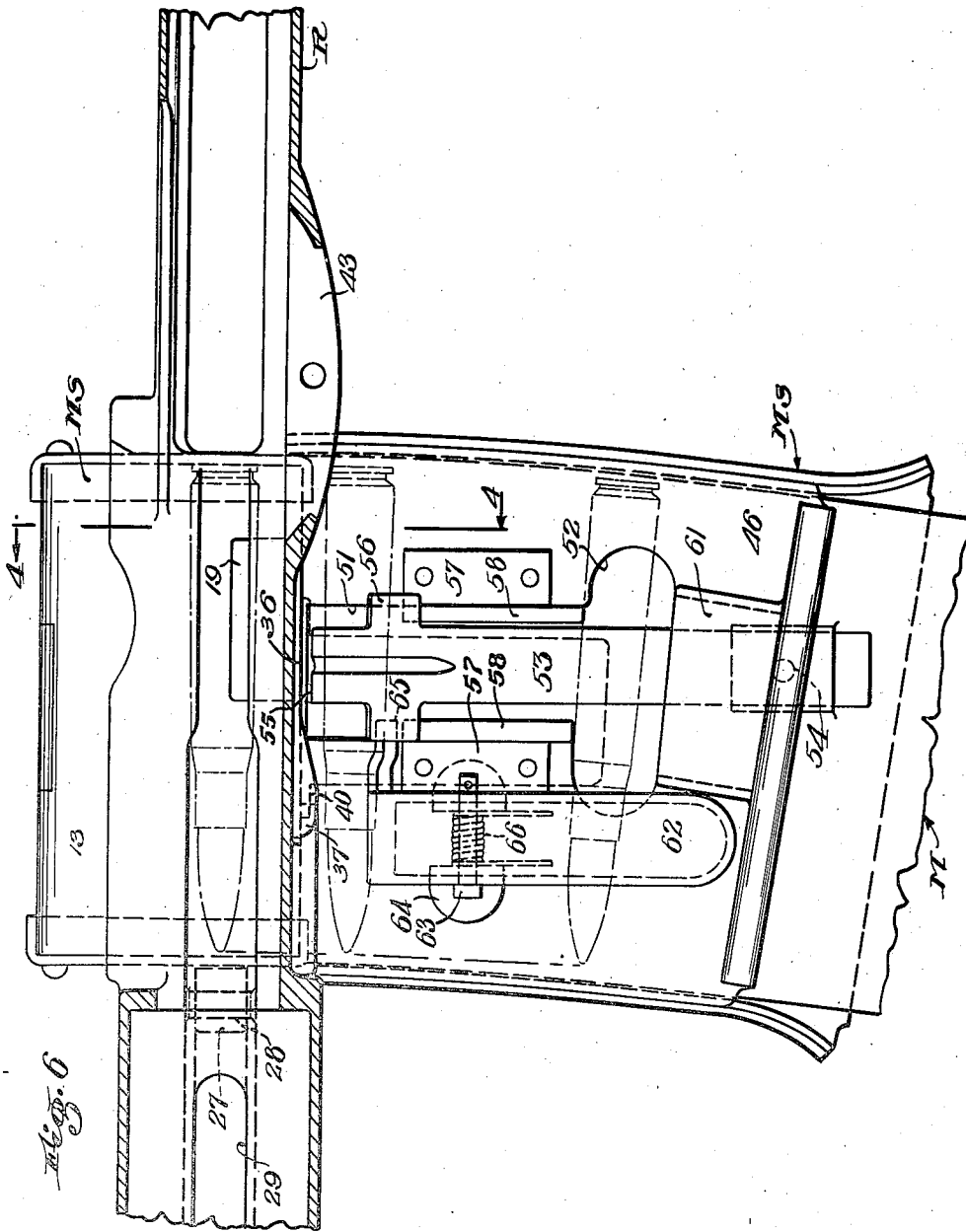
M. M. JOHNSON, JR

2,409,568

FIREARM

Filed March 13, 1941

6 Sheets-Sheet 3



Inventor:  
M. M. Johnson, Jr.  
by Robert Cushman & Woodbury  
New York, N. Y.



Oct. 15, 1946.

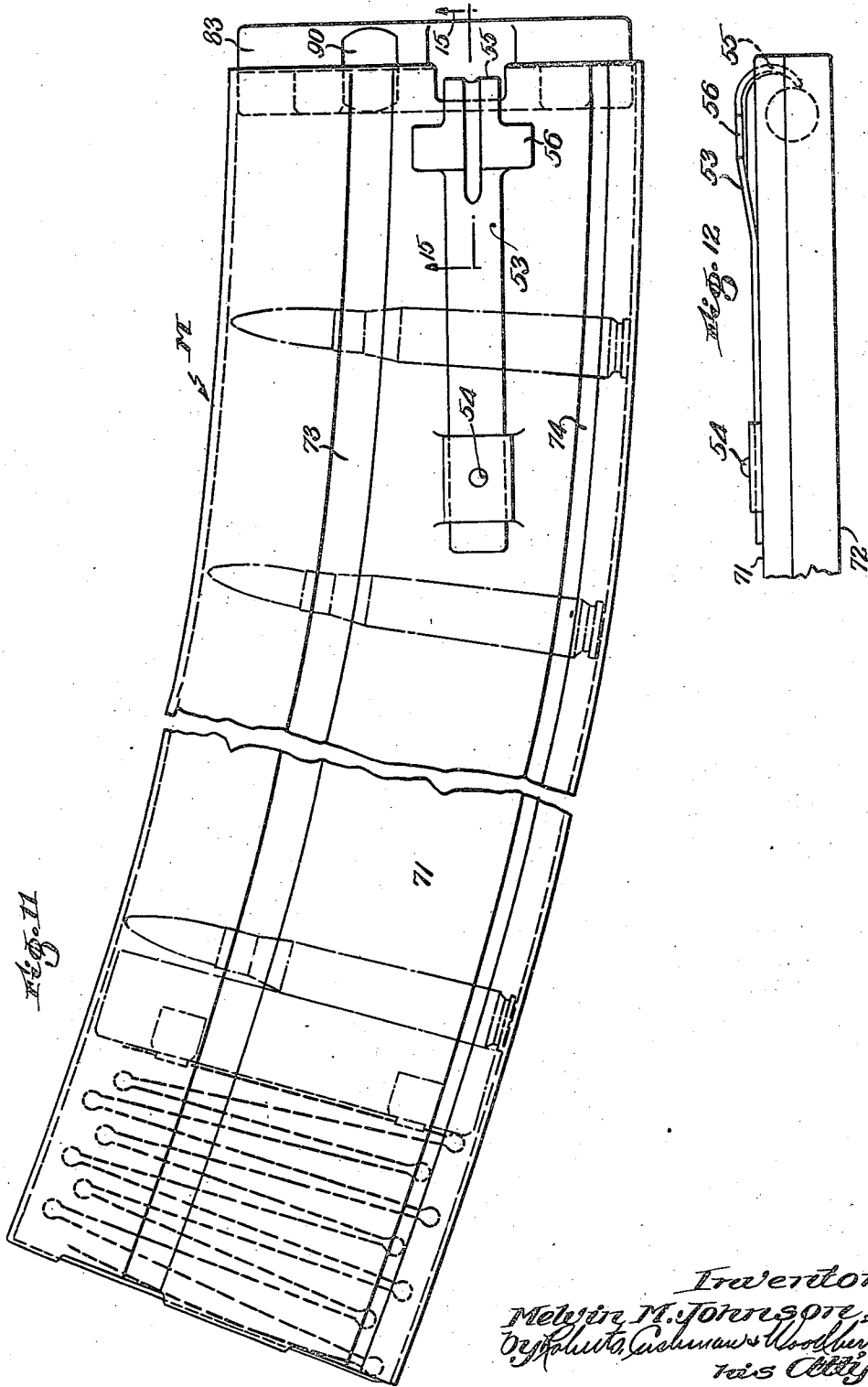
M. M. JOHNSON, JR

2,409,568

FIREARM

Filed March 13, 1941

6 Sheets-Sheet 5



Inventor  
Melvin M. Johnson, Jr.  
By *[Signature]*  
his Attys.

Oct. 15, 1946.

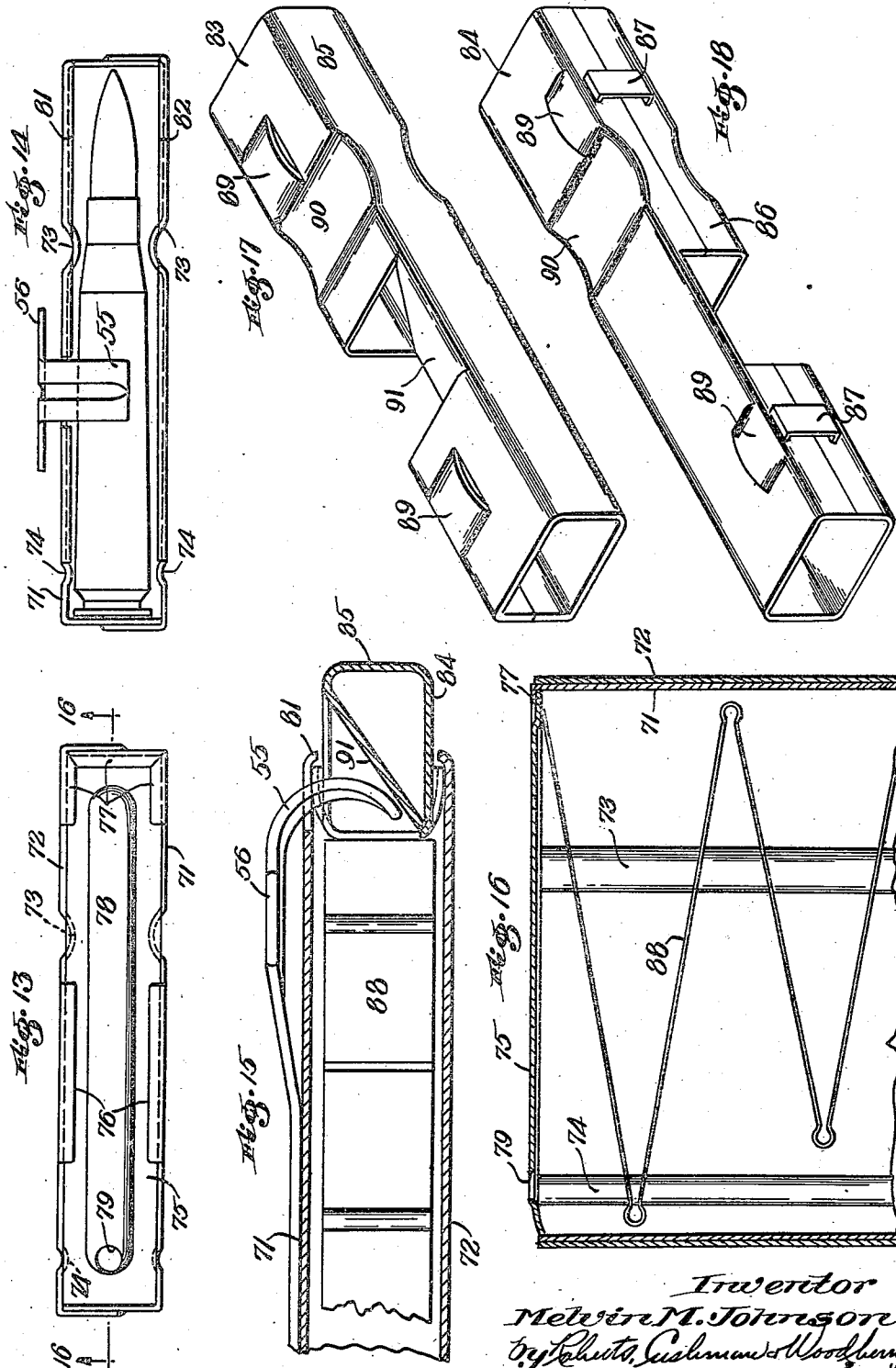
M. M. JOHNSON, JR

2,409,568

FIREARM

Filed March 13, 1941

6 Sheets-Sheet 6



Inventor  
Melvin M. Johnson  
by Robert Cushman Woodbury  
his atty.

## UNITED STATES PATENT OFFICE

2,409,568

FIREARM

Melvin M. Johnson, Jr., Brookline, Mass., assignor to Melvin M. Johnson and Melvin M. Johnson, Jr., both of Brookline, and Edward E. Rice, Boston, Mass., as trustees of Johnson Patent Trust of Boston, Mass.

Application March 13, 1941, Serial No. 383,072

7 Claims. (Cl. 42—18)

1

This invention relates to means for feeding cartridges to firearms, particularly automatic and semi-automatic guns of the military rifle and machine gun type. While various kinds of breech action and fire control mechanism may be employed, the mechanism is preferably of the type disclosed in my prior Patents 2,094,156, 2,146,743 and 2,215,470 and copending application Ser. No. 383,071, filed March 13, 1941, now Patent No. 2,383,487, dated August 28, 1945.

The principal objects of the invention are to provide cartridge-feeding mechanism which is simple and economical in construction, which is reliable and durable in use, which can be assembled and disassembled with facility, which may be loaded or unloaded quickly and easily without detaching the magazine from the firearm, which can be loaded or unloaded with the bolt in either open or closed position, which can be loaded with loose cartridges or from standard cartridge clips, which can be reloaded if only partially empty, which requires no lips on the forward end of the magazine and which is generally superior to prior cartridge-feeding mechanisms of the type to which the present invention relates.

Other objects of the invention will be evident from the following description and the illustrated embodiments shown in the accompanying drawings in which

Fig. 1 is a side view of a firearm of the type above referred to, with one embodiment of the present invention incorporated therein;

Fig. 2 is a top plan view of the firearm;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a section on line 4—4 of Fig. 6;

Fig. 5 is a perspective view of a part of the cartridge-feeding mechanism;

Fig. 6 is a section on line 6—6 of Fig. 3;

Fig. 7 is a left side elevation with parts broken away;

Fig. 8 is a front view of the front end plate of the magazine support;

Fig. 9 is a rear view of the rear end plate of the magazine support;

Fig. 10 is a front end view of the subframe which carries the fire-control mechanism, viewed from the line 10 in Fig. 7, a part of the receiver being shown in section;

Fig. 11 is a top plan view of the magazine;

Fig. 12 is a rear elevation of the right end of the magazine;

Fig. 13 is an elevation of the left end of the magazine;

Fig. 14 is an elevation of the right end of the magazine;

2

Fig. 15 is a section on line 15—15 of Fig. 11; Fig. 16 is a section on line 16—16 of Fig. 13; and Figs. 17 and 18 are perspective views of the magazine follower.

The particular embodiment of the invention chosen for the purpose of illustration comprises a barrel 1 and a receiver R having a perforated extension surrounding the rear end of the barrel, the barrel being free to reciprocate back and forth in the receiver as fully described in the aforesaid patents. Sliding onto the receiver R from the rear with a dovetail connection (Fig. 10) is a subframe R' which carries the firing mechanism disclosed in the aforesaid copending application, the subframe being held in normal position by means of a catch 3 which is pressed inwardly to release the subframe. Depending from the subframe is a pistol-type grip 4, the sides of which are covered with face pieces of wood or plastic material. Attached to the rear end of the receiver is a stock 6, the upper portion of which has a cylindrical opening to receive the rear end of the receiver. A wooden grip piece 8 is mounted under the perforated extension of the receiver. The right-hand side of the receiver is provided with a slot 11 to accommodate the bolt handle 12 with which the breech bolt may be retracted manually.

Mounted in a recess between the subframe R' and the grip piece 8 is a magazine support MS which projects from the left-hand side of the gun as shown in Fig. 2 and which is adapted to receive into its open left end an elongate magazine M. As shown in Figs. 3 and 4 the cartridges feed from the left to the position occupied by the cartridge C where the cartridge is picked up by the bolt as the bolt moves forward in the bolt chamber 7 from recoil position to firing position. In line with the mouth of the magazine is an opening O through which cartridges may be inserted into the magazine from a clip CC (Fig. 3) fitting into the clip guide CG projecting from the right-hand side of the receiver immediately in the rear of the magazine support (Fig. 1). The opening O is normally closed by a closure 13 pivotally mounted on the magazine support at 14, the closure having an inclined portion 15 which, when the closure is in closed position, serves to guide the foremost cartridge into the delivery position indicated at C in Figs. 3 and 4. The closure 13 has a depressed portion 16 to receive a detent 18 (Fig. 1) projecting inwardly from the lower forward end of the clip guide CG to limit the outward movement of the closure, in response to the spring 18, to the position shown in full lines in Fig. 4. The closure 13 has a recess 18 to accommodate the

3

part 19 of the magazine support which assists in guiding the cartridges as they pass from the mouth of the magazine to the inclined surface 15 of the closure.

The magazine support MS has front and rear ends 21 and 22 which telescope over the body of the support and are welded thereto. The ends have aligned openings 23 and 24 to receive the pintle 14 and the front end is recessed at 25 to provide more space for the cartridge as it rides upwardly and forwardly into the firing chamber. Welded to the front face of the front end 21 is a block 26 having forwardly projecting jaws 27 adapted to straddle a pin 28 bridging the slot 29 in the bottom of the receiver. Welded to the rear face of the rear end 22 is a block 31 having at the bottom a T-shaped projection 32 and at the top a rearward projection 33 carrying a side projection 34. As shown in Fig. 7 the projection 32 extends into a similarly shaped recess 35 in the forward end of the subframe R' and the projection 33 extends into the opening in the bottom of the receiver R, the combined widths of the parts 33 and 34 being equal to the width of the opening in the receiver as shown in Fig. 3. Projecting upwardly from the top of the magazine support is a flange 36 having at the top an outturned lip 37. On the left-hand side of the receiver is a rib 38, the rear end of which is slotted to the line 39 (Fig. 7) to form a tongue 40 which extends under the lip 37 along the outer side of the flange 36 (Figs. 4 and 7). The rear end of the flange 36 is cut away as indicated at 41 in Fig. 7 so that the flange does not interfere with the ejector 42 mounted in slot 43 in the left-hand side of the receiver. To remove the magazine support the subframe R' is first removed by pressing inwardly on the catch 3 (Fig. 1) and then sliding the subframe off the receiver to the rear, the subframe being mounted on the receiver by means of the dovetail connection shown in Fig. 10. After the subframe has been removed the magazine support may be slipped to the rear until the flange 36 is disengaged from the tongue 40 and until the jaws 27 are disengaged from the pin 28, whereupon the magazine support may be moved downwardly away from the receiver. Instead of entirely removing the subframe it may merely be retracted a distance equal to the combined length of the lugs 27 and 32, whereupon the magazine support may be removed without entirely removing the subframe.

The magazine support has a left-hand extension comprising a bottom 44 and a top 46, the bottom telescoping over the top as shown in Fig. 7 and being welded to the top. As shown in Fig. 4 the bottom 44 is preferably integral with the left-hand vertical wall 47 of the magazine support. To brace the left-hand extension a channel-shaped member 48 (Fig. 7) is welded to the walls 44 and 47.

Referring particularly to Figs. 3, 4 and 6 the top 46 of the left-hand extension of the magazine support is provided with an opening 51 the left-hand end of which is enlarged as indicated at 52 in Fig. 6, this opening being provided to receive a spring detent 53 mounted on the magazine at its rear end as indicated at 54 and having a nose 55 at its other end to retain the cartridges in the magazine as indicated in Fig. 12. Near its forward end the detent has laterally projecting ears 56 for the purpose of moving the detent to retracted position as the magazine M is pushed into the left-hand extension of the magazine support. Mounted on opposite sides of the opening 51 are

4

angle guides 57 having inclined surfaces 58 for engagement with the lateral extensions 56. At the forward ends of the inclined surfaces 58 are recesses 59 into which the lateral ears 56 snap to hold the magazine in the magazine support. The top 46 of the magazine support has a raised portion 61 to accommodate the detent 53 as the magazine is slipped into the support from the left. As the magazine is pushed into the support the ears 56 slide up the inclined surfaces 58 to move the detent 53 to the retracted position shown in Figs. 3 and 4.

For the purpose of lifting the ears 56 out of the recesses 59 to remove the magazine from the support, a lever 62 is pivotally mounted on the extension 46 by means of a pin 63 journaled in angle brackets 64 fast to the extension, the lever having a lateral extension 65 extending under one of the ears 56 and the pin 63 carrying a spring 66 to hold the lever in the retracted position shown in Figs. 3 and 4. To remove the magazine the outer end of the lever 62 is depressed to lift the ears 56 out of the recesses 59 whereupon the magazine may be slipped out of the support to the left.

The magazine shown in Figs. 11 to 18 comprises top and bottom portions 71 and 72 telescoped together as shown in Figs. 13 and 14 with their overlapping parts welded together. The upper and lower walls of the magazine are provided with longitudinal depressions 73 and 74 to serve as guides for the cartridges, the depression 73 being deeper than the depression 74 because of the smaller diameter of the portions of the cartridges between the ribs 73 (Fig. 14). The left-hand end of the magazine is closed by a plate 75 which fits between the ends of the ribs 73 and 74 and flanges 76 and 77 on the top and bottom members 71 and 72. The end plate 75 has its central portion struck up in the form of a longitudinal ridge 78 one end of which is provided with an opening 79 to receive the pointed end of a cartridge (Fig. 16) to facilitate removal of the end by springing the left-hand end (Figs. 13 and 16) of the plate outwardly and then sliding the plate to the left. At the right-hand end of the magazine the top and bottom walls 71 and 72 are bent inwardly to form lips 81 and 82 (Fig. 15).

The follower shown in Figs. 17 and 18 comprises a tubular member having a top wall 83, a bottom wall 84, a front wall 85 and a rear wall 86. The member is preferably made of sheet metal and the meeting edges of the sheet are tied together by U-shaped straps 87 the ends of which are spot welded to the follower so that the central portions of the straps are spaced away from the rear face 86 (Fig. 18) to receive the end of the follower spring 88 as shown in Fig. 11. The top and bottom walls 83 and 84 of the follower are struck up to form stops 89 for engagement with the lips 81 and 82 to limit the outward movement of the follower in response to the spring 88 to the position shown in Fig. 15. The top and bottom walls 83 and 84 are also provided with transverse recesses 90 to accommodate the ribs 73. Throughout the length of the follower corresponding to the width of the hook 55 the rear wall 86 is cut away and the top wall is bent down to form the inclined surface 91 (Figs. 15 and 17). Thus when the follower is in the fully extended position shown in Fig. 15 the detent 53 may lie in normal position against the top of the magazine with the nose 55 extending into the recess in the follower, and when the follower is pressed into the magazine in loading the maga-

5

zine the nose 55 slides up the inclined surface 91. After the magazine has been loaded the nose 55 snaps back to the position shown in Figs. 12 and 15 to hold the cartridges in the magazine until the magazine is inserted into the magazine holder. In inserting the magazine into the magazine holder the nose 55 is automatically retracted to the position shown in Figs. 3 and 4 as above described.

From the foregoing it will be evident that whether the magazine is partly or entirely empty it may be quickly filled with cartridges merely by pressing the cartridges into the open end of the magazine, that this loading operation may be performed either with or without a loading clip and either before or after the magazine has been inserted into the magazine holder, that the insertion of the clip CC into the clip guide CG automatically opens the closure 13 to permit the insertion of the cartridges from the clip, that the magazine may be reloaded with the bolt in either retracted or firing position, that the magazine may be inserted and latched in position merely by pushing it into the extension 46 of the magazine support and that the magazine may be readily removed merely by depressing the lever 62.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A firearm comprising a receiver having a bolt chamber for a recoiling bolt, a cartridge magazine, a magazine support for detachably holding the magazine in position to deliver cartridges along a passageway leading from one side of the receiver to an outlet adjacent the path of the bolt, a spring-pressed follower for advancing the cartridges along said passageway to said outlet, the receiver having a loading opening in the other side thereof in alignment with said passageway through which cartridges may be loaded into the magazine along a path passing through the receiver past the bolt chamber tangentially, without first retracting the spring-pressed follower and without passing cartridges through the bolt chamber, and means on the magazine support for closing said loading opening, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise of the cartridge channel leading to the mouth, a detent for obstructing said mouth when the magazine is removed from the support to prevent the cartridges from being ejected by said follower through the open mouth, and a door pivotally mounted to swing into the magazine support in response to pressure on its outer surface to permit the magazine to be loaded through the magazine support, the door having an inner surface inclined to said outer surface for guiding cartridges along said passageway toward the outlet adjacent the path of the bolt, whereby the magazine may be loaded either before or after it is attached to the support by pushing cartridges through said mouth lengthwise of said channel.

2. A firearm comprising a receiver having a bolt chamber for a recoiling bolt, the receiver having a transverse recess adjacent one side of the bolt chamber, a magazine support mounted in said recess, an elongate magazine, means for detachably supporting the magazine on one side of said support with its mouth directed approximately tangentially to the bolt chamber, the

6

other side of the support opposite said mouth having an opening to permit the passage of cartridges through the receiver to or from the mouth of the magazine without passing through the bolt chamber, and a door on the support for closing said opening, the mouth of the magazine being open so that cartridges may enter or leave the magazine lengthwise thereof, a detent for obstructing said mouth when the magazine is removed from the support to prevent the cartridges from being ejected by said follower through the open mouth, and a door pivotally mounted to swing into the magazine support in response to pressure on its outer surface to permit the magazine to be loaded through the magazine support, the door having an inner surface inclined to said outer surface for guiding cartridges along said passageway toward the outlet adjacent the path of the bolt, whereby the magazine may be loaded either before or after it is attached to the support by pushing cartridges through said mouth lengthwise thereof.

3. A firearm comprising a receiver having a chamber, a recoiling bolt in the chamber, the receiver having a recess in one side, a magazine holder mounted in said recess, the holder having a magazine opening in one side and a loading opening in the opposite side, a magazine, means for detachably mounting the magazine in the first opening with its mouth directed toward the other opening, said openings being offset to one side of the bolt so that with the bolt in closed position cartridges may be pushed from the loading opening through the receiver past the bolt and thence into the magazine, and a spring-pressed closure for the loading opening, the closure being mounted on said holder to open automatically in response to pressure on its outer side when inserting cartridges, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise of its cartridge channel leading to the mouth, and a detent for obstructing said mouth when the magazine is removed from the holder to prevent the cartridges from being ejected by said follower through the open mouth, whereby the magazine may be loaded either before or after it is attached to the holder by pushing cartridges through said mouth lengthwise of said channel.

4. A firearm comprising a receiver having a bolt chamber, a recoiling bolt in the chamber, the receiver having a transverse recess adjacent one side of the bolt chamber, a magazine holder mounted on the receiver, both ends of the holder being open and one end being presented to said recess, the holder having a tubular portion, a tubular magazine fitting into the tubular portion of the holder from the other end of the holder, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise thereof, and a door on said holder opposite said mouth for guiding the foremost cartridge into position to be picked up by said bolt, the door being retractible to an open position in which cartridges may be inserted into the magazine past said bolt, whereby the magazine may be loaded either before or after it is attached to the holder by pushing cartridges through said mouth lengthwise of the magazine.

5. A firearm comprising a receiver having a bolt chamber, a recoiling bolt in the chamber, the receiver having a transverse recess adjacent one side of the bolt chamber, a magazine holder mounted on the receiver, both ends of the holder being open and one end being presented to said

7

recess, the holder having a tubular portion, a tubular magazine fitting into the tubular portion of the holder from the other end of the holder, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise thereof, a follower movable through said open mouth to push the last cartridge beyond the end of the magazine into position to be picked up by the bolt, a movable detent for obstructing said mouth when the magazine is removed from the holder to prevent the cartridges from being ejected by said follower through the open mouth, and a door on said holder opposite said mouth for guiding the foremost cartridge into position to be picked up by said bolt, the door being retractible to an open position in which cartridges may be inserted into the magazine past said bolt, whereby the magazine may be loaded either before or after it is attached to the holder by pushing cartridges through said mouth lengthwise of the magazine.

6. A firearm comprising a receiver having a bolt chamber, a recoiling bolt in the chamber, the receiver having a transverse recess adjacent one side of the bolt chamber, a magazine holder mounted on the receiver, both ends of the holder being open and one end being presented to said recess, the holder having a tubular portion, a tubular magazine fitting into the tubular portion of the holder from the other end of the holder, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise thereof, a follower movable through said open mouth to push the last cartridge beyond the end of the magazine into position to be picked up by the bolt, and a door on said holder opposite said mouth for guiding the

8

foremost cartridge into said position, the door being retractible to an open position in which cartridges may be inserted into the magazine past said bolt, whereby the magazine may be loaded either before or after it is attached to the holder by pushing cartridges through said mouth lengthwise of the magazine.

7. A firearm comprising a receiver having a bolt chamber, a recoiling bolt in the chamber, the receiver having a transverse recess at one side thereof, a frame slidably interconnected with said side of the receiver for relative movement lengthwise of the receiver, the frame being constructed and arranged to carry fire-control mechanism, a magazine holder having a fastener at one end of said recess for engagement with the receiver, interengaging means on said frame and holder at the other end of the recess so that the holder can be removed by sliding the frame away from the recess, both ends of the holder being open and one end being presented to said recess, the holder having a tubular portion, a tubular magazine fitting into the tubular portion of the holder from the other end of the holder, the magazine having an open mouth through which cartridges may enter or leave the magazine lengthwise thereof, and a door on said holder opposite said mouth for guiding the foremost cartridge into position to be picked up by said bolt, the door being retractible to an open position in which cartridges may be inserted into the magazine past said bolt, whereby the magazine may be loaded either before or after it is attached to the holder by pushing cartridges through said mouth lengthwise of the magazine.

MELVIN M. JOHNSON, JR.