Oct. 9, 1956 W. F. ROPER 2,765,557

CARRIER LATCH CONSTRUCTION FOR REPEATING FIREARMS

Filed Aug. 25 1953 3 Sheets-Sheet 1

FIG. 1

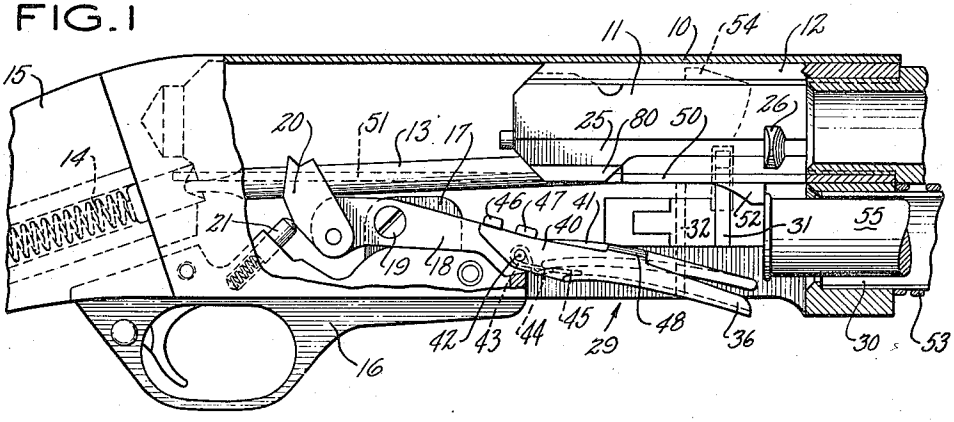


FIG. 2

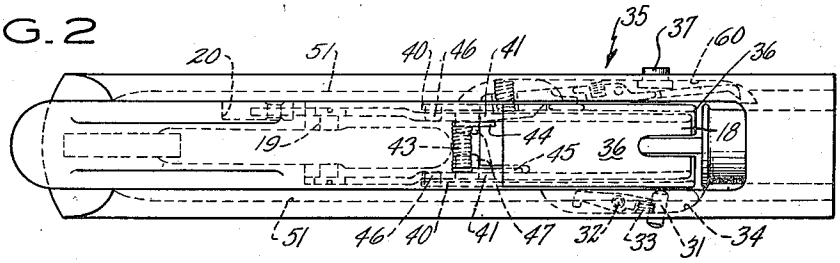


FIG. 3

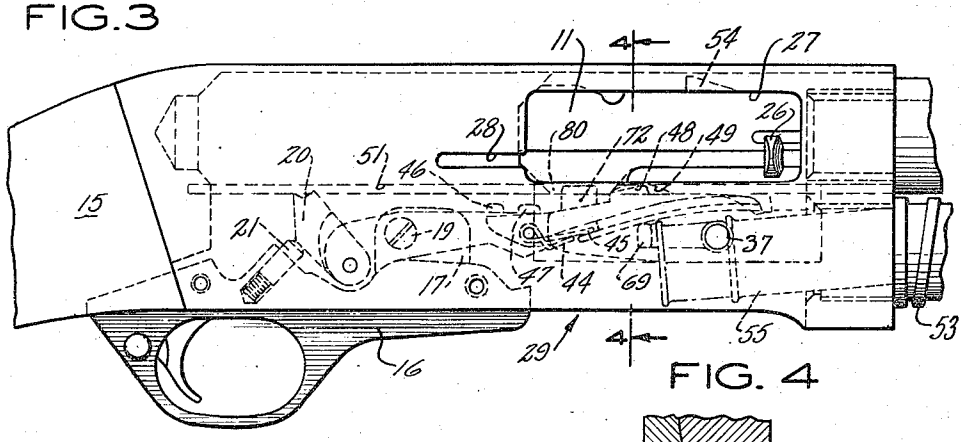
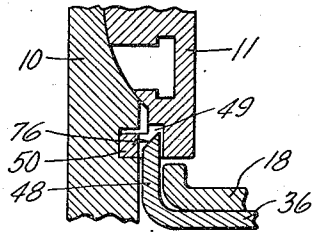


FIG. 4



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CARRIER LATCH CONSTRUCTION FOR REPEATING FIREARMS

Filed Aug. 25 1953 3 Sheets-Sheet 2

FIG. 5

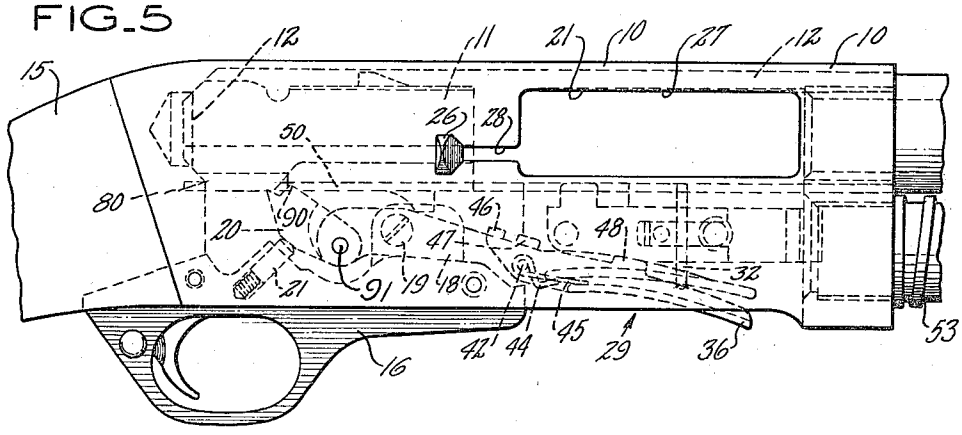


FIG. 6

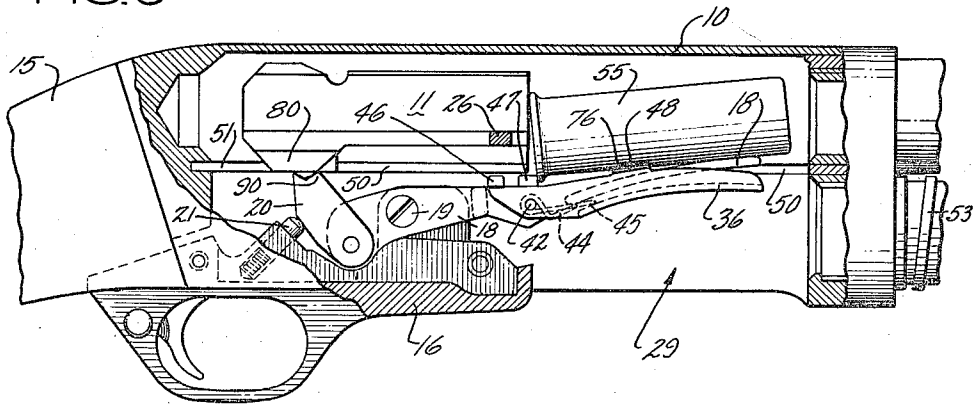


FIG. 12

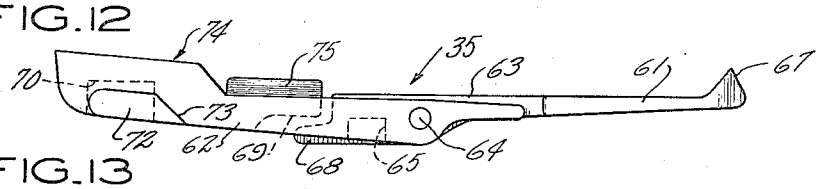
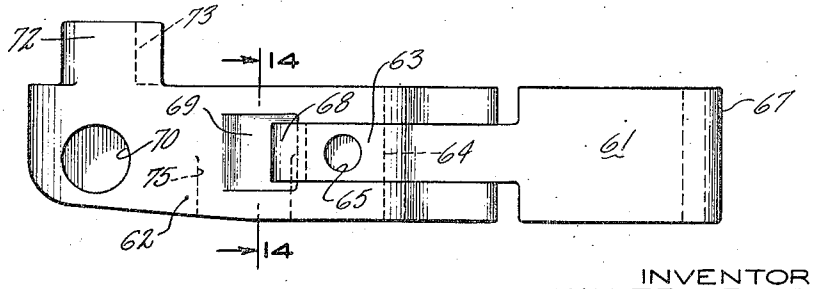


FIG. 13



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Oct. 9, 1956 W. F. ROPER 2,765,557

CARRIER LATCH CONSTRUCTION FOR REPEATING FIREARMS

Filed Aug. 25 1953 3 Sheets-Sheet 3

FIG. 7

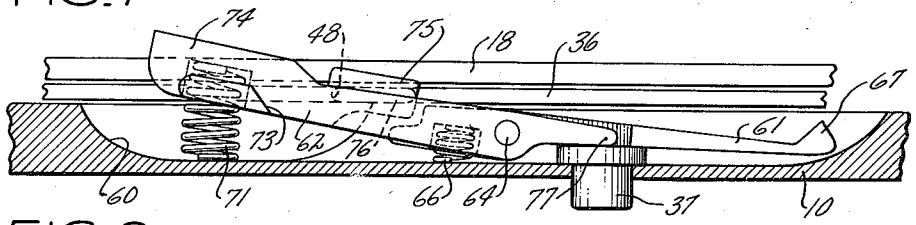


FIG. 8

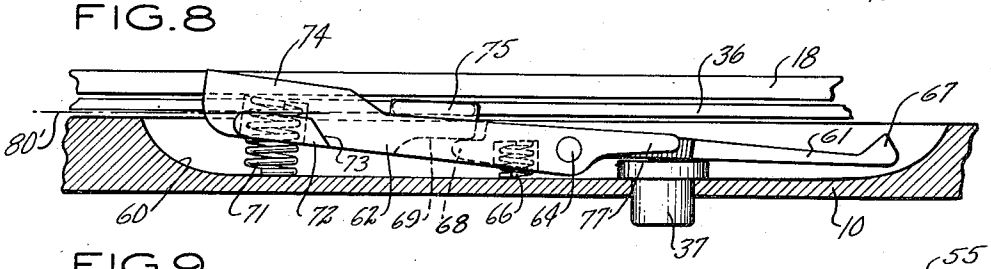


FIG. 9

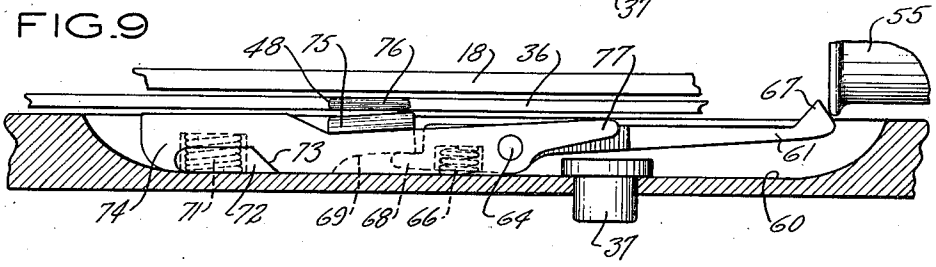


FIG. 10

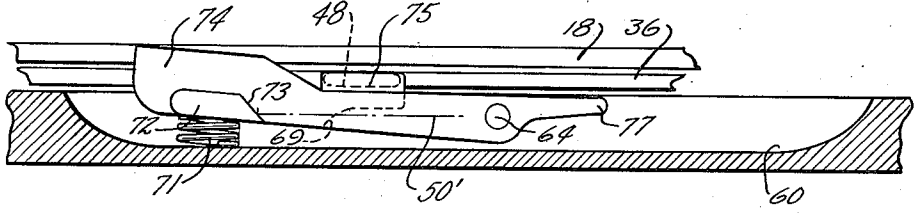


FIG. 11

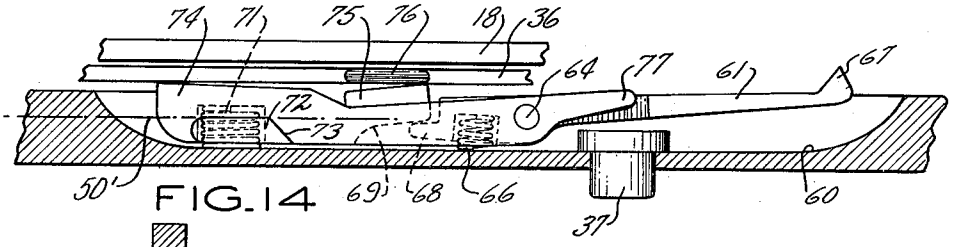
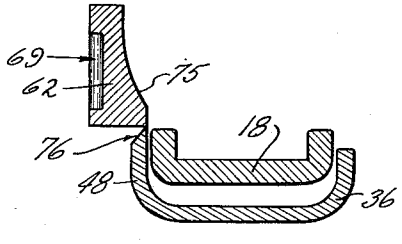


FIG. 14



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CARRIER LATCH CONSTRUCTION FOR REPEATING FIREARMS

Walter F. Roper, Longmeadow, Mass., assignor to Savage Arms Corporation, Utica, N. Y., a corporation of Delaware

Application August 25, 1953, Serial No. 376,450

13 Claims. (Cl. 42—17)

This invention relates to auto-loading firearms of the general type disclosed in Browning Patent No. 659,507 of October 9, 1900 and more particularly to mechanism operable to permit loading of the magazine without manipulating the usual manual release button.

In firearms of this general character a magazine tube is provided below the barrel with access to the magazine afforded through a receiver loading port in which a pivotally mounted lifter or carrier device is positioned. The carrier device is designed in the automatic loading of the gun, first, to receive a live cartridge from the magazine when the gun is fired and the breech block or bolt is carried rearwardly in the receiver above the carrier, and next to lift the live cartridge into alignment with the barrel while the bolt returns to closed forward position carrying the cartridge into the firing chamber and placing the firearm automatically in condition ready for firing again. The carrier is adapted to return to cartridge receiving position when the action is closed and to block the port against access to the magazine.

The pivotal lifting of the carrier is necessary for return of the bolt to close the action and if the magazine is empty and no cartridge is received on the carrier, the mechanism is locked with the action open, the breech bolt being held rearwardly in the receiver and the carrier blocking the loading port to the magazine. A carrier latch maintains this condition of the parts locking the carrier in cartridge receiving position until released for pivoting to raised position. The latch with the action open can only be released by a conventional release button accessible on the outer side wall of the receiver where the operator's finger or thumb pressure applied on the button will position the hand away from the open ejection port of the receiver into which the bolt is to be propelled to close the action.

The conventional way of loading a firearm of this type has been to open the action (if initially closed) and, holding the firearm in one hand to place a live cartridge with the other hand into the breech or through the ejection port onto the carrier and then close the action by actuating the manual release button. This permits the carrier to lift upwardly. When the bolt goes forward again the carrier returns to cartridge receiving position and becomes again locked automatically by the latch mechanism. The magazine is then loaded by facing the receiver with its loading port upwardly, and, with one hand holding the receiver in position to depress the release button cartridges are successively pressed by the other hand against the undersurface of the carrier into the magazine tube opening.

The act of holding the firearm in one hand so as to actuate the release button while the other hand manipulates the cartridges into the magazine has been awkward and cumbersome and it is the object of this invention to provide a novel means for loading the magazine with the action closed and without the necessity for actuating the manual release button.

Another object of the invention is to provide a latch and latch release mechanism automatically operable, when the action is closed, to permit loading of the magazine upon the manual act of inserting cartridges into the loading port in the direction of the magazine tube.

A further object is to provide a latch mechanism of the character described in combination with a cartridge stop member for holding cartridges inserted in the magazine against removal therefrom until the carrier is in position to receive the same for loading the chamber.

A still further object of the invention is to provide a latch release mechanism pivotally mounted on the carrier for limited movement relative thereto so as to free the carrier by the act of pressing the shell in the direction of the carrier and permit loading of the magazine when the action is closed.

These and other specific objects and advantages will become apparent from the following description of an embodiment of the invention as shown by the accompanying drawings in which,

Fig. 1 is a side elevation of the receiver with parts cut away to show the carrier and latch release in lowered cartridge receiving position therein and with the action closed;

Fig. 2 is a bottom view of the receiver with the parts in the position of Fig. 1;

Fig. 3 is a side elevation of the receiver with the breech bolt closed and the carrier and latch release pivoted upwardly for loading cartridges into the magazine;

Fig. 4 is a fragmentary section to show details of construction on line 4—4 of Fig. 3;

Fig. 5 is a side elevation of the receiver with the action open, the breech bolt in rearward position, and the carrier and carrier latch release being held in lowered position by the latch mechanism;

Fig. 6 is a side elevation of the receiver with the parts cut away to show the action of the lifter in feeding a cartridge into alignment with the barrel;

Fig. 7 is a fragmentary horizontal sectional view on an enlarged scale through the receiver side wall to show the carrier latch engaging the carrier and latch release when the bolt is retracted in the receiver with the action open as in Fig. 5;

Fig. 8 is a similar section showing the latch engaging the carrier when the action is closed as in Figs. 1 and 2, the carrier latch release being in position to cam the latch aside for raising the carrier to load the magazine;

Fig. 9 is a similar section showing the position of the carrier latch in disengaged position when the carrier and latch release have been raised to permit access for loading the magazine;

Fig. 10 is a similar section showing the relation of the carrier latch to the various parts at the beginning of rearward travel of the bolt from closed position;

Fig. 11 is a similar section showing the position of the carrier latch during the forward or rearward travel of the bolt;

Fig. 12 is a top plan view of the carrier latch mechanism;

Fig. 13 is a side elevation thereof; and

Fig. 14 is a sectional view on line 14—14 of Fig. 13 with the carrier and latch release members added thereto to show the position of the cam projection of the latch release against the latch member as in the relative position of the parts in Fig. 8.

In carrying out this invention a carrier latch element is pivotally disposed in a recessed portion of the receiver wall adjacent the loading port accommodating the cartridge receiving end of the carrier. At its rearward outer end the latch is urged to extend inwardly of the receiver and to overlie the edge of the carrier member and a latch

release associated therewith so as to retain the carrier in lowered position. The latch release member is pivoted on the carrier straddling the underside thereof in spaced relation with a latch trip projection lying adjacent one edge of the carrier and movable upwardly thereof when not engaged by said latch member. The latch is normally urged to overlie the latch release as well as the carrier, but is, however, prevented from doing so in the forward position of the breech bolt so that only when the breech bolt in rearwardly positioned in the receiver is the latch release locked by the latch member.

On the latch is formed an upstanding projection with a cam surface which may be engaged by the breech bolt mechanism in its forward position in order to maintain the latch in position for engagement by the carrier mounted latch trip. A laterally extending cam surface is also formed on the latch to receive a cartridge fed from the magazine so as to free the carrier for pivotal lifting movement in the automatic loading of the gun. In addition a projecting cam surface at the lower edge of the latch is formed for engagement by the latch release for tripping the latch to free the carrier when the breech bolt is forward and thus permit loading of the magazine. In the latter position, that is, when the action is closed, the act of moving the latch release upwardly relative to the carrier, as by pushing a cartridge thereagainst in the direction of the magazine, is accompanied first by the release of the carrier and the subsequent upward movement of the carrier and release member together to afford access to the magazine.

By reason of the relatively large arc through which the latch member must be swung on its pivot in the wall of the receiver to engage both the carrier and the latch release (straddling the carrier) in the locking position of the latch, the usual cartridge stop element (which conventionally is formed as an integral forward extension of the latch beyond its pivot) to hold cartridges loaded in the magazine is not practicable. Accordingly, in the embodiment of the present invention a novel two part carrier latch and cartridge stop mechanism is employed in which a lost motion connection is provided between the elements thereof so as to limit the pivotal swing of the cartridge stop to that necessary to accomplish its proper function of feeding the cartridges successively from the magazine.

Referring now to Figs. 1, 2 and 3 of the drawings, **10** is the receiver, **11** the breech bolt, **12** the barrel extension, **13** the action link, **14** the action spring in stock **15**, and **16** the trigger plate assembly with a mounting extension at **17** for pivotally supporting the cartridge lifter or carrier **18** as at **19**. At the rear end of the carrier **18** is pivotally mounted the forked inner end of a carrier dog **20** yieldably pressed forwardly by a plunger and spring arrangement **21** seated on the trigger plate at the rear side of the dog **20**.

An operating slide **25** with handle **26** is mounted for limited slidable movement at the side of the breech bolt **11** and by manual operation of the handle **26** the action may be opened in the usual manner of this type of firearm from the position shown by Fig. 1. In Fig. 3 an ejection port is shown at **27** with a slot at **28** to accommodate the handle **26** in rearward position of the breech bolt.

A loading port is indicated in the underside of the receiver at **29** and forwardly thereof is a conventional magazine tube **30** (Fig. 1).

Additional conventional structure in the assembly shown comprise bolt mounting rims **50** (Fig. 1) projecting at each lower side edge of the breech bolt **11** and riding in guideways **51** cut longitudinally in each receiver wall for supporting the bolt in the receiver; the usual bolt dog providing a bolt cartridge stop **52** projecting from the underside of the bolt; a barrel extension spring **53** around the magazine tube; a bolt locking block **54** actuated by the operating slide and by the barrel extention through the operating slide in the usual manner; and a cartridge shell **55**.

In the receiver wall adjacent the loading port at one side thereof is mounted a cartridge stop **31** pivoted at **32** and normally urged by spring **33** into the path of a cartridge fed from the magazine tube as will be described. The cartridge stop **31** is mounted in a recess **34** of the side wall and projects through an opening thereof in its outer position as shown by Fig. 2. Stop **31** is moved out of the path of a cartridge shell in the automatic loading of the gun by movement of the barrel extension as will be described.

At the other side of the receiver is mounted (Fig. 2) the new carrier latch and cartridge stop device, indicated generally by the numeral **35**, and providing a pivotally mounted two part construction, as will later be described in detail. A carrier latch release member **36** is mounted on the carrier **18** for unlatching the carrier and loading the magazine through the port **29** when the breech bolt is in forward position in the receiver.

When the action is open and the bolt retracted in the receiver, the latch release is locked to prevent raising the forward end of the carrier **18** for access to the magazine through the port **29**. A manual release button **37** may be operated to unlock the latch and close the action of the firearm. Only when this is done may the magazine be loaded without reference to the release button **37** and by operation of the novel latch release mechanism of this invention.

Latch release member **36** (Figs. 1 and 2) is pivotally mounted on the carrier **18** adjacent the rear end of loading port **29**. The upturned sides **40** of member **36** straddle the upturned sides **41** of the carrier **18** and are formed with a forked rear end extension for pivotal attachment. A pivot pin **42** mounted between the carrier sides **41** extends beyond the same to carry the forked sides **40**. Carrier **18** is also provided with an opening in its connecting web portion adjacent the pivot pin and a rat-trap spring **43**, wound around the pin **42**, is keyed with one end at **44** underneath the forward edge of the adjacent central web of the carrier with the other end at **45** forwardly extended to rest on the upper edge portion of the central web of the latch release **36**. The latch release is thus yieldably held in downwardly pivoted position with respect to the carrier. On the upper edge of the carrier side walls **41** rearwardly of the pivot **42** outwardly extending stop ears **46** provide an abutment for engaging the ends of the latch release sides **40** in the spring pressed downward pivotal position of the latch release **36** (Fig. 1).

Inwardly extending cartridge rim stops **47** (Fig. 1) are also provided on the upper edges of the carrier side walls adjacent the pivot pin **42**. Stops **47** engage a cartridge expelled from the magazine onto the carrier for lifting the same into alignment with the barrel and engagement by the face of the forwardly traveling bolt. This operation will be described in connection with Fig. 6.

On the upper right hand side of the latch release **36** (Fig. 1) is an upwardly projecting latch cam **48** for actuating the latch **35** as will be described. The cam **48** in upward pivotal position of the carrier and latch release is received in a recess **49** in the underside of the bolt inwardly of the rim **50** adjacent thereto and riding in guideway **51** (see Figs. 3 and 4).

The articulated carrier latch and cartridge stop device **35** as best shown by Fig. 2 and Figs. 7–11 is mounted in a recess **60** of the receiver side wall. As shown by Figs. 12 and 13 it comprises a forwardly extending cartridge stop portion or arm **61** with a rearwardly extending carrier latch portion as the arm **62**. The rear arm **62** is forked at its front end to receive a rearwardly extending central finger **63** of arm **61**. Both arms are pivotally mounted in the recess on a pin at **64**. Finger **63** extends rearwardly of the pin, having at the rear side of the pivot a spring seating recess **65** formed in its inner wall to hold a spring **66** therein against the wall of the receiver recess

60 as shown by Fig. 7. At its forward end stop arm 61 has an inwardly projecting cartridge stop 67. Spring 66 normally urges the front end projection 67 outwardly of the receiver and into the recess 60 of the receiver side wall.

At the tip end of finger 63 is a shouldered projection or offset 68 extending from its inner side and underlying a shelf 69 of arm 62. The shelf is formed by a recess in the inner side of the latch arm between the inner ends of the forked portions. Adjacent its rear end the latch arm has a spring seating recess 70 in its inside wall adapted to hold a spring 71 therein seated against the wall of receiver recess 60 as in Fig. 7. Thus the latch arm is normally urged inwardly of the receiver to engage the carrier and latch release.

As seen by Figs. 7–11 spring 71 is substantially larger than spring 66 and is adapted to swing the end of latch arm 62 through a substantially greater arc than stop arm 61. The offset 68 on the end of the finger of arm 61 is normally spaced from the shelf 69 of arm 62 so that arm 62 may be moved about the pivot at 64 without a corresponding movement of arm 61. From the positions of Figs. 7, 8 and 9 it will be seen that the spaced shelf 69 and tip 68 provide a lost motion between the two arms. Thus only when the latch arm 62 is fully pressed into the recess 60 against spring 71 is arm 61 projected inwardly of the receiver in position to engage a cartridge in the magazine tube as will be described.

Referring again to Figs. 12 and 13 latch arm 62 is provided at its upper side edge with an upwardly projecting cam shoulder 72 having a forward outwardly directed bevel edge at 73. The rear end of arm 62 is also of wider proportions as at 74 to extend inwardly of the receiver a sufficient distance to overlie the carrier and latch release members as will be described. Forwardly of the latching portion 74 on the outer surface of the arm and in the lower section thereof is provided an abutment at 75. Abutment 75 at its lower edge is adapted to receive cam 48 of the latch release when raised to unlatch arm 62 and free the carrier 18. As will be noted from Fig. 4 and Fig. 14 the edge of cam 48 is beveled as at 76 so as to act as a wedge against arm 62 at the lower corner of portion 75 and move arm 62 outwardly of the receiver into the recess 60.

The manual release button 37 as shown by Fig. 7 is seated with its inner end against the finger 63 and the forked ends 77 of arm 62 so that inward pressure on button 37 will press arm 62 into the recess 60 and arm 61 outwardly thereof.

With particular reference to Figs. 7 to 11 inclusive the operation of the latch arm and cartridge stop device will now be described: The position of the parts shown by Fig. 7 represents the relationship thereof when the bolt 11 is rearwardly locked by the carrier dog 20 and the action is open. This condition occurs when the last cartridge has been fired from the magazine or the operator has opened the action of an empty firearm. The latching portion 74 of arm 62 is inwardly pressed by spring 71 to overlie the adjacent edges of carrier 18 and the latch release member 36. The offset abutment at 75 overlies the cam 48 on the release member 36. The carrier cannot be pivoted to gain access to the magazine tube for loading nor can the release member 36 be pivoted relative to the carrier. The carrier can only be raised by pressing the manual release button 37 and pivoting arm 62 into the recess 60, whereupon the carrier dog 20 will operate to release the breech bolt, raise the carrier and close the action. As previously mentioned it is usual for the operator to load the firing chamber with a cartridge before manually closing the action.

Upon closing the action the parts then assume the position of Fig. 8 wherein the depending rear side 80 of the operating slide 25 (see also Fig. 3) holds the shoulder 72 and maintains the latch arm 62 partially urged into the recess 60. In this position the upper inside edge of cam 48 on the release member 36 is registered with the edge of the abutment at 75. In Fig. 8 the dot-dash line at 80' indicates the projection of the outer surface of the operating slide 80 against the shoulder 72 thus holding arm 62 against the pressure of spring 71.

In the position of Fig. 8 the latching portion 74 of arm 62 continues to overlie the carrier 18 and latch release 36. However, arm 62 can now be swung completely into the recess by the lifting movement of latch release 36 against carrier 18. The act of raising the release member 36 wedges the surface 76 of cam 48 against the abutment at 75, and, as shown by Fig. 9, the portion 74 then is pressed entirely into the recess 60 to free the carrier and latch release for upward movement. Thus a cartridge 55 as in Fig. 3 may be slidably inserted into the magazine tube.

It will be noted from the relationship of arms 62 and 61 in Figs. 8 and 9 that the lost motion between the shelf 69 and tip 68 is taken up by the inward swinging of the latch arm 62 with the result that the cartridge stop projects inwardly of the receiver to hold the rim of the cartridge in the magazine at the mouth thereof. In entering the magazine it will be realized that the rim in passing the stop 67 will snap by the same due to the flexibility of the spring metal and thus the cartridge is caught against return movement from the magazine tube. The magazine may thus be loaded to capacity with the cartridge stop 67 holding the cartridges therein. When the gun is fully loaded the parts are in the position of Fig. 8. The chamber and magazine may of course be emptied of cartridges without firing the same by manually reciprocating the bolt by means of the operating slide.

When a cartridge is fired the barrel extension 12 and breech bolt 11 recoil against the barrel extension spring 53 and action spring 14. Both travel to the extreme rear end of the receiver where the recoil pressure is exhausted. At the beginning of return travel the carrier dog 20 as will be described abuts the extending portion 80 of the operating slide and results in a slight forward motion of the bolt relative to the slide so as to unlock the barrel extension from the bolt and permit the return of the barrel extension to its forward position in the receiver independently of the bolt. The position at the beginning of forward travel in the receiver is shown by Fig. 5 wherein the notch between the depending rear portion 80 of the operating slide and the forwardly spaced end of supporting rim 50 of the bolt will admit the forward jaw 90 of the carrier dog 20 on the slight forward return of the bolt and barrel extension.

Where no cartridges remain to be fed from the magazine the rearwardly inclined face of jaw 90 of the dog 20 then holds the forwardly inclined edge surface of the portion 80 to lock the bolt rearwardly inasmuch as the latch mechanism will prevent upward movement of the carrier 18 and hold dog 20 against downward movement which is necessary to disengage the bolt. From its position in Fig. 5 the dog may be pivoted forwardly and upwardly to become locked against the bolt but unless the pivot 91 of the dog may be rocked downwardly by pivoting the carrier 18 on pin 19 the bolt cannot be released.

When cartridges are supplied from the magazine tube onto the carrier the action will automatically be closed and the firing chamber reloaded. On its initial retraction in the receiver the bolt releases a cartridge from the magazine, and as will be described the cartridge is expelled to kick the forward outer beveled face of the latching portion 74 of the arm 62 and thus cam the arm into the recess 60 when the bolt is in the rearward position as in Fig. 5. The cartridge is then engaged by the rim stops 47 of the carrier and holds the latch arm in recess 60. Carrier 18 may thus pivot at 19 with the result that the carrier dog 20 is rocked forwardly and pushed downwardly from the position of Fig. 5 to force the rear end of the carrier downwardly from its position in Fig.

5 to the position of Fig. 6. The forward jaw 90 of the dog is cammed out of the notch between slide extension 80 and rim 50 and the bolt is released to pick up the rear end of the cartridge, now in elevated position in alignment with the barrel. The bolt closes the breech with the live cartridge ready to be fired.

The cartridge stop arm 61, as has been mentioned, is adapted to project inwardly of the receiver to engage the rim of a cartridge in the magazine tube. When the tube is loaded as has been described, the stop 67 will engage the rim of the cartridge last inserted only momentarily since the return of the carrier and latch release to cartridge receiving position is accompanied by the return of the latch arm 62 to the position of Fig. 8 wherein the arm 61 is spring pressed to urge the stop projection 67 into the recess 60. Thus the last inserted cartridge is first partially expelled from the tube to a position against the bolt dog or cartridge stop 52 as shown by Fig. 1. On initial retraction of the bolt after firing the cartridge is further expelled to engage its rim against cartridge stop 31 in the left hand side wall of the receiver. The cartridge is detained by stop 31 momentarily so as to be disengaged from the dog stop 52 of the bolt and until forward movement of the barrel extension 12 releases stop 31, whereupon the cartridge is completely expelled from the tube when the bolt is in retracted position in the receiver.

When completely expelled from the tube onto the carrier the latch arm 62 is held into its recess 60 and thus causes the stop arm 61 to pivot inwardly of the receiver to catch the next cartridge in the tube by its projecting stop 67. The stop 67 remains in the path of the cartridge in the magazine until the bolt is again at its forward closed position. The carrier, of course, is not effective to release the latch from the recess 60 until the rear end of the bolt frees the dog 20 for upward movement. At this point however the supporting rim 50 of the bolt is opposite the shoulder 72 of the latch arm 62 and maintains the recessed position thereof until the bolt is in forward position and the rim 50 disengages the shoulder. The position of the rim 50 is illustrated by Fig. 11, the dot-dash line 50' representing the outer edge thereof holding the arm 62 recessed. Fig. 10 illustrates the position of the rim 50 near the end of the forward bolt travel in passing by the forward outwardly beveled edge at 73 of the shoulder 72. From the position of Fig. 10 the latch arm is further swung inwardly of the receiver when the bolt is locked in the breech, that is, to the position of Fig. 8 wherein the shoulder rests against the slide extension 80.

In swinging inwardly from the position of Fig. 11 the latch arm 62 releases the arm 61 to recess the stop 67 and free the next cartridge from the magazine. The next cartridge may thus be partially expelled to rest against the bolt dog 52 as previously described.

It will be realized that the bolt in its initial retraction in the receiver after firing will cam the latch into the recess, Fig. 10 illustrating the rim striking the beveled edge at 73 and Fig. 11 showing the rim holding the latch during rearward travel as well as during forward travel.

What is claimed is:

1. In an automatic firearm of the type having a barrel, a magazine, and a receiver including reciprocable barrel closing means therein, a carrier for receiving cartridges from the magazine and transferring the same to the barrel, said receiver having a magazine loading port accommodating said carrier in cartridge receiving position and in said position blocking access to the loading port, said carrier in cartridge transferring position affording access to the magazine through the port, releasable retaining means for holding said carrier in cartridge receiving position, said barrel closing means in barrel closing position thereof engaging said retaining means and holding the same in a predetermined position partially moved toward a carrier releasing position, and manually operable releasing means movable relative to said carrier and slidably engageable with said retaining means in said predetermined position of the same to move the same to a releasing position and release said carrier for loading the magazine.

2. In an automatic firearm of the type having a receiver, a barrel, a breech bolt reciprocable in said receiver for closing and opening said barrel, a magazine, and a carrier pivotally mounted in the receiver adapted to receive cartridges from the magazine and transfer the same to the barrel with said receiver having a magazine loading port accommodating said carrier in cartridge receiving position and in said position blocking said port, said carrier in said cartridge transferring position affording access to the magazine through the port, retaining means in the receiver normally holding said carrier blocking the said magazine port in said cartridge receiving position, and releasing means on said carrier movable relative thereto in a predetermined position of said retaining means and engageable with the latter to release said carrier for movement to cartridge transferring position, said breech bolt in barrel closing position being engageable with said retaining means to move the same to said predetermined position.

3. In an automatic firearm having a receiver, a barrel, a magazine, and a breech bolt reciprocable in the receiver to open and close the barrel, said receiver having a magazine loading port for access to the magazine, a carrier mounted in the receiver to receive cartridges from the magazine and transfer the same to said barrel and in its cartridge receiving position blocking access to said magazine through said port, releasable retaining means normally holding said carrier in cartridge receiving position and releasing means being yieldably held in spaced relation to said carrier and movable against the same for engaging said retaining means in a predetermined position of the latter to release said carrier and provide access to load the magazine, said breech bolt in barrel closing position holding said retaining means in said predetermined position, said retaining means in barrel open position of the breech bolt holding said releasing means against movement.

4. In a firearm of the type having a receiver, a magazine, a barrel, and a carrier pivotally mounted in the receiver for receiving a cartridge from the magazine and transferring the same to the barrel with said receiver having a magazine loading port affording access to said magazine and arranged to accommodate said carrier in a depressed cartridge receiving position to block said port, a carrier latch pivoted in the receiver and normally engaging said carrier to hold the same in said depressed position, a breech bolt reciprocably mounted in the receiver to close said barrel and in barrel closing position engaging said latch for partial movement toward releasing position, a latch release pivotally mounted relative to said carrier and yieldably held away from the same, said latch release with said bolt in barrel closing position being manually movable to engage said latch and free said carrier for movement from said depressed position to load said magazine.

5. In an automatic firearm having a receiver, a barrel, a magazine, a breech bolt reciprocable in the receiver for opening and closing the barrel, and a carrier pivoted in the receiver for transferring cartridges from the magazine to the barrel, said receiver having a loading port accommodating said carrier in cartridge-receiving position and blocking said port against access to the magazine through said port: a carrier latch, a latch release pivotally mounted on the carrier, said latch having a locked position in which said latch release and carrier are engaged against movement thereby and an unlocked position in which said carrier alone is engaged against movement by the latch and said release is manually operable to move said latch to disengage said carrier, said bolt and latch being provided with inter-engageable cam surfaces for

alternately moving said latch to locked and unlocked positions as the breech bolt is moved respectively from barrel open to barrel closed condition, said latch also having a cartridge-receiving cam surface adapted to be engaged by a cartridge received from said magazine so as to free said carrier for pivotal movement independently of the position of said latch release member during the automatic loading of said firearm.

6. In an automatic firearm having a receiver, a barrel, a magazine, a breech bolt reciprocable in the receiver for opening and closing the barrel, and a carrier pivoted in the receiver for transferring cartridges from the magazine to the barrel, said receiver having a loading port accommodating said carrier in cartridge receiving position and blocking said port against access to the magazine through said port: a latch pivoted in the wall of said receiver adjacent said port and yieldably urged inwardly of the receiver for engaging said carrier against movement from cartridge receiving position thereof, a manually operable, pivotally mounted, latch release member yieldably urged into spaced relation to said carrier with a cam projection thereon engageable with said latch in a predetermined position of pivotal movement of the latter, said breech bolt and latch having interengaging surfaces adapted to move said latch into said predetermined position in barrel closing position of said bolt, said latch having a locking portion thereon adapted to engage said latch release projection for preventing movement of the latch release relative to the carrier in barrel open position of said breech bolt.

7. The structure of claim 6 in which said latch release is pivotally mounted on the pivotal axis of the carrier and is carried on the underside thereof whereby pivotal unlatching movement of the release member is in the same direction as the travel of the carrier from cartridge receiving position to cartridge transferring position.

8. The structure of claim 6 in which the latch is provided with a portion projecting laterally from the body thereof for engagement by said cam projection of the latch release member and by a cartridge received from the magazine, and said latch is formed with a breech bolt engaging projection extending upwardly in the receiver from the latch body.

9. In an automatic firearm having a receiver, a magazine, a barrel, a breech bolt reciprocable in the receiver for closing and opening the barrel, and a carrier pivoted in the receiver for receiving cartridges from the magazine in depressed position and transferring the same in raised position into alignment with said barrel, said receiver having a loading port affording access to the magazine, and said carrier in depressed position blocking said port: a carrier latch member pivoted on the wall of the receiver adjacent said carrier, a latch release member pivotally mounted on the carrier and movable relative thereto for engagement to trip the latch in a predetermined position of pivotal movement of said latch, the outer end of said latch engaging both the carrier and release member against movement when the breech bolt is in barrel open position, said breech bolt in barrel closing position holding said outer latch end in said predetermined position for release of the carrier on movement of said release member relative to the carrier, said latch member including a forward cartridge stop element pivotally mounted at the inner end of said latch and extending forwardly thereof for preventing cartridges from leaving the magazine in releasing position of said latch, said latch and stop having a lost motion connection for movement of said stop into cartridge engaging position on movement of the latch to releasing position.

10. In an automatic firearm having a receiver, a barrel, a magazine, a breech bolt reciprocable in the receiver for opening and closing the barrel, and a carrier pivoted in the receiver for transferring cartridges from the magazine to the barrel, said receiver having a loading port accommodating said carrier in cartridge-receiving position and blocking said port against access to the magazine through said port: a latch pivoted in the receiver wall adjacent said loading port, a latch release pivoted on the carrier and manually operable upon movement of said latch to a predetermined position thereof to release said carrier for loading the magazine through said port, said latch at the limit of its pivotal movement inwardly of the receiver engaging said release for locking the same against movement and having an upstanding bolt receiving projection engageable by said breech bolt on forward barrel closing movement thereof to move the latch to said predetermined position, and a forwardly extending cartridge stop portion pivoted at the inner end portion of said latch with a lost motion connection therewith for retaining cartridges loaded into said magazine when said latch is in unlatched position.

11. In an automatic firearm having a receiver, a barrel, a magazine, a breech bolt reciprocable in the receiver to open and close the barrel, and a carrier pivoted in the receiver to receive cartridges from the magazine and lift the same into alignment with the barrel with said receiver having a loading port affording access to the magazine, said carrier in cartridge receiving position blocking said port: a carrier latch and cartridge stop device pivoted in the receiver wall adjacent said port and comprising a rearwardly extending latch element yieldably urged to latching position to engage and hold said carrier against lifting movement, a forwardly extending cartridge stop element having a cartridge engaging projection adjacent the entrance of said magazine and yieldably urged to cartridge releasing position against the receiver wall, a lost motion connection between the stop and latch elements effective upon movement of the latch to unlatching position to shift said cartridge stop into cartridge engaging position away from the receiver wall, a latch release pivoted on the carrier manually operable for releasing said carrier latch on movement of the latter to a predetermined position within its limits of pivotal movement, said latch and breech bolt having interengaging surfaces adapted in barrel closing position to move said latch into said predetermined position, and said latch in barrel open position of the breech bolt locking said latch release against movement relative to said carrier.

12. In an automatic firearm having a receiver, a breech bolt reciprocable therein, a barrel and a magazine, and a carrier in the receiver for transferring cartridges from the magazine to the barrel, said receiver having a loading port affording access to the magazine with said carrier in cartridge-receiving position blocking said port: a carrier latch and cartridge stop mechanism including a rearwardly extending latch element pivoted adjacent said port in the receiver wall and yieldably urged inwardly of the receiver to engage said carrier in cartridge-receiving position, a latch release pivoted on the carrier and held against movement by said latch at the inward limit of pivotal movement of said latch, said latch release having a cam projection movable against said latch in a predetermined position thereof with said latch also having a cam receiving projection engageable by said bolt in forward position of the same to register the latch in said predetermined pivotal position, and a cartridge stop element pivotally mounted relative to said latch element and extending forwardly thereof with a cartridge stop projection adapted to retain cartridges in the magazine when urged inwardly of said receiver, said latch and stop elements at the inner ends thereof having opposed shouldered surfaces rearwardly of the pivotal mounting thereof and providing a lost motion connection to urge said stop member inwardly of the receiver when said latch is moved outwardly thereof.

13. In an automatic firearm having a receiver, a barrel, a magazine, a breech bolt reciprocable in the receiver to open and close the barrel, and a carrier pivoted in the receiver to receive cartridges from the magazine and lift the same into alignment with the barrel with said receiver

having a loading port affording access to the mazagine, said carrier in cartridge receiving position blocking said port: an articulated carrier latch and cartridge stop device mounted in the wall of the receiver adjacent said port having a rearwardly extending latch portion normally engaging said carrier to hold the same in position to block said port and a forwardly extending cartridge stop portion, a pivot carrying said portions adjacent their inner ends with said latch having a forked end section with said stop having a rearwardly directed reduced end section rearwardly of said pivot and received in said forked latch end, said inner tip end of the stop having a shoulder underlying the body of said latch in spaced relation thereto for pivotal movement of said outer stop end into cartridge engaging position on movement of said latch against said receiver wall to release said carrier,

said latch and stop each having yieldable means rearwardly of the pivot for urging said portions independently in the same pivotal direction for latching position of said latch portion and cartridge releasing position of said cartridge stop, a release button in the wall of the receiver forwardly of said pivot and engageable against said portions for movement thereof in opposition to said yieldable means, said carrier having a latch release operable in closed barrel position of said breech bolt to cam said latch portion against the receiver wall.

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