Jan. 26, 1960 H. D. ALLYN 2,922,240

FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

Filed Feb. 17, 1956 11 Sheets-Sheet 1

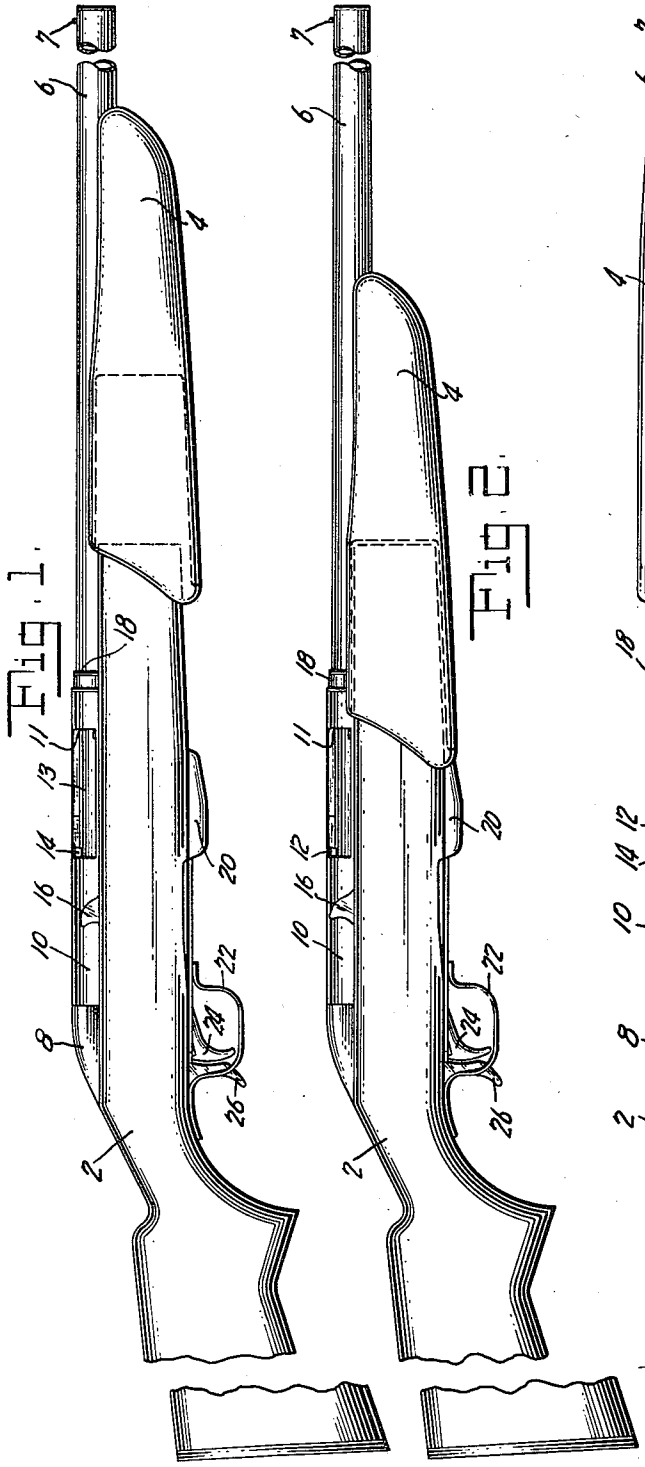


Fig. 1.

Fig. 2.

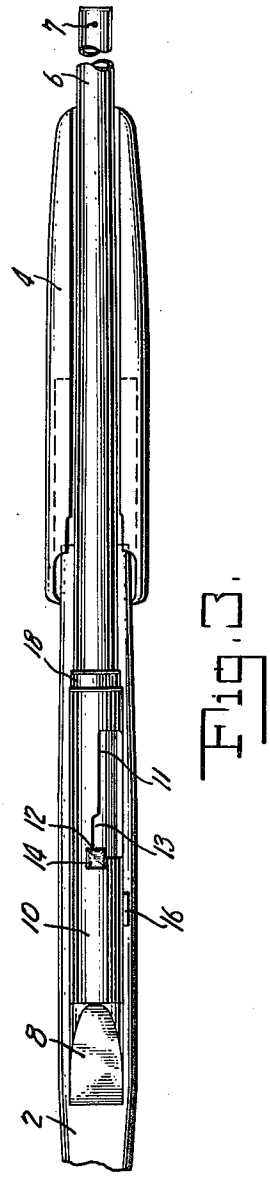


Fig. 3.

INVENTOR.
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Jan. 26, 1960 H. D. ALLYN 2,922,240

FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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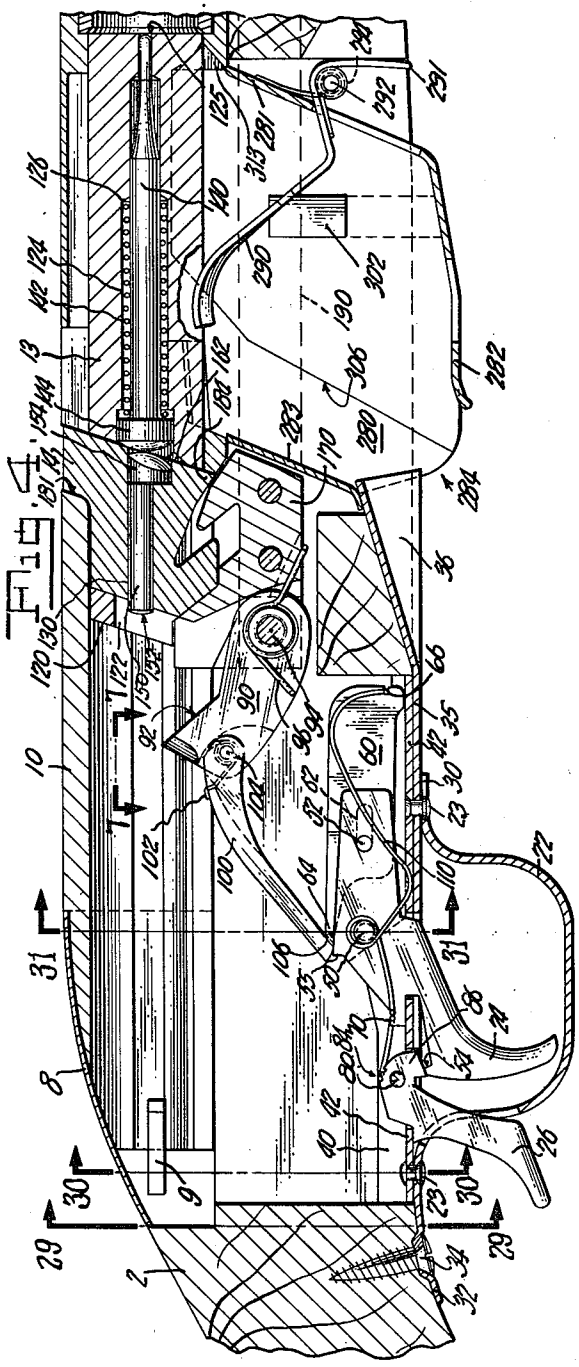


Fig. 1.

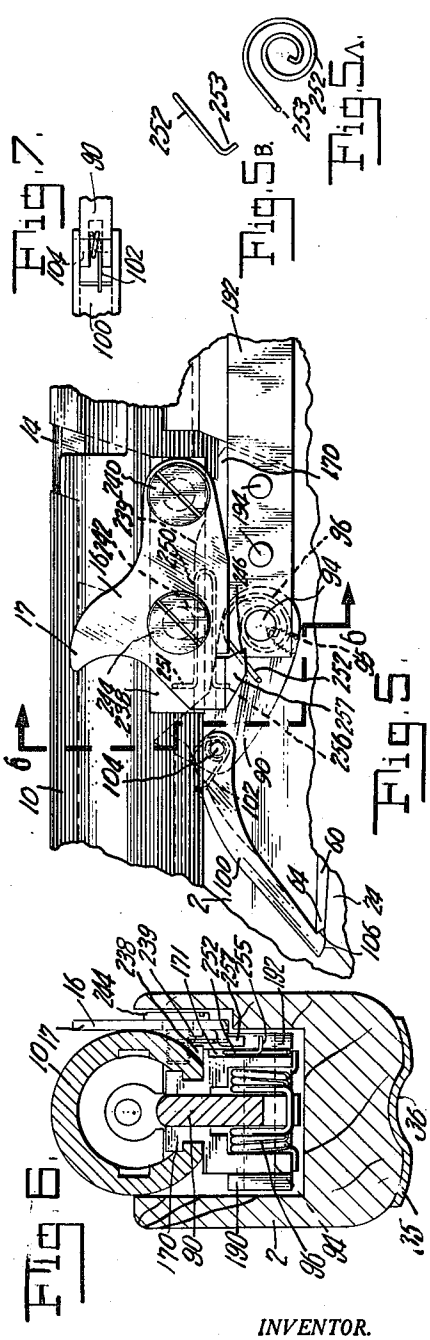


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 5A.

Fig. 5B.

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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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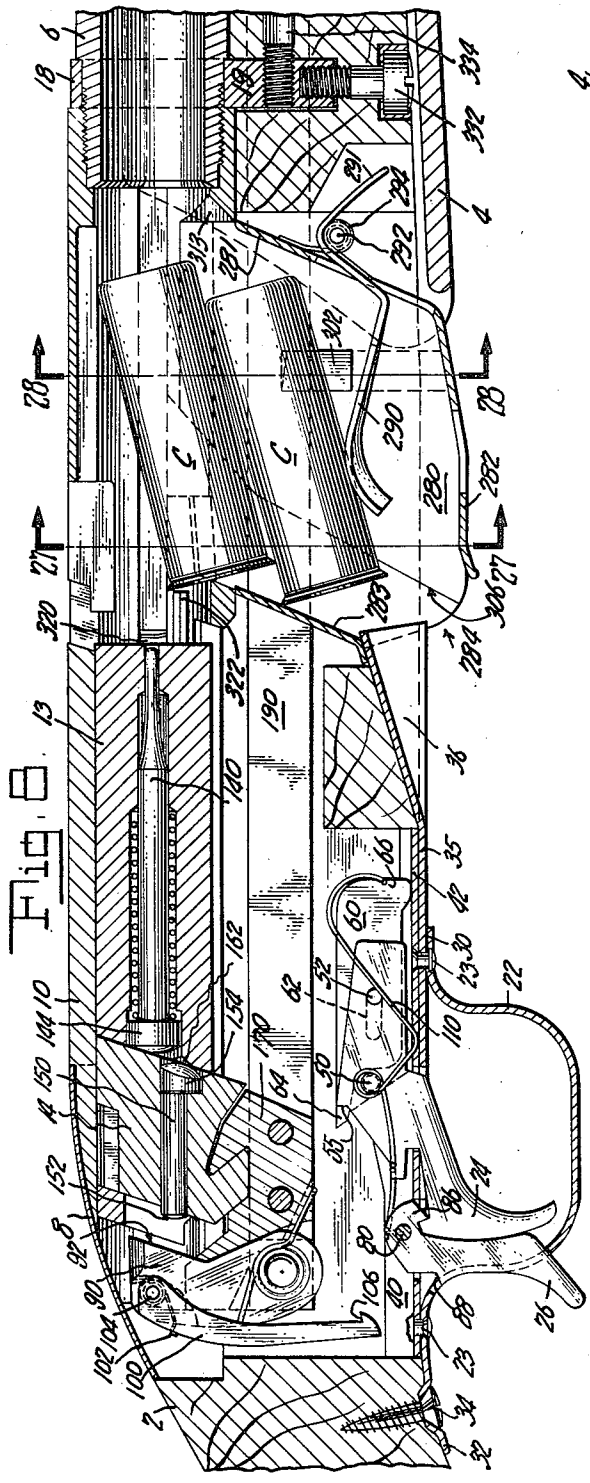


Fig. 8

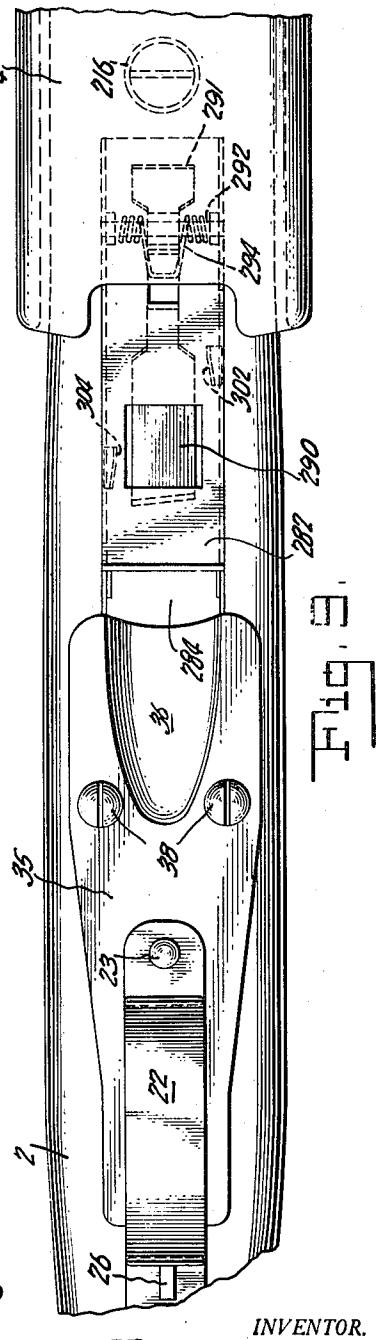


Fig. 9

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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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Fig. 10.

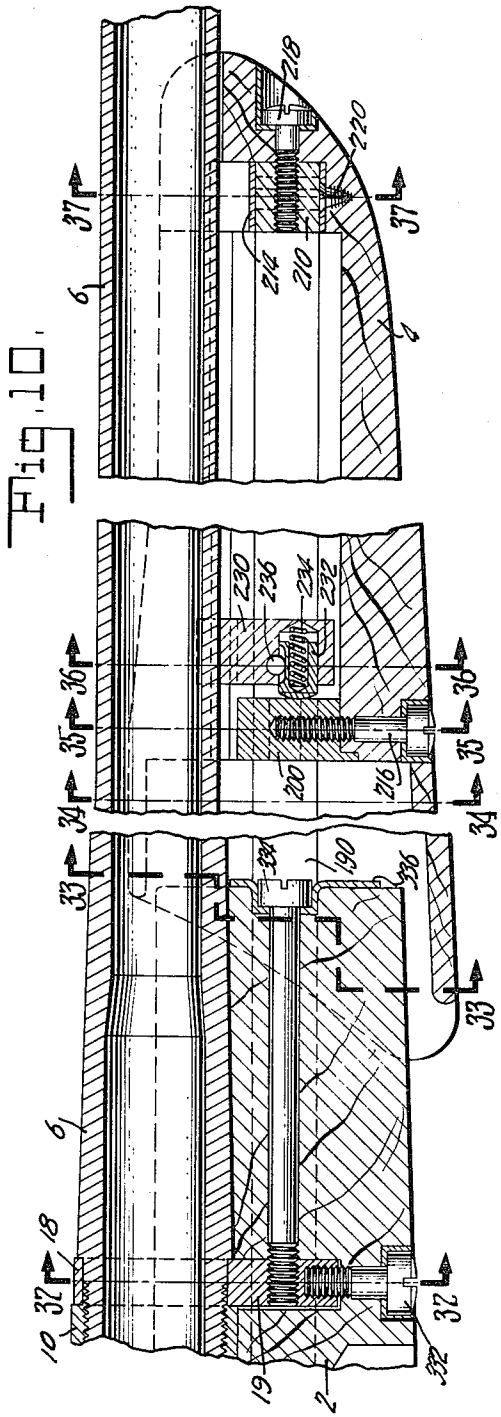
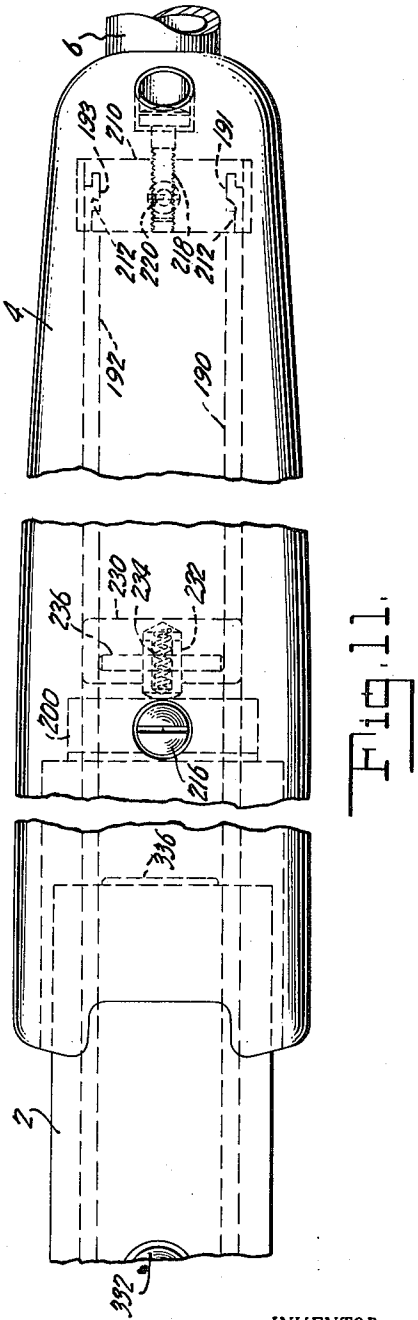


Fig. 11.



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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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Fig. 14.

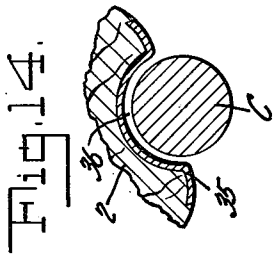


Fig. 12.

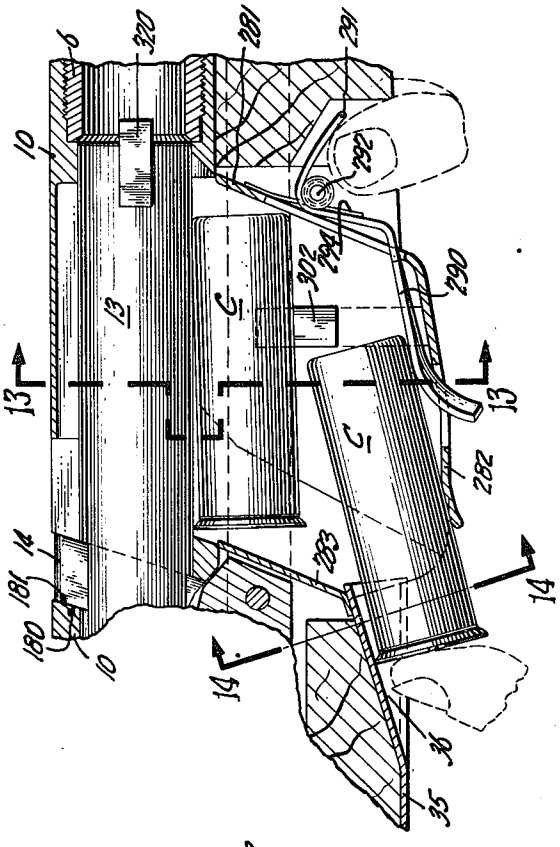
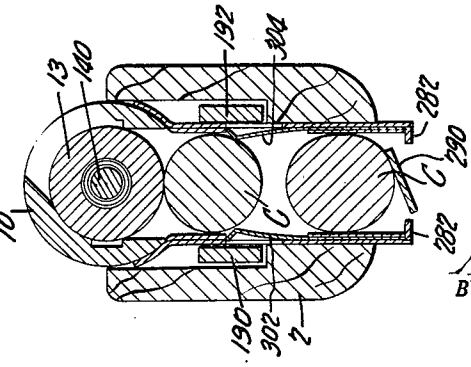


Fig. 13.

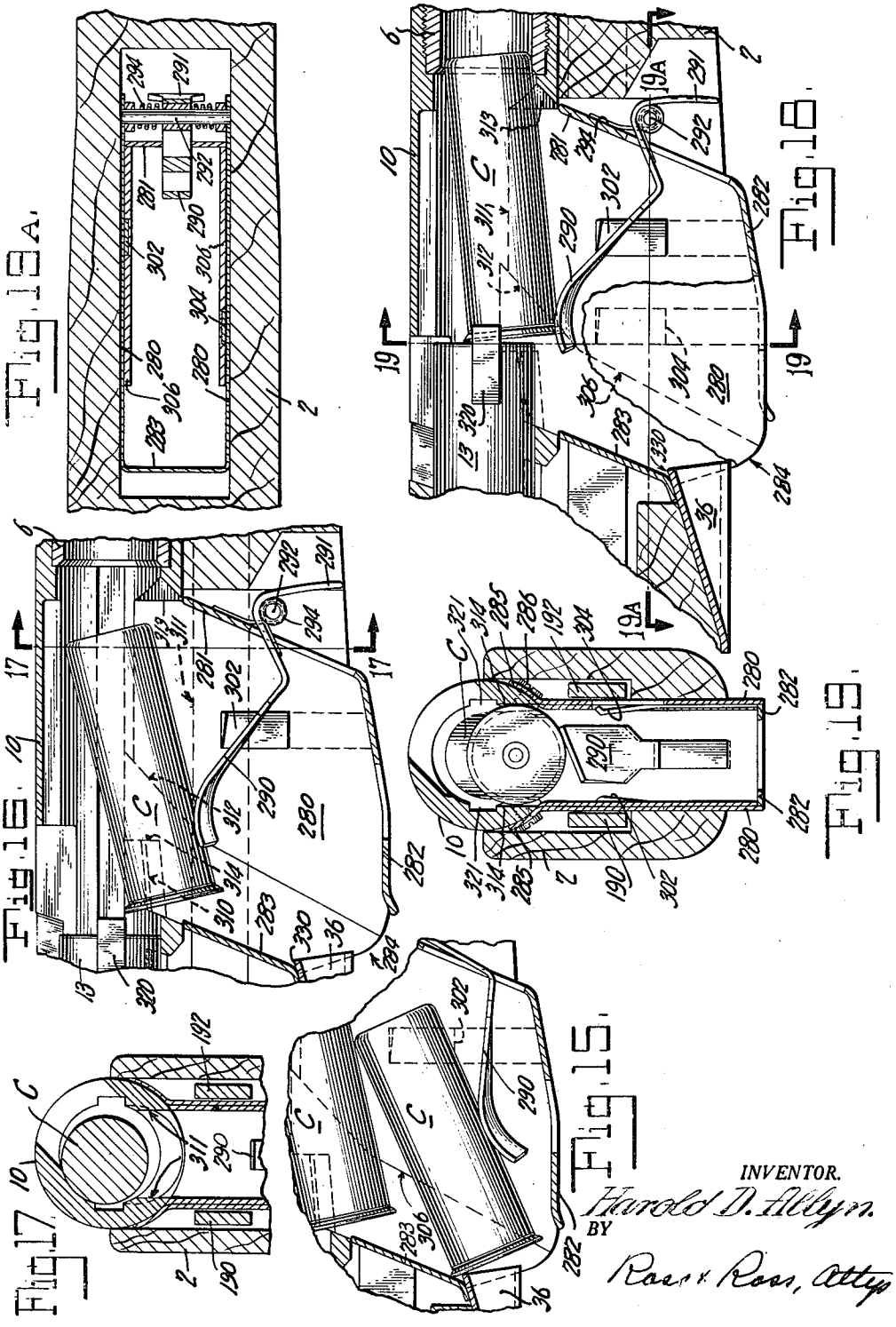


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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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Fig. 20.

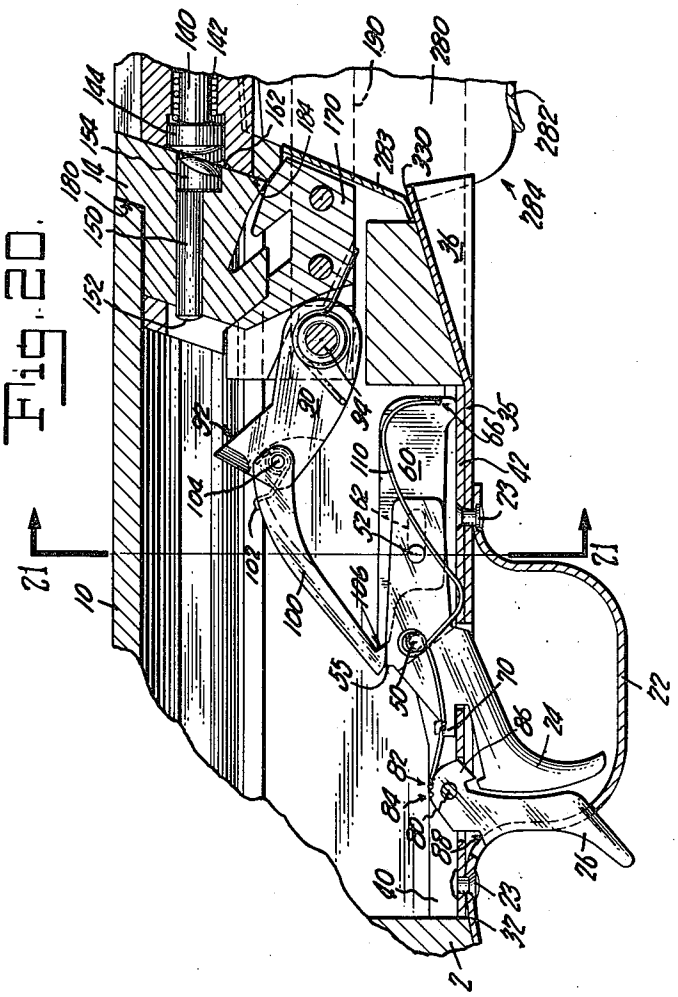
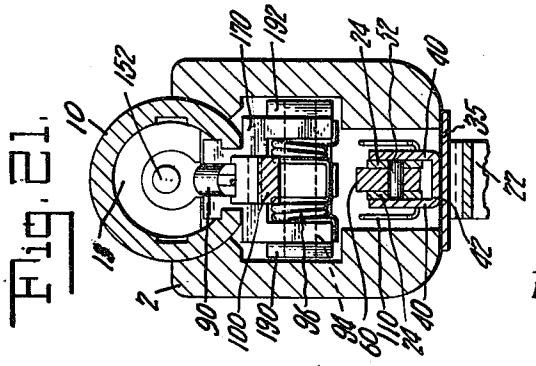


Fig. 21.



INVENTOR.
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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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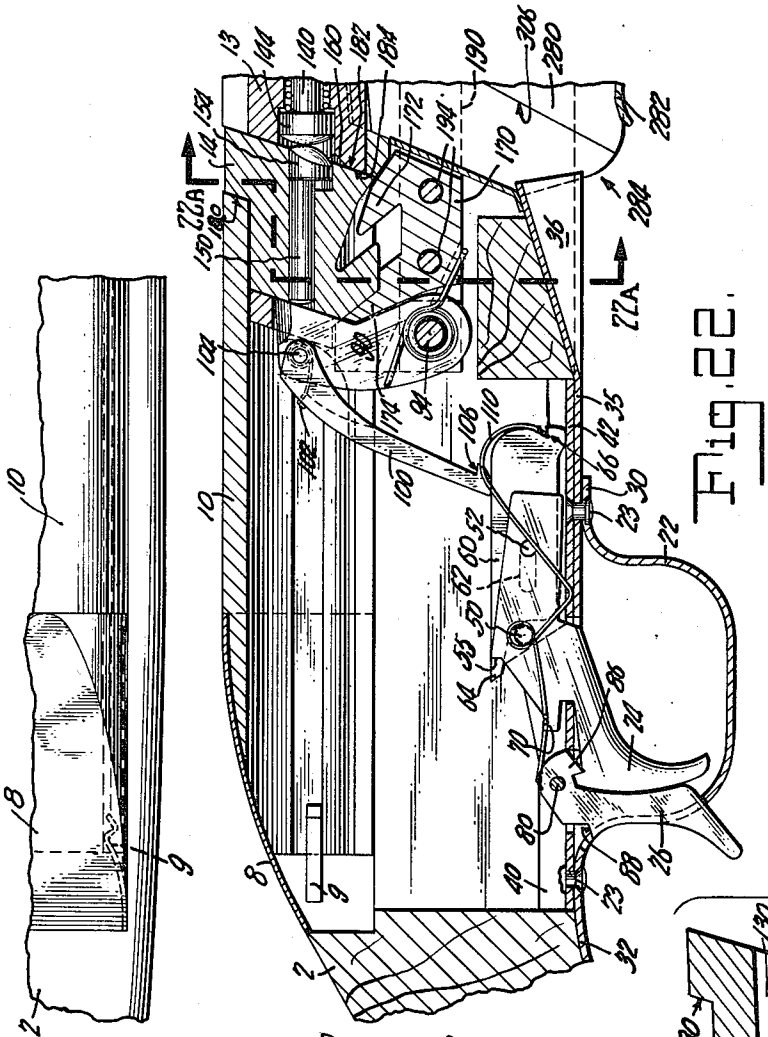


Fig. 22.

Fig. 23.

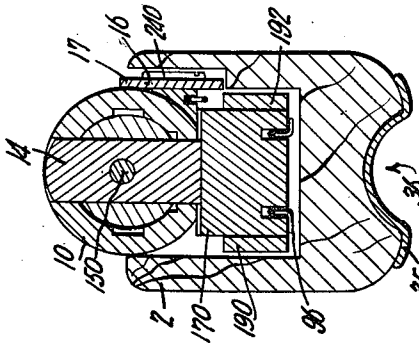


Fig. 22A.

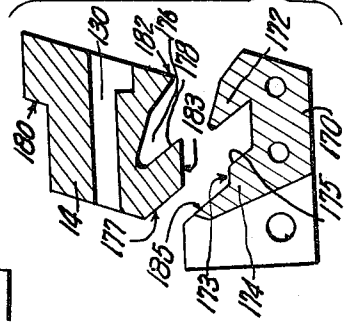


Fig. 22B.

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Jan. 26, 1960 H. D. ALLYN 2,922,240

FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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Fig. 25.

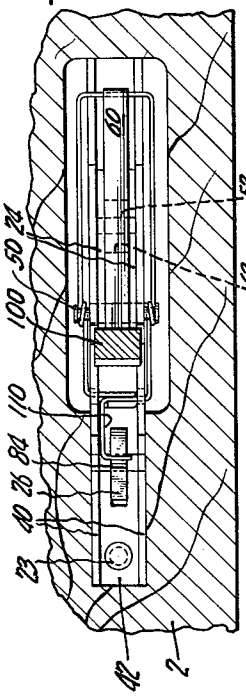
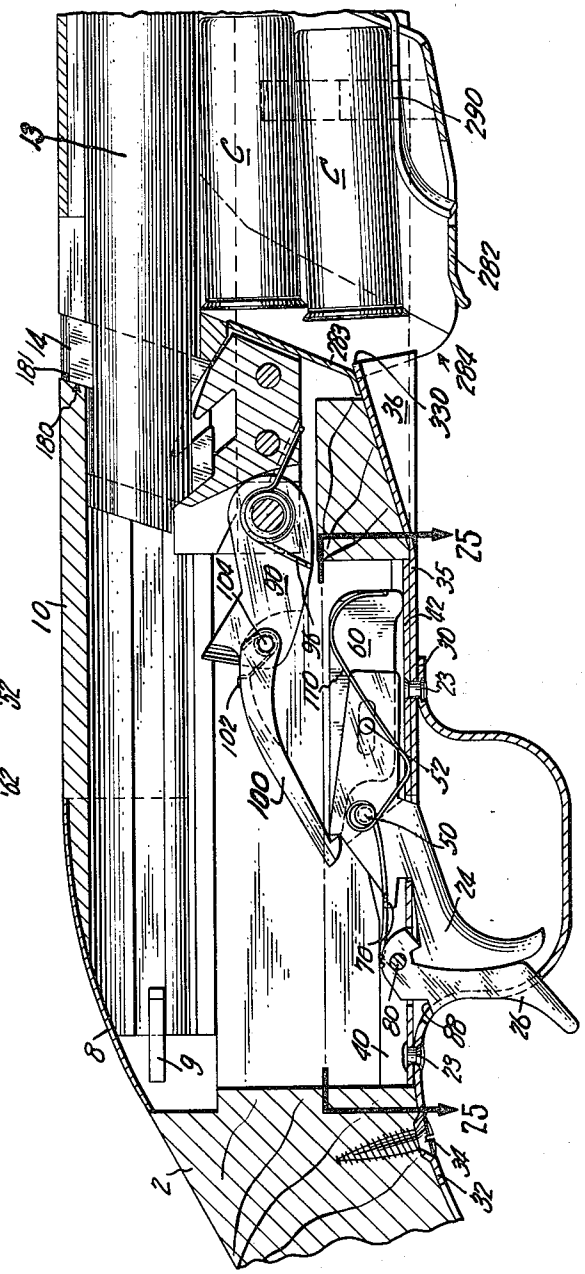


Fig. 24.



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Jan. 26, 1960 H. D. ALLYN 2,922,240

FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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Fig. 26.

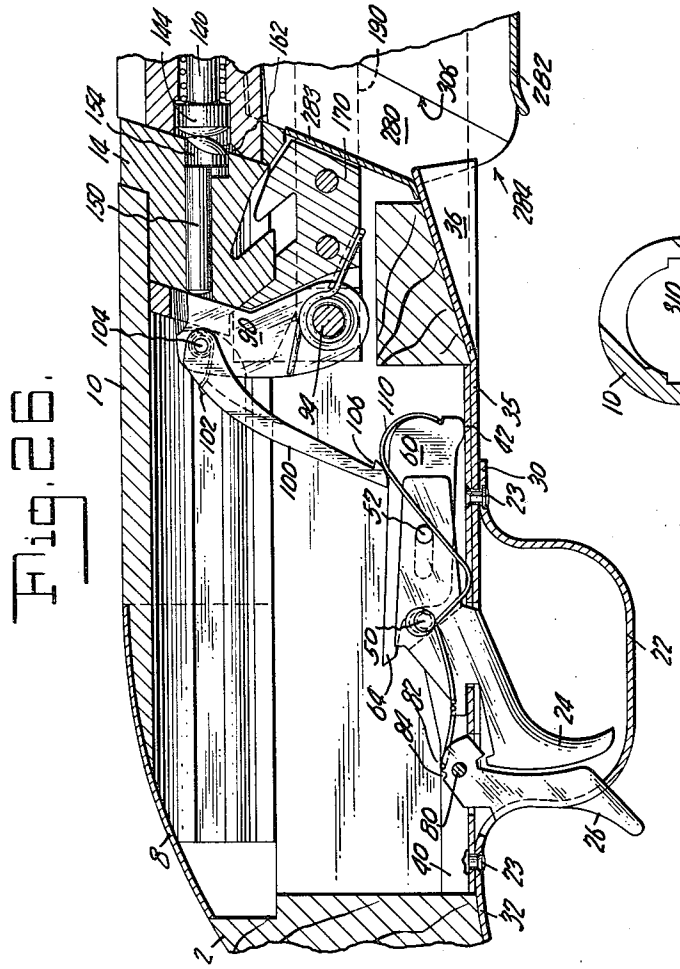


Fig. 27.

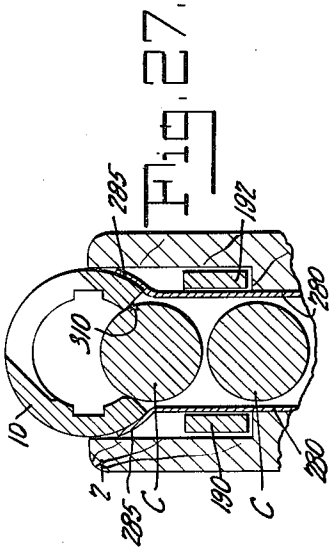
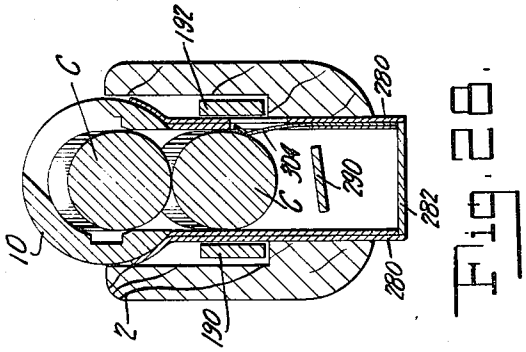


Fig. 28.



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FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

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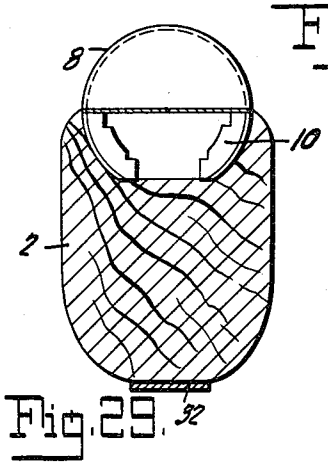


Fig. 29.

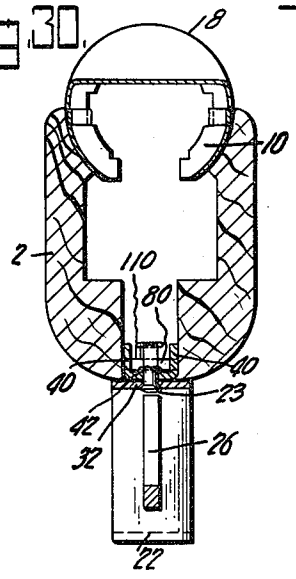


Fig. 30.

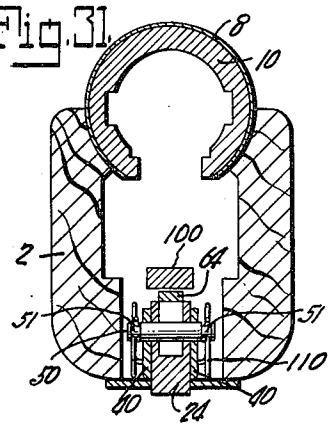


Fig. 31.

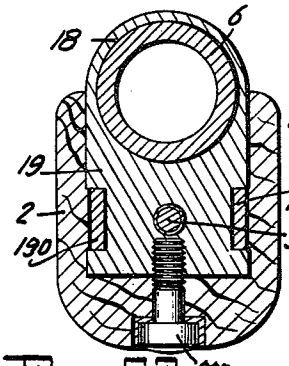


Fig. 32.

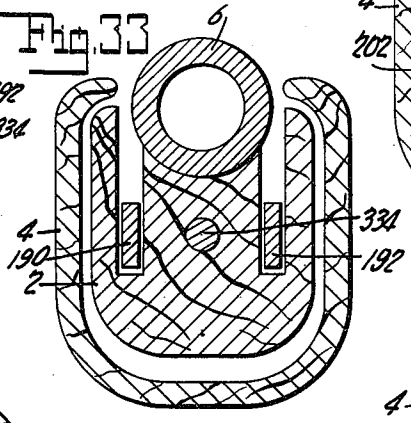


Fig. 33.

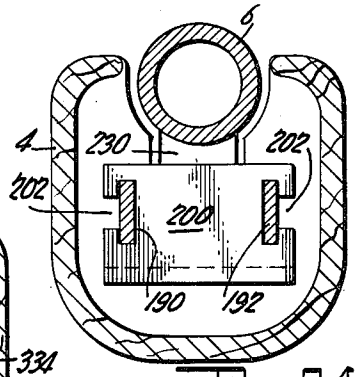


Fig. 34.

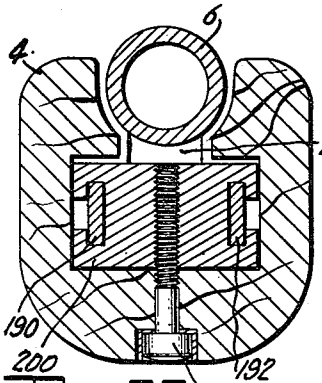


Fig. 35.

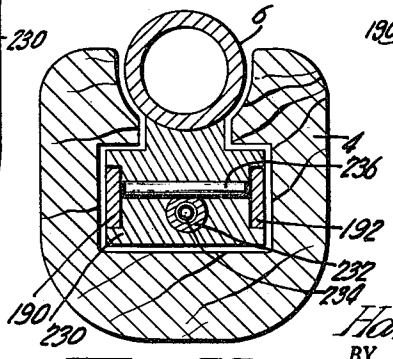


Fig. 36.

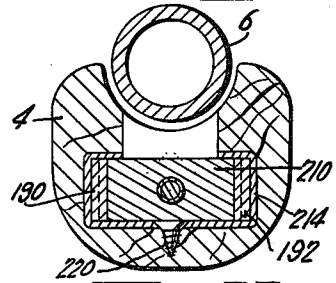


Fig. 37.

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United States Patent Office 2,922,240
Patented Jan. 26, 1960

2,922,240

FIREARM WITH INTERENGAGEABLE BREECH BLOCK AND SLIDE BLOCK AND DOUBLE ACTION BARS

Harold D. Allyn, Springfield, Mass.

Application February 17, 1956, Serial No. 566,267

6 Claims. (Cl. 42—16)

My invention is directed to the provision of new and useful improvements in breech loading firearms and finds its widest application in the type commonly identified as forearm slide actuated.

It is the principal object of this invention to provide a novel and improved firearm construction having a bottom loading magazine and a top and rear overlapping forearm on a one piece stock and also having a trigger mechanism incorporating a hammer hook pivoted on a hammer which is engageable with a sear and which is independent of the balance of the mechanism.

One of the primary purposes of my invention is to provide structural and operational improvements in devices of the class to which reference has been made, which improvements not only simplify the structure as such, but also provide important distinct advantages in strength, durability, efficiency, and the like.

Another object of the invention is to provide a firearm action which may be operated smoothly and free from malfunctions and wherein a pair of action bars support practically the entire operating mechanism (save for the trigger mechanism) by means of a T-shaped slide member which is reciprocable in a complementary slot in the receiver, wherein the trigger mechanism is sufficiently independent of the receiver as to be mountable within the stock with liberal tolerances, and wherein the sear is engaged in a manner not hereinbefore known in the prior art, all without sacrifice to any existing standards of safety and appearance.

With the above objects in view, it is still another object of the invention to provide a construction of the above described character in which the number of operating parts is greatly reduced, which is compact in accordance with the demands and desires of manufacturers and purchasers alike, and which is distinctive in its appearance, practical in its value, reliable in its operation, and efficient in its use.

It is a still further object to provide a device which is constructed of relatively simple parts which are adapted to be readily assembled and which when once assembled are positively and securely retained in operative relationship and which cannot be accidentally separated from each other.

A further object of this invention is to provide a firearm that will compare favorably, insofar as manufacturing costs are concerned, with the inexpensive bolt action types of firearms, all without sacrifice to the speed of fire attained therewith.

The concept of the firearm of the invention has been made with attendant manufacturing problems fully in mind and with special regard to the possibility of making many of the components thereof from stampings and screw machine parts.

Further objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

Other prime objects of my invention include; first the attainment of a higher speed of construction and assembly of the device due to its simplification of design and its unique composition of parts; second, the achievement of a greater ease in adjustment and repairs; and third, the provision of an improved firearm which may be made more economically and with fewer operations in the manufacture of its parts, as well as in the assembly of the same, than prior devices known in the art.

Although, my invention has been described and illustrated herein with particular reference to a shotgun, it should be appreciated that its utility and application extend beyond this particular type of weapon illustrated and comprehend the useful and novel features set forth when incorporated in other types of firearms as well. That is to say, the invention basically contemplates certain new fundamental principles of design, although it is to be understood that such principles could be applied to types of firearms other than shotguns, whether gas or recoil operated, and whether of the automatic, semi-automatic or pump action types, with equal utility.

Stated in another way, this invention may be embodied in other specific forms without departing from the essential characteristics thereof as set forth herein in the single example of a physical embodiment of the invention. The present embodiments are to be considered in all respects merely as being illustrative and not as being restrictive. All modifications and variations as fall within the meaning and purview and range of equivalency of the claims are therefore intended to be embraced therein.

Inasmuch as a shotgun is herein illustrated and described, a few initial comments relative to shotguns generally are indicated.

The repeating or pump action type of shotgun of conventional prior art designs has a single barrel fed from a tube type magazine usualy mounted under the barrel. The breech mechanism is linked mechanically to a forearm surrounding the magazine, so that when the gun is fired, the operator merely manipulates the linkage to produce the action necessary to clear the gun of the empty shell and to feed another shell into the chamber. The operator must load the magazine initially, after which he has only to pull the trigger to fire the gun and to manipulate the action to reload after firing. This type is known variously as "slide," "repeater," "pump-action," or "trombone-action."

Shotguns of the automatic type are "autoloading" rather than automatic, the accepted version of an "automatic" gun being one which fires continuously as long as the trigger is held depressed. Automatic shotguns must have the trigger pulled for each shot. Such shotguns are generally recoil operated, wherein the "kick" of the propelling gases is utilized to perform all of the phases incident to the operation of the firearm, except the pulling of the trigger after the magazine is loaded and the feeding of the first shell into the chamber, which acts are performed manually.

The shotgun represented herein is a repeating, pump or slide action, top/side-ejection, manually operated shoulder firearm of the concealed hammer type. It is fed from a bottom loading box type magazine located under the receiver, and behind the barrel.

It is emphasized again, however, that said shotgun is shown merely for purposes of illustration, the mechanism of this invention being adapted for other types of firearms including the automatic, semi-automatic, and hand operated types.

To the above cited ends, various and ancillary features and advantages and objects of the invention will become more readily apparent as the description proceeds. The invention consists in certain features of novelty, in a mode of operation, and in a unique combination and

organization of components as will be hereinafter more fully described and referred to in conjunction with the accompanying drawings wherein:

Fig. 1 is a side elevational view of the firearm of the invention showing the forearm in the closed position;

Fig. 2 is a side elevational view, similar to Fig. 1, with the forearm in the retracted or "action open" position;

Fig. 3 is a partial plan view of the firearm shown in Fig. 1;

Fig. 4 is a partial longitudinal sectional view showing certain mechanism of the invention in the closed position;

Fig. 5 is a partial longitudinal view showing the action bar release mechanism with the stock of the firearm cut away;

Fig. 5A is a side elevational view of the action bar release spring of the invention;

Fig. 5B is a top plan view of the spring shown in Fig. 5A;

Fig. 6 is a sectional view on the line **6—6** of Fig. 5;

Fig. 7 is a top plan view on the line **7—7** of Fig. 4 showing the hammer and hook connection;

Fig. 8 is a view, similar to the view in Fig. 4, showing the breech bolt in the open position, the trigger held back, and two cartridges in the magazine;

Fig. 9 is an inverted plan view showing the bottom of the magazine and the loading guide;

Fig. 10 is a longitudinal sectional view through the forearm and barrel of the firearm;

Fig. 11 is an inverted plan view of features of the mechanism shown in Fig. 10 with particular reference to the forearm;

Fig. 12 is a longitudinal sectional view showing the magazine and related parts;

Fig. 13 is a sectional view on the line **13—13** of Fig. 12 with the cartridge retainers being shown out of section;

Fig. 14 is a sectional view on the line **14—14** of Fig. 12;

Fig. 15 is a sectional view showing the magazine jam preventer;

Fig. 16 is a sectional view showing the cartridge being held in place by the magazine ear cuts, which are parts of the receiver, and wherein the breech bolt is moving forwardly for the feeding of a cartridge into the barrel;

Fig. 17 is a sectional view on the line **17—17** of Fig. 16;

Fig. 18 is a sectional view similar to Fig. 16 showing the front end of the cartridge going into the barrel and the rear (rim) end being fed upwardly through feed cuts and under the extractors;

Fig. 19 is a sectional view on the line **19—19** of Fig. 18;

Fig. 19A is a sectional view on the line **19A—19A** of Fig. 18;

Fig. 20 is a sectional view showing the parts in hammer cocked position with the safety off;

Fig. 21 is a sectional view on the line **21—21** of Fig. 20;

Fig. 22 is a sectional view similar to Fig. 20, showing the hammer down and the trigger held back;

Fig. 22A is a sectional view on the line **22A—22A** of Fig. 22;

Fig. 22B is a longitudinal sectional view through the slide block and bolt locking lug showing the parts in a separated relation in order to better explain the formation thereof and their relationship to each other;

Fig. 23 is a partial plan view showing the rear cap of the firearm;

Fig. 24 is a sectional view similar to Fig. 20 showing the hammer cocked and the trigger held back, with the firing pin mechanism not shown for the sake of simplicity;

Fig. 25 is a sectional plan view on the line **25—25** of Fig. 24;

Fig. 26 is a sectional view similar to Fig. 20 showing the trigger in the forward position and the hammer down;

Fig. 27 is a sectional view on the line **27—27** of Fig. 8 showing the magazine ear cuts retaining the rear end of the cartridge;

Fig. 28 is a section view on the line **28—28** of Fig. 8 showing the right hand cartridge retainer supporting the lower cartridge;

Fig. 29 is a sectional view on the line **29—29** of Fig. 4;

Fig. 30 is a sectional view on the line **30—30** of Fig. 4;

Fig. 31 is a sectional view on the line **31—31** of Fig. 4;

Fig. 32 is a sectional view on the line **32—32** of Fig. 10;

Fig. 33 is a sectional view on the line **33—33** of Fig. 10;

Fig. 34 is a sectional view on the line **34—34** of Fig. 10;

Fig. 35 is a sectional view on the line **35—35** of Fig. 10;

Fig. 36 is a sectional view on the line **36—36** of Fig. 10; and

Fig. 37 is a sectional view on the line **37—37** of Fig. 10.

In the following description and claims, various details will be identified by specific names for convenience. These names, however, are intended to be as generic in their application as the art will permit.

Referring now to the drawings more in detail, in which similar characters of reference indicate corresponding parts in the several figures and referring more particularly to the form of my invention selected for illustrative purposes, I have shown in Figs. 1–3, the general outline of the complete firearm of the invention in outside views.

The gun includes a stock **2** and a forearm **4** which may be made of wood, plastic, metal or equivalent material.

It will be observed that the forearm overlaps the top and front of the one piece stock.

These members are associated with the barrel **6**, a rear cap **8**, a receiver **10**, a breech bolt **13**, a bolt locking lug **14**, an action bar release **16**, a recoil shoulder **18**, a magazine shell **20**, a trigger guard **22**, a trigger **24** and a safety **26**.

The receiver **10** is substantially round in shape, although not necessarily so. It may be rectangular or irregular in shape within the spirit of this invention.

The top may be milled to form a rib type rear sight (not shown).

The only opening on the upper side of the receiver is the ejection port **11** on the right top side thereof and the locking lug slot **12** on the top thereof immediately to the rear of the ejection port **11**, as best shown in Fig. 3.

The bottom of the receiver **10** is cut away and the interior thereof is hollowed for the reception of parts in the well known manner.

The rear cap **8** is held on the rear of the receiver **10** by means of spring **9**, the sides of the rear cap being sprung outwardly so as to push the rear cap **8** onto the receiver **10** from the rear in assembly.

With particular reference to Fig. 4, the trigger mechanism will be first described.

The trigger mechanism generally incorporates the fire control elements of the firearm.

The trigger guard **22** is an irregularly shaped member of more or less conventional design having forward and rear tangs **30** and **32** respectively. The rear tang **32** is provided with a suitable opening therethrough to accommodate the guard screw **34** for securing the trigger guard **22** to the grip of the stock **2** at the rearward end of the trigger guard **22**.

The trigger guard is also attached to a trigger housing, shortly to be described, by means of rivets or screws **23**

or the like forwardly and rearwardly of a bowed portion of the trigger guard 22. The bowed portion is of a conventional configuration for purposes of protecting the trigger 24 in the well known manner.

The bowed portion of the trigger guard 22 is slotted to accommodate the safety 26 rearwardly of the trigger 24.

A loading guide 35 is provided having a relatively flat elongated portion and a centrally disposed concavity or dimple 36 at the forward end to guide the cartridge or shell into the magazine, all as will hereinafter appear. The loading guide is secured to the receiver by means of loading guide screws 38.

A U-shaped trigger housing is provided having spaced opposite side walls 40 and 40 extending generally vertically upwardly from a transverse bottom wall 42 disposed therebetween and connecting the same.

The rearward portion of the loading guide 35 is sandwiched between the forward tang 30 of the trigger guard 22 and the bottom wall 42 of the trigger housing at the forward end thereof.

The trigger 24 is pivotally mounted on the trigger housing by means of a trigger pivot pin 50 engageable with the side walls 40 and 40 of the trigger housing.

Forwardly of its pivotal mounting, the trigger 24 is provided with a bifurcated or slotted forward portion consisting of a transversely extending sear pin 52 which extends through the spaced walls thereof and the slot therebetween. The pin 52 is adapted for engagement in the slot 62 in a sear 60 disposed in the slot between the spaced walls thereof. In this manner, relative movements of the trigger 24 and sear 60 are controlled, as will presently be observed.

The uppermost face of the trigger 24, rearwardly of the pivotal mounting thereof, is provided with a notch 70 for purposes shortly to be set forth.

A new type of manually operable safety 26 is provided to positively block inadvertent trigger operation when the firearm is loaded and cocked.

The safety 26 is pivotally mounted in the trigger housing rearwardly of the trigger 24 by means of a safety pivot pin 80 extending through and between the spaced side walls 40 of the trigger housing.

The uppermost portion of the safety 26 is provided with a pair of spaced notches or detents, consisting of a forward notch 82 and a rearward notch 84, for purposes as will hereinafter appear.

Forwardly of its pivotal mounting, the safety 26 is provided with a trigger engaging projection 86 which is adapted to engage a safety engaging notch 54 of the trigger 24. A projection of the trigger adjacent the safety engaging notch is mated with a notch of the safety, adjacent the trigger engaging projection 86 when the trigger is pulled, as will be appreciative by reference to Fig. 8.

The projection 86 is movable downwardly and rearwardly when the safety is moved to the rear or "On" position so as to block the rearward movement of the trigger and thus prevent the undesired discharge of the firearm.

Rearwardly of its pivotal mounting, the safety 26 is provided with a flat 88 which is adapted to abut the underside of the bottom wall 42 of the trigger housing when the safety is pivoted rearwardly to the end that further rearward movement thereof is prevented.

The forward movement of the safety 26, when moved to the "Off" position, is stopped by the rear end of the trigger 24, as shown in Fig. 20.

The trigger 24 will prevent the safety 26 from moving beyond the limit of the detent 82. In lieu thereof, the bottom of the slot cut centrally of the rear of the trigger guard 22 can also be used as the forward trigger stop.

When the trigger 24 is pulled to discharge the firearm, unnecessary rearward motion thereof is prevented by the safety, as best shown in Fig. 8.

The hammer 90 is an irregularly shaped member of uniform thickness which has a flat front face 92 which functions as the striking surface thereof.

The face 92 is inset so as to provide a clearance cut for the rearward surface of the bolt locking lug 14.

The hammer 90 is pivoted on a hammer pivot pin 94 which extends between the left and right hand action bars 190 and 192 respectively. The hammer 90 is centrally hung within a slot in the midsection of the slide block 170 at the rear end thereof.

The hammer 90 is actuated by the hammer spring 96 which is of the mousetrap or torsion type and extends around the hammer pivot pin 94 on both sides of the hammer, as is best shown in Fig. 6. That is to say, the hammer spring 96 is mounted around the pin 94 bearing on the bottom of the slide block 170 at its opposite ends and the hammer 90 at its center and serves to force the hammer upwardly as will hereinafter appear.

The hammer 90 is held in the cocked position by means of a hammer hook 100 which is held under a constant downward tension by the hammer hook spring 102. The hammer hook 100 at its uppermost extremity is held in pivotal relationship with the hammer 90 by means of a hammer hook pin 104.

The hammer hook 100 is provided at its opposite lowermost extremity with a sear notch 106 which engages the sear point 64 on the sear 60.

The forward end of the sear 60 bears downwardly upon the upper surface of the bottom wall 42 of the trigger housing.

As aforesaid, the sear pin 52 extends thru the spaced walls of the forward portion of the trigger 24, as best shown in Fig. 21, and is receivable in the slot 62 in the sear 60. Same permits the sear 60 to move forwardly to a forward position, as shown in Figs. 4 and 20, and rearwardly to a rearward position, as shown in Figs. 8, 22 and 26, as well as along intermediate positions therebetween, as shown in Fig. 24.

The hammer spring 96 exerts a pressure upon the hammer 90 and the hammer hook 100 pivoted thereto. Said pressure is sufficient to overcome the action of the sear/trigger/safety spring 110 and to bring the sear 60 to the aforementioned forward position.

The sear/trigger/safety spring 110 is an irregularly shaped spring member disposed on both sides of the trigger housing and looped around the trigger pivot pin 50 at its midsection.

The upward pressure of the looped portion of the sear/trigger/safety spring 110 is exerted on circular grooves 51 cut in the trigger pivot pin 50 as shown in Fig. 31 whereby the member 110 functions as a retainer and serves to hold the trigger pivot pin 50 in position.

The sear/trigger/safety spring 110 has a rearmost extremity bent at an angle to exert a downward pressure in the notch 84 on the safety 26 so as to keep the safety in the "On" position, as shown in Fig. 4, or in the notch 82 so as to keep the safety in the "Off" position, as shown in Fig. 20.

The lower middle portion of the sear/trigger/safety spring 110 extends downwardly to bear against the uppermost surface of the loading guide 35, as shown in Fig. 4. A forward extremity of the member 110 is receivable in a notch 66 in the forward end of the sear 60 so as to exert a constant rearward and downward pressure on the front end of the sear 60.

In actual operation, when the trigger 24 is pulled rearwardly to discharge the firearm, the forward extremity thereof is actuated downwardly, by virtue of its being pivoted on the trigger pivot pin 50 all as aforesaid.

As the forward portion of the trigger 24 carrying the sear pin 52 is forced downwardly, the rear end of the sear 60 is depressed downwardly in the slot in the forward portion of the trigger so as to be pulled out of the sear notch 106 on the hammer hook 100, all to the end that the hammer hook 100 is released whereby the

hammer 90, under the tension of the hammer spring 96, falls so as to bring about the discharge of the firearm.

It is to be here appreciated that the hammer hook 100 is of greater width than the sear 60 so that the hammer hook 100 is prevented from entering into the slot of the trigger 24 wherefor the sear and hammer become disengaged, as aforementioned.

The sear 60, under the downward and rearward tension at its front end by the sear/trigger/safety spring 110, moves rearwardly upon the release of the tension of the hammer spring 96 until further rearward movement is precluded by the front end of the elongated slot 62 in the sear 60.

The parts then assume the position, best shown in Fig. 22, it being appreciated that the topmost edge of the sear 60 serves as a track for the hammer hook 100 to move forwardly therealong.

If the trigger 24 is then manually released, it moves forwardly by means of the downward tension of the sear/trigger/safety spring 110 which is engageable therewith in the notch 70.

The forward end of the trigger 24 moves upwardly carrying the sear pin 52 upwardly therewith whereby the sear 60 is moved along the sear pin 52 due to the downward and rearward pressure of the sear/trigger/safety spring 110. This also pushes the rear end of the sear 60 upwardly as the trigger is released, so that the parts assume the position shown in Fig. 26.

A top view of the safety 26 and the rear end of the sear/trigger/safety spring 110 is shown in Fig. 25.

A sectional view of these same components is shown in Fig. 31 wherein the hammer is in the cocked position.

It will be appreciated that the sear/trigger/safety spring 110 performs four functions: (1) it provides a downward and rearward pressure on the front end of the sear 60; (2) it provides an upward pressure on the trigger pivot pin 50 retaining same in the trigger housing; (3) it provides a downward pressure on the rear of the trigger 24; and (4) it acts as a safety detent spring so as to hold the safety 26 in one or the other of its operating positions.

The action of these related parts aforedescribed is shown in the proper sequence in figures of the drawing as follows:

Fig. 20 shows the first stage of the firing position where the hammer is cocked, the safety is off and the firearm is ready to fire;

Fig. 26 shows the second state where the hammer is down;

Fig. 22 shows the third stage where the hammer is down and the trigger is held back and the sear is in its rearmost position;

Fig. 8 shows the fourth stage where the action is open and the trigger is held back;

Fig. 24 shows the fourth stage where the action is closed, the hammer is cocked, and the trigger is held back;

Fig. 4 shows the fifth stage where the hammer is cocked, the trigger is forward, and the safety is on.

The breech bolt 13 is of cylindrical shape complementary to the inside of the receiver 10 and is constrained to straight fore and aft movement in the receiver.

Said breech bolt has a rearmost face 120 having a centrally and longitudinally disposed slot 122 extending inwardly therefrom. This face is inclined at a slight angle, as shown.

The front face 125 of the breech bolt is flat and circular and, in the case of a shotgun, has a diameter corresponding approximately to the diameter of the base of the cartridge.

A longitudinal bore 124 extends through the breech bolt 13 in which a firing pin 140 is receivable for longitudinal reciprocatory movements therein. The firing pin is adapted to extend forwardly through the center of the front face 125 of the breech bolt in a forward position when the firing pin is struck and to be retirable to a rearward position by means of a firing pin retracting spring 142 which surrounds the firing pin 140 within the longitudinal bore 124. Said bore is provided with a shoulder 126 on which a forward end of the spring 142 seats.

The opposite end of the firing pin 140 is provided with an enlarged head 144 adapted to define a shoulder as shown on which the rearward end of the spring 142 seats, all to the end that positive supports are provided for said spring when same is interposed therebetween.

In a rearward portion of the breech bolt 13, an inclined vertically extending elongated slot is provided, as best shown in Figs. 22 and 22A, in which is receivable a bolt locking lug 14.

An opening 130 extends through the bolt locking lug 14, said opening having an enlarged diameter at its forward end so as to provide a shoulder, as shown. A firing pin extension 150 is slidably receivable within the opening. Said firing pin extension has a rearward extremity 152 adapted to be struck by the front face of the hammer 90 upon a firing movement thereof, as shown in Fig. 22, and an enlarged forward rounded head 154 which engages the rounded head 144 of the firing pin 140, in a manner as will shortly be observed.

The head 154 of the firing pin extension 150 defines a shoulder as shown rearwardly thereof which functions as a stop to prevent excess rearward motion of the firing pin extension 150 within the opening 130 and holds same in its assembled position.

The spherical surface of the head of the firing pin extension 150 functions as a camming surface. In the course of its camming action, it bears upon a circular cam cut 160 at the bottom of the lower portion of the counterbore 162 in the breech bolt 13 for the head 144 of the firing pin 140.

When the hammer 90 is down and the firing pin extension 150 is in the fired or forward position, as shown in Fig. 22, the downward movement of the bolt locking lug 14 as the action is opened cams the firing pin extension 150 rearwardly. The spherical surface of the head thereof contacts the circular cam cut 160 in the breech bolt 13 whereby the camming action is attained.

The firing pin 140 is thereupon free to move rearwardly under the tension of the firing pin retracting spring 142 to assume its most rearward position, as shown in Fig. 8.

In operation, the face 92 of the hammer 90 strikes the firing pin extension 150 forcing same forwardly so as to drive the firing pin 140 forwardly to fire the firearm.

A slide block 170 is disposed beneath the bolt locking lug 14 and includes a pair of spaced upwardly extending cam portions (a forward cam 172 and a rearward cam 174) on the upper surface thereof, as shown in Fig. 22B.

An opening 176 is provided in the bottom of the bolt locking lug 14 to receive the forward cam 172 of the slide block 170.

When the slide block 170, and parts assembled thereto (all hereinafter to be described), is retracted, the forward cam portion 172 of the slide block contacts the cam surface 178 in the opening 176 of the bolt locking lug forcing the bolt locking lug downwardly and moving the locking surface 180 of the bolt locking lug out of position in its slot in the receiver so as to unlock the firearm and to allow the breech bolt to move rearwardly.

When the breech bolt moves forwardly to close or load the firearm, the surface 182 of the bolt locking lug contacts the surface 184 of the receiver so as to limit the forward travel of the breech bolt 13 and to prevent the front face 125 of the breech bolt from causing possible damage to the rear end of the barrel or, in the case of a shotgun, the cartridge rim cut in the chamber of the barrel if the chamber is empty. The front face 175 of the rearward cam 174 of the slide block 170 acts on the cam surface 177 of the bolt locking lug camming it upwardly so as to lock the recoil surface 180 of the bolt locking lug 14 against the bolt locking shoulder 181 of the receiver.

When the bolt locking lug 14 is in its uppermost posi-

tion, continued forward movement of the slide block **170** brings the surface **173** of the slide block underneath the lower rear end **183** of the bolt locking lug **14** to lock it in place.

Slide block **170** continues forwardly until it is stopped by contact of the front face **185** of the upper portion of the slide block with the lower rear surface **177** of the bolt locking lug **14**.

As the upper rear end of the slide block is T shaped in section and fits into a groove or slot in the receiver, it can be readily seen that the bolt locking lug is solidly locked in the receiver as shown in Figs. 6 and 22A.

The point of the firing pin **140** is prevented from striking the primer of a cartridge in the chamber before the breech bolt of the firearm is locked by two methods as described in the succeeding two paragraphs.

Method #1 follows the unlocking or dropping down of the bolt locking lug **14** unlocks the firearm and misaligns the firing pin **140** and firing pin extension **150** so that the point of the firing pin could not be made to protrude forwardly of the front face **125** of the breech bolt even if the rear end of the firing pin extension **150** could be struck with the hammer **90**, as may be appreciated by reference to Fig. 8. It cannot be so struck as will shortly be observed.

Method #2 now follows. Before the bolt locking lug **14** can be cammed downwardly, the slide block **170** must be moved rearwardly by means of the action bars and associated component parts until the front lug or cam of the slide block is in contact with the surface **178** of the bolt locking lug **14**. As the face of the hammer **90** almost contacts the angular cut in the slide block, as shown in Fig. 26, it can be readily seen from Fig. 8 that before the lug on the slide block even contacts the bolt locking lug **14** the hammer, in its most forward position, cannot reach the rear end of the firing pin extension.

A transverse opening is provided through the rearward portion of the slide block **170** through which the hammer pivot pin **94** extends whereby the hammer **90** is centrally hung relative to the slide block, as aforementioned.

A central cut or slot in the slide block **170** is of slightly greater width than the width of the hammer **90** so as to allow the hammer to swing or throw in the usual manner, but to restrict sidewise movement thereof.

When the hammer **90**, the hammer spring **96**, and the action bar release spring **252**, are assembled on the hammer pivot pin **94** in the slide block **170**, the hammer pivot screw **95** is tightened.

The point of the hammer pivot screw **95** fits into a corresponding or mating opening in the hammer pivot pin **94** so as to lock the hammer pivot pin **94** and the hammer **90** together.

Due to the aforementioned restriction upon sidewise movement of the hammer **90**, the hammer pivot pin **94** is enclosed to rotate with the hammer **90** and the hammer pivot pin is securely locked in place.

A pair of laterally spaced forwardly extending action bars (a left hand action bar **190** and a right hand action bar **192**) are secured at their rearmost extremities to the opposite sides of the slide block **170** as by rivets or screws **194** or the like and are slidable forwardly and rearwardly therewith.

The slide block **170** extends into the receiver and the action bars are slidable under the receiver and are guided relative thereto by corresponding slots in the recoil shoulder **18** and the action bar guide **230** for suitable reciprocation, as shown in Figs. 32 and 36. The upper portion of the slide block is T shaped and moves along a suitable complementary slot in the lower side walls of the receiver providing a firm support for the slide block and action bars, as illustrated in Fig. 21.

The forward extremities of the action bars **190** and **192** are supported in a manner now to be described.

A rear action bar spacer **200** is provided intermediate the action bars. The action bars are joined to said spacer by means of a pair of parallel slots **202** and **202** extending longitudinally through the rear action bar spacer adjacent the opposite sides thereof, and in which slots the action bars are seated, as shown in Figs. 34 and 35.

Forwardly of the member **200**, a front action bar spacer **210** is provided intermediate the forward extremities of the action bars.

The forward extremities of each of the action bars are provided with insets as at **191** and **193** respectively (as shown in Fig. 11) and are receivable in mating slots **212** in the opposite side walls of the front action bar spacer **210**.

A front action bar retaining clip **214** defines a more or less rectangular shape and is receivable over the outside walls of the front action bar spacer **210** and the ends of the action bars **190** and **192** associated therewith so as to lock the action bars to the front action bar spacer, all as is shown in Fig. 37.

The forearm **4** is secured to the front and rear action bar spacers **210** and **200** respectively.

A rear forearm screw **216** extends upwardly through the forearm **4** and is threadedly engageable with the rear action bar spacer **200** as shown in Figs. 10 and 35.

A front forearm screw **218** extends inwardly and through the forward end of the forearm **4** and is threadedly engageable with the front action bar spacer **210** as illustrated in Fig. 10.

A front forearm retaining clip screw **220** is receivable through the front action bar retaining clip **214** and is threadedly engageable with the forearm **4** as is shown in Figs. 10 and 37.

By the aforedescribed arrangement, it will be appreciated that the forearm **4** is thus permitted to reciprocate forwardly and rearwardly with the parallel action bars **190** and **192**.

An action bar guide **230** is soldered, brazed, screwed or otherwise secured to the barrel **6** and extends downwardly therefrom as shown in Figs. 10 and 36.

A guide plunger **232** is movable forwardly and rearwardly within a guide plunger opening extending inwardly from the rear face of the action bar guide **230**. The guide plunger normally extends rearwardly and outwardly due to the pressure of a guide plunger spring **234** having an inner end nestable within the guide plunger **232** and having an outer end seatable in the bottom of the guide plunger opening as is shown in Fig. 10.

A guide plunger pin **236** extends through an opening in the action bar guide **230** and extends transversely of and slightly into the guide plunger opening so as to prevent the guide plunger **232** from disengaging with the action bar guide **230**.

The guide plunger pin **236** is retained in its proper position by means of the assembled action bars, all as illustrated in Figs. 11 and 36.

The guide plunger **232** has an uppermost surface provided with an inset portion intermediate the opposite ends thereof whereby forward and rearward movements of the guide plunger within predetermined limits is facilitated.

An action bar release base **238** which is soldered, brazed or otherwise attached to the receiver comprises an elongated substantially triangular shaped member.

The action bar release **16** is an irregular shaped member which pivots on a front action bar release screw **240** whereby the action bar release member **16** pivots relative to the action bar release base **238**.

The up and down movement of the action bar release **16** is limited by an elongated slot **242** cut through the member **16** on the arc of a circle the center of which is the front action bar release screw **240** and through which slot passes the rear action bar release screw **244**.

A slot **171** is provided in the right hand side of the slide block **170** which, with the right hand action bar **192** in place, surrounds and supports all but the extreme

hooked end 255 of the action bar release spring 252, as may be observed by reference to Figs. 5 and 6.

A longitudinal slot 239 is provided in the underside of the action bar release base 238 to support the action bar tension spring 250.

An opening is provided in the rear end of this slot 239 to hold the top bent portion 251 of the action bar tension spring 250.

An opening is provided in the top of the lowermost inset portion 257 of the action bar release 16 to hold the lower bent portion 256 of the action bar tension spring 250, as best shown in Figs. 5 and 6.

The breech mechanism of the firearm is held in the closed and locked position by means of a projection or lug 246 on the action bar release 16 engaging a complementary angular notch at the end of the right hand action bar 192 and held in this engagement by the action bar tension spring 250 which exerts a downward force on the action bar release 16.

In operation, the hammer hook 100 is engaged on the sear point 64 of the sear 60 holding the hammer 90 in the full cocked position against the tension of the hammer spring 96. This tension pulls the action bars 190 and 192 and the parts associated therewith against the projection or lug 246 on the action bar release 16, as is shown in Fig. 5. That is to say, the hammer is held in the full cock position against the tension of the hammer spring by the projection on the action bar release engaging in the notch on the right hand action bar until released by the discharge of the firearm or until manually released.

The guide plunger spring 234 and the guide plunger 232 in the action bar guide 230 maintain a rearward pressure on the rear action bar spacer 200, the action bars 190 and 192, and the projection or lug 246 after the tension due to the hammer 90 has been released by the sear 60.

A bend 253 on the inner end of the spiral of the action bar release spring 252 (best shown in Fig. 5B) engages in a complementary slot in the hammer pivot pin 94.

When the hammer 90 is cocked, and as the hammer pivot pin 94 rotates with the hammer, the hook 255 on the top or outside end of the action bar release spring 252 is free, but, when the hammer 90 falls to discharge the firearm, the action bar release spring moves upwardly along the arc of a circle and said hook 255 contacts and creates a tension on the lowermost inset portion 257 of the action bar release 16.

The tension applied by the action bar release spring 252 is sufficient to overcome the action bar tension spring 250 and the weight of the action bar release 16 and friction associated therewith.

The action bar release 16 pivoting on the front action bar release screw 240 has a tendency to move upwardly so as to release the action bars 190 and 192 and the components associated therewith. This tendency is obviated by the projection or lug 246 on the action bar release 16 which engages the angular notch 248 on the right hand action bar 192 aided by the tension of the guide plunger spring 234 so as to transmit pressure through the guide plunger 232 to the rear action bar spacer 200 and thence to the action bars.

When the firearm is fired, one hand of the shooter grasps the forearm in the well known manner. Upon firing, the firearm recoils rearwardly against the shooter's shoulder and also against the hand grasping the forearm. This causes the action bars, which are free to move slightly forwardly, and overcome the tension of the guide plunger spring 234 to release the projection or lug 246 of the action bar release 16 so as to allow the action bar release spring 252 to overcome the action bar tension spring 250 and move the rear end of the action bar release 16 upwardly so as to unlock the firearm and allow the forearm to be moved rearwardly.

When the forearm and action bar assembly are moved forwardly to load and to cock the firearm, the end of the hammer hook (which is pendulantly mounted on the hammer and is held downwardly by the hammer hook spring) engages the sear point 64.

Continued forward motion of the forearm brings the hammer 90 to the fully cocked position, as shown in Fig. 20.

The hammer, being cocked, moves the hook 255 on the action bar release spring 252 away from contact with the action bar release 16 so as to prevent tension. This allows the action bar tension spring 250, which is weaker, to move the action bar release 16 downwardly, when the forearm is in its most forward position, so as to lock the action bars and to hold the firearm in the closed position.

To open the firearm, when locked and at full cock, and without the necessity of pulling the trigger and releasing the hammer, the upward portion 17 of the action bar release may be manually pushed forwardly and upwardly with sufficient pressure to overcome the force applied on the projection on the action bar release 246 by the tension of the action bar tension spring 250, hammer spring 96, and the guide plunger spring 234 in the forearm.

The magazine is of the box type having spaced side walls 280 and 280, a slotted forward wall 281, a bottom wall 282, and a rearward wall 283 having a cartridge receiving opening 284 therein.

At the top of the side walls 280 of the magazine, magazine shell retainer clip portions 285 which are integral with and extend outwardly from the respective members 280 are provided as shown in Figs. 19 and 27. Said portions 285 are secured to the receiver 10 by means of screws 286, rivets or the like.

It will be appreciated that if desired the receiver may be appropriately formed so as to provide wall portions which may result in the elimination of the side walls of the magazine, all to the end that the magazine is made a more integral part of the receiver.

It is to be appreciated that the forward wall 281 is disposed slightly to the rear of the forward edges of the spaced opposite side walls 280 and 280.

The magazine is equally adapted for use in automatic, semi-automatic, or hand operated firearms and may be designed to hold one or a plurality of cartridges C.

The magazine is loaded or charged from the bottom of the firearm, through the opening 284, as shown in Fig. 12.

The magazine follower 290 extends through the slotted forward wall of the magazine and forwardly thereof on a magazine follower pivot pin 292. The pin 292 extends transversely between the side walls 280 and 280 and supports a magazine follower spring 294. The spring 294 urges the magazine follower 290 upwardly.

To load cartridges into the magazine, the magazine follower 290 is manually retracted by forward and upward pressure on the forward end 291 of the follower and a cartridge C is manually pushed into the cartridge opening 284 in the bottom of the magazine, as illustrated in Fig. 12.

Fig. 9 shows a bottom view of the loading guide and Fig. 14 shows a cross section of the loading guide and a cartridge being loaded into the magazine.

The cartridge C is held in position by a pair of cartridge retainers, a forward or left cartridge retainer 302 and a rearward or right cartridge retainer 304. If desired, the retainers 302 and 304 may be reversed as to their forward and rearward positions.

There is one set of cartridge retainers for each cartridge in the magazine in excess of one (not shown). That is to say, there are two sets of cartridge retainers for a three shot capacity magazine.

The cartridge retainers are spring like members, or

lever like members which, if desired, may be pivoted and operated by springs.

The cartridge retainers are staggered with one being provided on each side of the magazine. Member **302** is disposed toward the front of the magazine and member **304** is disposed toward the rear of the magazine, as best shown in Fig. 18. Member **302** functions to prevent the front of the cartridge from dropping and member **304** functions to prevent the rear of the cartridge from dropping.

Additionally, the front cartridge retainer **302** prevents the top cartridge, when more than one cartridge is in the magazine, from dropping down or nose diving so as to hit the front of the magazine, as same is being fed into the chamber as shown in Figs. 8 and 28. In this manner, a jamming of the firearm, as a result of the rim or cannula of the uppermost cartridge hitting or catching onto the rim or cannula or indent of the cartridge therebelow, is prevented.

The magazine follower **290** exerts an upward pressure, due to the magazine follower spring **294**, and pushes the cartridge upwardly when the breech bolt **13** is withdrawn to the rear, as shown in Fig. 8.

The magazine ear cuts **310** in the receiver, best shown in Fig. 27, limit and guide the upward movement of the rim or the rear of the cartridge.

The guide cuts **311**, best shown in Figs. 17 and 28, allow the front of the cartridge to move upwardly.

The front end of the cartridge below the one being fed into the chamber catches on the front cartridge retainer **302** and supports both the cartridge being fed into the chamber and the one therebelow, as may be better understood by reference to Fig. 28.

The magazine slants or angles rearwardly and downwardly as shown in Fig. 8, so as to prevent the rim of a short cartridge (if rimmed cartridges are employed) from getting ahead of the rim of a cartridge already in the magazine so as to jam the firearm. It will readily be appreciated, by reference to Fig. 24, that the rims of the cartridges can not pass over each other.

Rim guides **306** may be incorporated into the magazine and may be secured to the magazine as by brazing, soldering, welding or like method. If desired, they may be made integral with the magazine by bending the sides of the magazine (not shown) in a conventional manner.

Such rim guides in conjunction with the rim guide cuts **312** in the receiver (see Fig. 18) function to guide the rear end of the cartridges forwardly and upwardly permitting the use of a weak magazine follower spring **294** and preventing jamming due to the rear end of the cartridge not being raised up quickly enough through the weakness of the magazine follower spring so as to align the cartridge with the chamber if the action is worked forward rapidly.

That is to say, the rim guides function to guide the cartridge upwardly by engagement with the rim of the cartridge. They also function to keep the front end of the cartridge in the magazine in alignment with the guide cuts in the receiver and to prevent one rim from getting ahead of the other.

The magazine ear cuts **310** are milled into the receiver, as shown in Fig. 27, and function to hold the cartridge in the magazine. In operation, the breech bolt **13** is moved forwardly to feed the cartridge into the chamber. After leaving the magazine ear cuts, the cartridge is pushed upwardly by the magazine follower, same being activated along an upward path of movement by the magazine follower spring **294**, through feed cuts **314** in the receiver and under extractors **320** of conventional design.

One of such extractors is shown in Figs. 16 and 18; the other is shown in Fig. 8. Said extractors are disposed at the forward end of the breech bolt **13**.

A pair of spaced opposite extractor slots **321** are cut longitudinally of the receiver as best shown in Fig. 19. The front end of the cartridge moves upwardly and forwardly through the guide cuts **311** in the forward part of the receiver, as shown in Figs. 16 and 28.

A feed ramp cut **313** is provided in the lower walls of the receiver forwardly of the magazine for purposes of aiding in the guidance of the cartridge into the chamber.

The feed cuts **314**, as shown in Figs. 16 and 19, allow the rear or enlarged portion of the cartridge to move freely upwardly into proper alignment with the chamber.

The function of the rim guide cuts **312**, which are the forward portions of the feed cuts **314**, has been previously described.

The ejector **322**, as shown in Fig. 8, is disposed on the receiver **10** and is of the conventional design and function.

A projection or shelf **330** is provided at the top of the loading opening at the rear of the magazine and functions to catch and to hold the rear end (or rim in the event a rimmed cartridge is employed) of a lowermost cartridge which might drop out of the magazine opening due to any incorrect movement of the pump forearm or of the operating handle or in manually loading the magazine, as shown in Fig. 15.

The top or end of the follower **290** is curved or twisted angularly so as to force the cartridge carried thereby toward the left side of the receiver where it will be more readily fed into the chamber and away from the ejection port. See Figs. 17 and 19.

It also performs a secondary function in that it keeps the lower cartridge (when there are two cartridges in the magazine and the top one is being fed into the chamber) against the left side of the magazine, aiding the front cartridge retainer to support the lower cartridge and to prevent objectionable nose diving. This is the result of the angular pressure exerted by the follower.

Indicia such as numerals "0," "1" and "2" may be placed on or near the forward end of the magazine. Each figure would be so placed as to line up with, or point to, a predetermined position of the forward end **291** of the magazine follower **290**, said figure corresponding to the number of cartridges remaining in the magazine. That is to say, when there are two cartridges in the magazine, the forward end of the magazine follower would align up with the numeral "2" on the magazine. When there is one cartridge in the magazine, the forward end of the magazine follower aligns up with the numeral "1" on the magazine. When the magazine is empty, the forward end of the magazine follower aligns up with the numeral "0" on the magazine.

The barrel **6** is cylindrical and tapers slightly toward the forward end thereof.

If a shotgun is contemplated a bead type front sight **7** is fitted to the barrel adjacent the muzzle in the conventional manner.

The rear end of the barrel is threaded for a short distance and is threadedly engageable with the forward end of the receiver.

A recoil shoulder **18** is fixed to the rear end of the barrel **6** and surrounds same adjacent the receiver **10** and is held in place by the pressure of the barrel in threaded engagement with the receiver as shown in section in Fig. 32.

An enlarged downwardly depending portion **19** of the recoil shoulder **18** receives in an upwardly extending opening through the lowermost edge portion thereof and in threaded engagement therewith a bedding screw **332** which secures the forward end of the stock **2** to the barrel **6** as shown in Figs. 8 and 32.

Forwardly of the bedding screw, a recoil bolt **334** extends longitudinally through an opening extending from the forward or front end of the stock. The head end of the screw abuts a recoil plate **336** fixed to the front end of the stock **2**. The recoil bolt **334** is in threaded engagement with the recoil shoulder **18**.

The forearm may be reciprocated forwardly and rearwardly and as same is accomplished, the action bars

190 and 192, the slide block 170, the bolt locking lug 14, the breech bolt 13 and attached mechanism including the firing pin 140 and firing pin extension 150, the hammer 90, and hammer hook 100 and spring therewith and the action bar release spring 252 are likewise reciprocated.

If the trigger 24 is held back during the rearward movement of the components, the parts assume the relative positions best shown in Fig. 8. Here the breech bolt 13 is in the rearward position. The sear 60, relieved of the tension of the hammer spring 96, is forced to its most rearward position, as allowed by the sear slot 62, by the force of the sear/trigger/safety spring 110.

When the bolt 13 is closed, and with the trigger still held back, the sear notch 106 on the hammer hook 100 catches in the sear 60 by engaging on the sear point 64. The tension of the hammer spring 96, through the hammer 90 and the hammer hook 100, overcomes the tension of the sear/trigger/safety spring 110 whereby the sear 60 is moved forwardly along the sear pin 52 extending into the elongated slot 62 in the sear until the hammer hook 100 is stopped by the projection 55 on the trigger 24 and is held there as long as the trigger is held back, as best shown in Fig. 24.

When the trigger 24 is released, the tension of the sear/trigger/safety spring 110 exerts a downward pressure so as to force the forward end of the trigger and the sear pin 52 upwardly whereby the rear end of the sear 60 including the sear point 64 is urged upwardly.

The forward end of the sear 60 is held downwardly and in contact with the trigger housing by means of the downward and rearward pressure exerted by the sear/trigger/safety spring 110.

As the trigger 24 reaches its forward position, the rearmost end of the sear 60 is moved upwardly. The sear 60 carries with it the hammer hook 100, which is under the tension of the hammer spring 96. The forward and upward pressure of the hammer hook 100 aids the upward movement of the rear end of the sear 60.

When the end of the hammer hook 100 reaches the top of the projection 55 on the trigger 24, the hammer hook 100 pushes the sear 60 forwardly under its greater pressure until the sear is stopped by the pin 52 through the slot 62 in the sear 60, wherefore the parts assume the position shown in Fig. 20 where the trigger is again ready to discharge the firearm.

While I have illustrated and described the invention as embodied in a specific arrangement, I do not intend to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the invention. Without further analysis, the foregoing is intended to so fully reveal the gist of my invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features which, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims below.

What it is desired to claim and secure by Letters Patent of the United States is:

1. In a firearm, the improvement including, a receiver, a breech bolt reciprocable relative to said receiver, a firing pin slidably mounted in said breech bolt, a slide block reciprocable in substantially horizontal movements relative to said receiver, a bolt locking lug reciprocable in simultaneous horizontal and vertical movements relative to said breech bolt and receiver, a firing pin extension slidably mounted in said bolt locking lug, said bolt locking lug being actuated by a camming relationship with said slide block between locked and unlocked positions of said breech bolt and receiver, and a hammer pivotally mounted on said slide block in such manner that said hammer is held out of contact with said firing pin extension in the unlocked position of said breech bolt and receiver.

2. A firearm, including in combination, a receiver formed with a bolt receiving chamber, a breech bolt having a reciprocatory movement in the bolt receiving chamber of said receiver, said breech bolt having a longitudinal firing pin receiving passage therein and a longitudinal bolt locking lug receiving opening intersecting the firing pin receiving passage and a longitudinal clearance slot intersecting the rear end thereof, the clearance slot of said breech bolt having a wall providing a forwardly-facing abutment terminating at one end of the longitudinal clearance slot, a firing pin slidably receivable in the firing pin receiving passage of said breech bolt, a firing pin spring means urging said firing pin rearwardly relative to said breech bolt, a bolt locking lug slidably receivable in the bolt locking lug receiving opening of said breech bolt, said bolt locking lug having a longitudinal firing pin extension receiving passage therein, a firing pin extension slidably receivable in the firing pin extension receiving passage of said bolt locking lug and being in substantial alignment with said firing pin, the clearance slot of said breech bolt communicating with the firing pin extension receiving passage of said bolt locking lug, a slide block, and a hammer pivotally mounted on said slide block and having a portion receivable in the clearance slot of said breech bolt for the actuation forwardly of said firing pin extension and of said firing pin against the spring action of said firing pin spring means.

3. In a firearm having a receiver and a trigger and a safety and a sear, the combination of, a breech bolt slidable horizontally within the receiver into and out of closing position relative thereto, a bolt locking lug slidable along a substantially vertical axis into and out of locking position relative to said breech bolt and the receiver, a firing pin slidably mounted in said breech bolt along a substantially horizontal axis, a firing pin extension slidably mounted in said bolt locking lug along a substantially horizontal axis, said firing pin extension having a forwardly directed cam surface cooperable with a rearwardly directed cam surface of said firing pin, a slide block disposed below said breech bolt, a spring mounted hammer pivotally mounted on said slide block, and a spring mounted hammer hook pendulantly mounted on said hammer, the sear being pivotally mounted on the receiver for releasably holding the trigger in cocked position and being normally engageable by said hammer hook, said hammer hook being disengaged from the sear as the trigger is pulled rearwardly permitting the fall of said hammer on said firing pin extension bringing about the forcing of said firing pin into a forward discharge position.

4. The firearm, according to claim 3 and further characterized by, said slide block having forward and rear cams, said bolt locking lug having complemental surfaces for coacting with the cams of said slide block in a manner whereby as said slide block is retracted rearwardly said bolt locking lug is cammed downwardly and rearwardly for unlocking said breech bolt from the receiver and whereby as said slide block is actuated forwardly said bolt locking lug is cammed upwardly and forwardly for locking said breech bolt to the receiver and said slide block to said bolt locking lug.

5. In a firearm, the combination including, a barrel, a receiver having a mechanism chamber secured to said barrel and having a magazine disposed therebelow, a reciprocating breech bolt mounted in said receiver, a reciprocating bolt locking lug mounted in said breech bolt, a firing member having a part reciprocable within an opening in said breech bolt and a mating part reciprocable within an opening in said bolt locking lug, a reciprocating slide block, a hammer pivotally mounted on said block for falling on said firing member when in cocked position, reciprocating double action bars operatively fixed to said slide block and arranged on a rearward working stroke to retract said bolt locking lug from locking position with

said receiver permitting the retirement of said firing member and on a forward working stroke to elevate said bolt locking lug into locking position with said receiver permitting the cocking of said hammer preparatory to the firing of the firearm.

6. In a firearm, the combination with a barrel and stock and receiver of, a breech bolt axially displaceable in the receiver, a firing pin slidably mounted in said breech bolt, a slide block reciprocable in substantially horizontal movements relative to said receiver and suspended therefrom by means of a T-shaped portion of said slide block slidably receivable in a complementary slot in the receiver, a bolt locking lug slidably receivable in said breech bolt, said bolt locking lug being actuated by a camming relationship with said slide block between locked and unlocked positions of said breech bolt relative to the receiver, and a hammer pivotally mounted on said slide block and held out of contact with said firing pin in the unlocked position of said breech bolt.

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