J. H. WESSON.

FIREARM.

APPLICATION FILED NOV. 19, 1909.

978,415.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

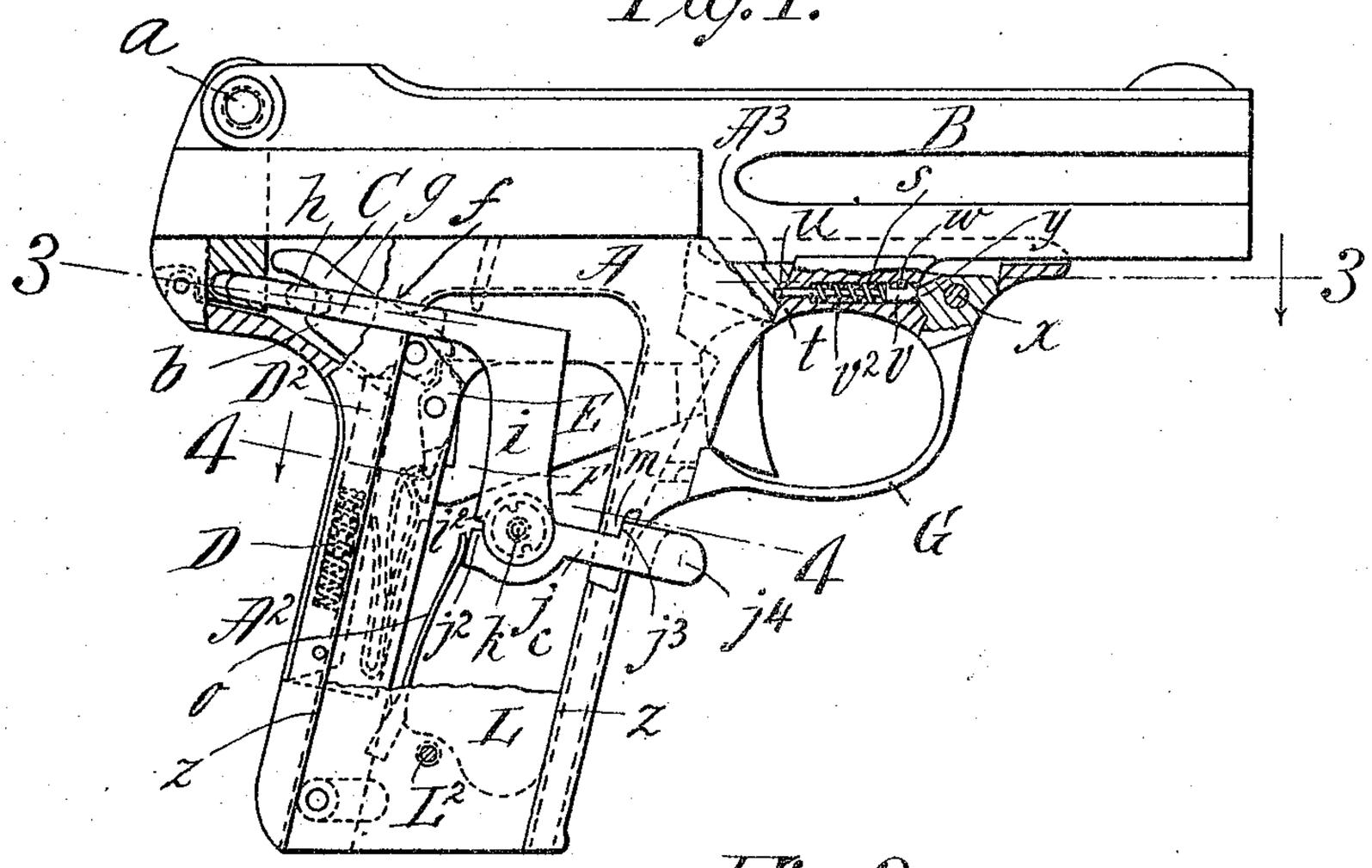
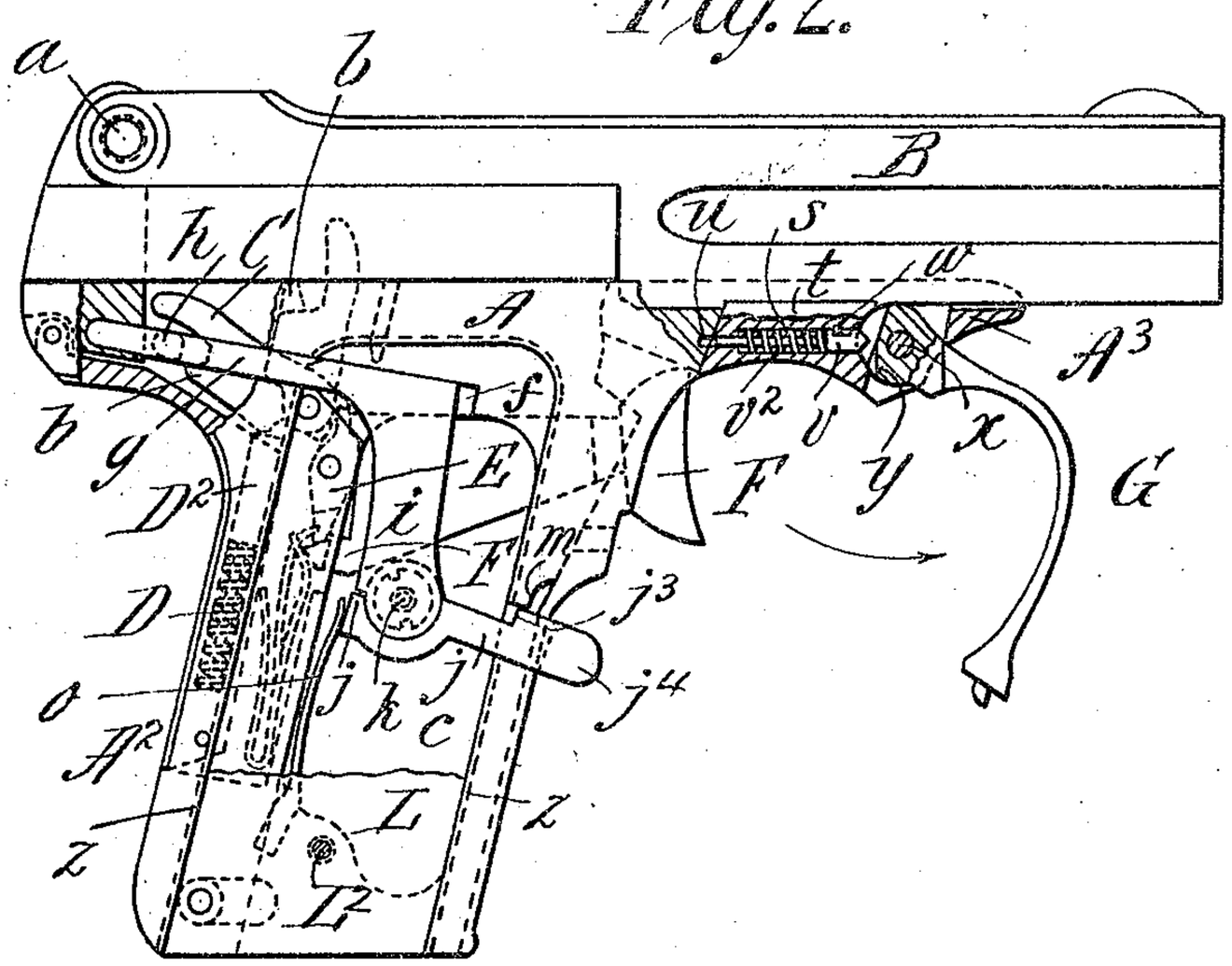


Fig. 2.



WITNESSES:

G. R. Driscoll

R. M. Mowry.

INVENTOR,

Joseph H. Wesson,

BY

W. O. Bellows

ATTORNEY.

J. H. WESSON.

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2 SHEETS—SHEET 2.

Fig. 3.

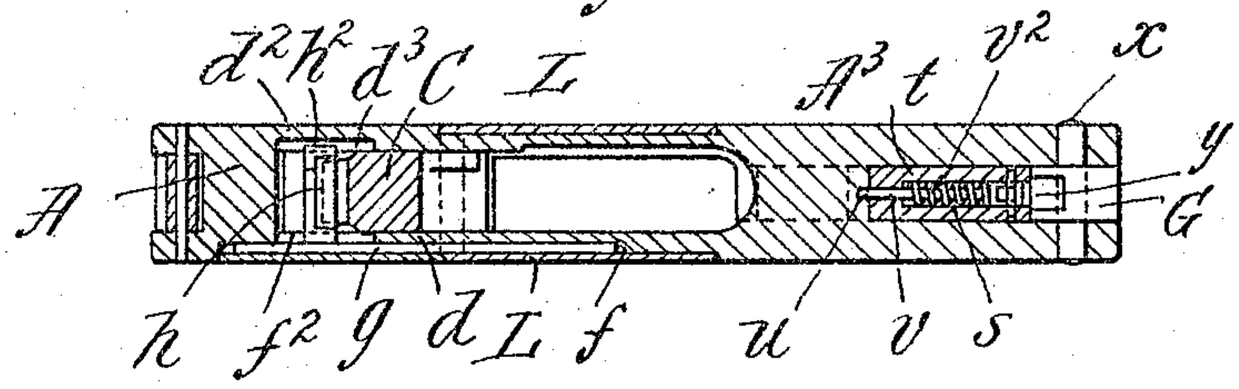


Fig. 4.

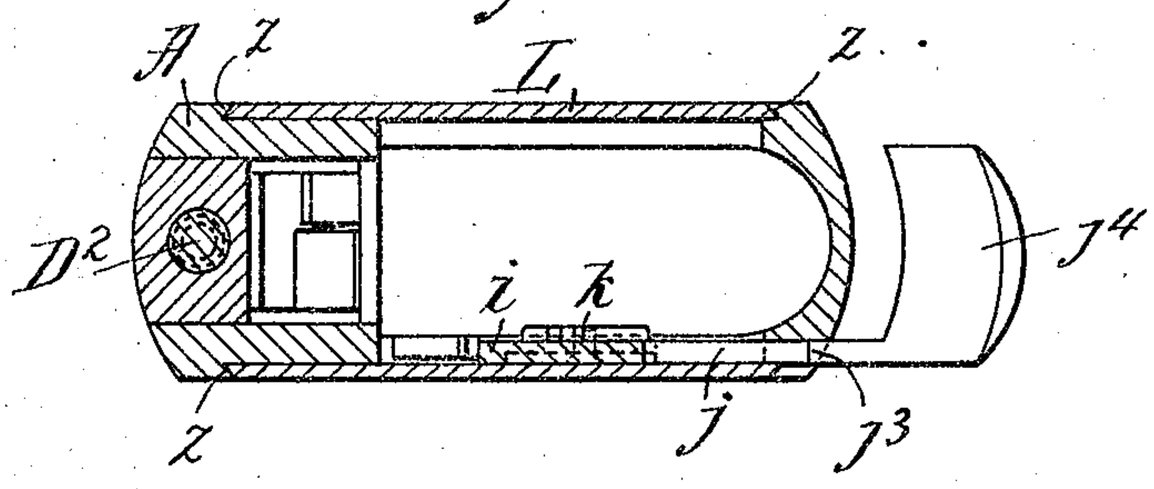
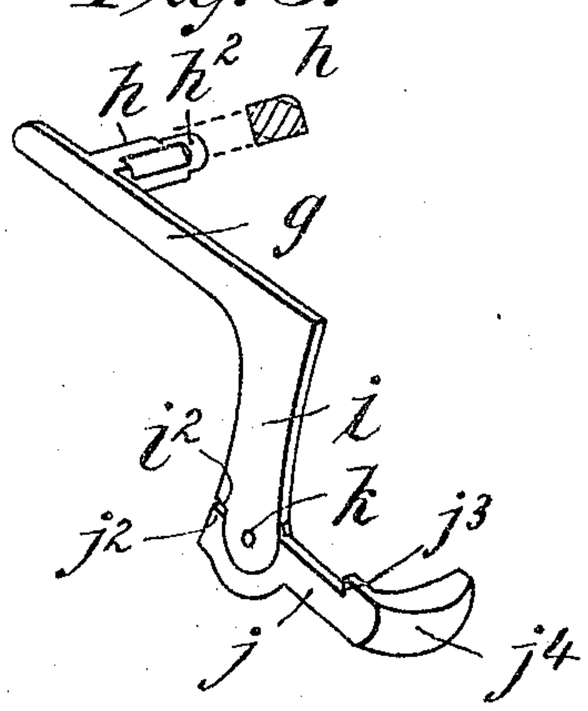


Fig. 5.



WITNESSES:

G. R. Driscoll

P. M. Mowry.

INVENTOR,

Joseph H. Wesson,

BY Thos. G. Reeves,

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH H. WESSON, OF SPRINGFIELD, MASSACHUSETTS.

FIREARM.

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Application filed November 19, 1909. Serial No. 528,892.

To all whom it may concern:

Be it known that I, JOSEPH H. WESSON, a citizen of the United States of America, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Firearms, of which the following is a full, clear, and exact description.

The improvements constituting the present invention pertain to firearms, and the same while available on firearms generally are especially applicable in automatic or recoil operated pistols.

The particular object of the invention is to provide a safety device in conjunction with the firing mechanism for normally locking and rendering the firing mechanism inoperative, the same having associated therewith a catch to hold the safety device in its locked position, the catch being susceptible of a semi-conscious manually imparted movement for a release so that in conjunction with the pulling of the trigger the safety device is moved to its position of disengagement from the firing mechanism.

Another object is to provide an improved means for locking the barrel,—which is pivoted, and may have a swinging movement relatively, to the frame,—in its relation to the frame so that it is reliably and immovably held in a manner to prevent the slightest degree of play or looseness in the relations of the barrel to the frame. And another object is to provide in the pistol having an apertured depending portion constituting a handle, improved means for the connection of the closing side cheeks with the apertured handle portion.

Other objects and advantages are attained in and by the organization of the devices or mechanism as will hereinafter be rendered apparent.

The improvements comprised in the firearm are hereinafter fully described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a side elevation, with some parts in section, of so much of an automatic pistol as is necessary or desirable for the illustration in conjunction therewith of the present improvements, the barrel being shown as in its normal locked position relatively to the frame and the safety device as in its normal position for rendering the firing mechanism inoperative. Fig. 2 is an elevation similar to Fig. 1, but showing changed relations of the parts said parts being in the relations or positions they assume when the safety mechanism is released to permit operation of the firing mechanism. Fig. 3 is a horizontal section on line 3—3, Fig. 1. Fig. 4 is a horizontal section, on a larger scale, on line 4—4, Fig. 1. Fig. 5 is a perspective view of the safety device including the catch therefor.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the frame comprising as a downwardly extending portion thereof the handle A^2, the barrel B by a rearward extension thereof being connected to a rearwardly located and upwardly extended portion of the frame by a pivot *a*.

The firing mechanism in this pistol comprises the hammer C, the mainspring D and hammer-engaging plunger D^2, the sear E with a spring appurtenant thereto and the trigger F in engagement with the sear.

The hammer C is constructed at its rear end with a notch whereby is produced a shoulder *b* to be engaged by the safety device which is prominently comprised in the present invention.

The portion of the frame above the depending handle, in which the hammer operates, is made with opposite side walls *d*, d^2, the one d^2 having a longitudinal groove or way d^3 in its inner face while the other wall *d* has a longitudinal way *f* in its outer face, with an opening f^2 extending from the groove or way *f* to the space between the side walls *d* and d^2, (see especially Fig. 3).

The safety device,—which is shown by itself in Fig. 5,—comprises a plate or thin bar *g* which is closely fitted and slidable substantially longitudinally of the firearm in the aforementioned groove way *f;* and this bar has a hammer-locking projection or stud *h* which traverses the space between the opposite side portions of the frame and has its extremity h^2 fitted in the aforementioned groove or way d^3; said safety device further comprises a depending extension *i* and a catch *j* pivotally jointed to its lower end. This catch embodies a thin bar or plate-like portion which at its rear end has its pivotal connection to the aforementioned depending member *i* by a "halved" joint or one like a rule hinge,—a shoulder j^2 at the rear upper portion of the catch bar hav-

ing a limiting relation to a shoulder i^2 at the rear lower portion of the member i,—k representing the pivot; and the said catch is made with the catch shoulder j^3 for engagement when in its normal position, as represented in Fig. 1, with a shoulder m on the side of the handle frame adjoining its forward edge. The said catch moreover, has a transversely extending finger bearing member j^4 located just forward of the front edge of the handle and below the trigger guard G.

o represents a flat spring secured at its lower portion in a lower portion of the handle-frame and having a bearing at a point below the pivot k in a forward direction against the rear squared end of the catch in a manner to be effective to throw the catch to its frame engaging position and also through the medium of the catch to force the safety device, to which the catch is pivotally connected, to its position represented in Figs. 1 and 3, for engagement with the shoulder b of the hammer to lock the latter and render the firing mechanism inoperative until it is desired that such condition be terminated by a purposed or conscious manipulation. It will be apparent that the spring o exerting its tension upon the heel or inner end of the pivot part j moves the said portion outwardly and upwardly to bring the catch shoulder j^3 into engagement with the shoulder m on the frame of the handle, and that the movement of the catch, whereby when in the safety position shown in Fig. 1, will properly engage the shoulder m of the frame, is regulated by the end boundary of the groove way f.

The user of the pistol, in firing, will just previously to, or practically simultaneously with the drawing of the forefinger against the trigger F, also with the middle finger exert a pressure in both a downward and a rearward direction upon the finger bearing member or portion j^4 with the result of disengaging the shoulder j^3 of the catch from the shoulder m on the frame, and, through the medium of the catch, bodily rearwardly sliding the safety device so that the transverse integral projection h thereof is positioned so far rearwardly relatively to the hammer as to be free and clear from the hammer shoulder b so that the trigger-released hammer is also released by the safety device whereby the firearm may be discharged.

It will be understood that the safety mechanism is practically contained and concealed in the channel f in the side wall d with the finger-bearing portion projecting through a cut or side recess in the forward part of the handle, with the transverse projection h in engagement with the shoulder b of the hammer C, which thus disposes the parts in their proper relations, and leaves the chamber or aperture c unobstructed for the reception of the cartridge carrying magazine, and that the general operation of the firing of the arm is practically the same as in other automatic magazine firearms, the pressure upon the usual trigger releasing the sear to permit operation of the hammer under the impulse of the mainspring: but in my firearm the normal positioning of the parts, as most clearly seen in Fig. 1, renders it necessary that pressure in a particular direction known to the marksman be exerted first upon the catch, releasing the same from the shoulder m on the frame and moving the stud h carried by the safety device out of engagement with the shoulder b of the hammer, so that upon pressure upon the trigger the firearm may be discharged in the usual manner: and the safety device overcomes an element of danger which has been especially recognized in automatic or recoil operated firearms for the reason that it prevents the discharge of the arm prematurely or accidentally, and yet permits such discharge only by the employment of combined pressures, which may be instantly and practically simultaneously exerted by contiguous fingers of the hand holding the pistol, one to free the safety device and the other to move the trigger.

Upon rare occasions conditions may be such that the hammer may be in its forward or detonating position and the locking device and the safety catch in their normal engaging positions so that there will be the requirement that the firearm be cocked by hand: but in such an event one has only concurrently with the cocking to disengage the catch and through the medium thereof force, and for a part of a movement hold, the safety locking device to its rearward position free and clear of the hammer.

The arrangement of the locking stud or transverse projection h as shown so that its rear extremity has a sliding fit in the way d^3 within the rear of the frame imparts stability and reinforcement to the locking device to resist distorting pressures which might be brought thereagainst by the sear released and spring pressed hammer and assists in the perfect rectilinear guidance of the safety device.

The barrel, the rearward extension of which is pivotally connected to the frame, has a depending lug t which fits down through an opening in the forward extension A^3 of the frame. This lug has a small horizontal longitudinal bore s therein made of two diameters, the smaller at its rear and opening both to front and rear of the lug: and in line with this bore the portion of the frame at the rear of the aperture down into which the lug has its occupancy, has a socket u into which the extremity of a bolt v en-

gages. This bolt is shouldered and has a spring v^2 for forcing it forwardly so that when the spring is free for its reaction the forward end of the bolt will protrude slightly forwardly beyond the front of the lug and have its rear end drawn out from its engagement with the socket u in the frame, as represented in Fig. 2.

A short upper portion of the bolt is slabbed, leaving shoulders at the opposite ends of the reduced portion; and in such reduced portion is fitted a small transverse limiting pin w so that by the provision thereof the bolt may never be forced unnecessarily far forwardly out from the bore in the lug.

The trigger guard G pivoted at x is adapted to be swung from the position of disengagement with a front portion of the frame at a level below the pivot x as represented in Fig. 2 to the engaged portion indicated in Fig. 1 for a well known purpose especially in automatic firearms of a type such as exemplified in the present illustrations.

A portion of the trigger guard is made in the form of a cam as represented at y, the action of which when the trigger guard is in the usual position as required during the use of the firearm, is to crowd the bolt rearwardly so that it will engage, closely, in the socket in the frame and positively and reliably lock the barrel in its horizontal normal position on the frame. So soon, however, as the lower rearward end of the trigger guard is disengaged from its snap connection with the frame and forwardly swung, the bolt will automatically be forwardly moved to unlock the barrel so that then the latter is free to be swung away from the frame for cleaning or other purpose.

The handle portion of the frame which is made with the aperture c therein for the reception of the cartridge magazine, has the portions adjacent the margins of said aperture at each side of the handle formed with undercut edges z which extend to the lower end of the handle, and the cheek plates L have parallel beveled opposite edges which engage with the undercut edges z so that the outward displacement of the cheek plates is prevented; and the cheek plates are confined in their practically dovetail engagements by transversely applied uniting screws or studs L^2.

The cheek plates L may have secured thereto properly formed grip sections of hard rubber, pearl or other material for giving the proper rounded form to the handle.

I claim:—

1. In a firearm, the combination with a firing mechanism, comprising a trigger, of a spring actuated safety device for normally locking and rendering the firing mechanism inoperative, and having a manually actuated catch located adjacent the trigger and adapted automatically to detachably engage a portion of the frame of the arm, to hold said safety device in its locked position.

2. In a firearm, the combination with a firing mechanism comprising a trigger, of a safety device for normally locking and rendering the firing mechanism inoperative and provided with a manually actuated catch located adjacent the trigger and adapted to detachably engage a suitable portion of the firearm in proximity thereto to hold the safety device in its locked position, and means for automatically forcing the safety device to its locking position and for simultaneously automatically forcing the catch to its engaged position.

3. In a firearm, the combination with a firing mechanism comprising a hammer and trigger, of a safety device comprising a bar longitudinally slidable in the arm, having a transverse hammer-engaging projection, and comprising a forwardly extending member located in proximity to the trigger, and means for forwardly forcing the safety device.

4. In a firearm, the combination with a hammer, of a safety device movable to have a locking engagement with the hammer, and to be disengaged therefrom, a spring for moving the safety device to its locking engagement with the hammer, and a catch for holding the safety device in its hammer locking position and adapted for movement whereby the safety device may be moved to a position of disengagement from the hammer.

5. In a firearm, the combination with a hammer, of a safety device movable to have a locking engagement with the hammer, and to be disengaged therefrom, a spring for moving the safety device to its locking engagement with the hammer, and a catch jointed, and movable relatively, to the safety device for holding the latter in its hammer locking position and adapted for a swinging movement whereby the safety device may be moved to a hammer disengaging position and also serving as a medium through which the safety device may be manually moved for its disengagement from the hammer.

6. In a firearm, the combination with a hammer, of a safety device movable for a locking engagement with and a disengagement from the hammer, a catch jointed, and movable relatively, to the safety device for holding the latter in its locking position, and adapted for a swinging movement whereby the safety device may be free for its hammer disengaging movement, and a spring having a pressure against said catch and serving both to throw the latter to its engaged position and to move the safety device to its hammer locking position.

7. In a firearm, the combination with a

frame and the hammer, of a safety device movable for a locking engagement with, and a disengagement from, the hammer, a catch pivotally connected to the safety device and adapted for swinging movements whereby to have an engagement with, and a disengagement from, the frame, and a spring having a pressure against said catch so as to move, through the medium of the latter, the therewith pivotally connected safety device to its hammer locking position, and to also throw the catch to its frame engaging position.

8. In a firearm, the combination with a frame, a trigger guard forwardly located relatively thereto, and a firing mechanism including a hammer, and a trigger within the guard, of a safety device comprising a bar approximately horizontally slidable in the frame having a transverse projection for engagement with the hammer and having at its forward portion a depending member, a catch pivotally connected to the depending member and comprising a forwardly projecting portion having a shoulder for engagement with the said shoulder of the frame, and a transversely extended finger bearing portion located forward of the frame and below the trigger guard, and means for forwardly forcing the safety device and for swinging the catch to its frame engaging position.

9. In a firearm, the combination with a frame having a firing mechanism mounted therein and comprising separated side portions, one of which has a longitudinal way in its inner face while the other has a longitudinal way within its outer face with an opening extending from the latter way to the space between the side portions of the frame, of a safety device,—comprising a bar slidable in one of said ways provided with a transverse hammer locking projection which traverses said space and has its extremity located in the opposite side way, and a depending projection,—a catch pivotally jointed to the lower end of the depending member and having a swinging movement for engaging and disengaging the frame, and means for forwardly moving the safety device and for swinging the catch to its frame engaging position.

10. In a firearm, the combination with a frame having a socket, and a barrel jointed to the frame having a depending lug provided with a bolt slidable therein in line with said socket, and a spring exerting a force on the bolt to disengage it from such socket, of a member pivotally jointed to the frame and having a cam, operative, on its swinging movement, to force the bolt, against its spring to an engagement in said socket.

11. In a firearm, the combination with a frame and a barrel, having a rearward extension jointed to a rear portion of the frame, having a depending lug carrying a bolt therein slidable to engage the frame and having a spring to force the bolt from its frame engaging position, of a trigger guard having one end thereof pivotally connected to one portion of the frame and adapted by its other end to be detachably engaged with another portion of the frame and having a cam coacting with said bolt for forcing the latter, against its spring, to its frame engaging position.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

JOSEPH H. WESSON.

Witnesses:
G. R. Driscoll,
H. L. Sprague.