Oct. 27, 1964 R. R. MERRILL 3,153,874

HINGED BARREL FIREARM WITH TRIGGER SAFETY MEANS

Filed Aug. 1, 1962 2 Sheets-Sheet 1

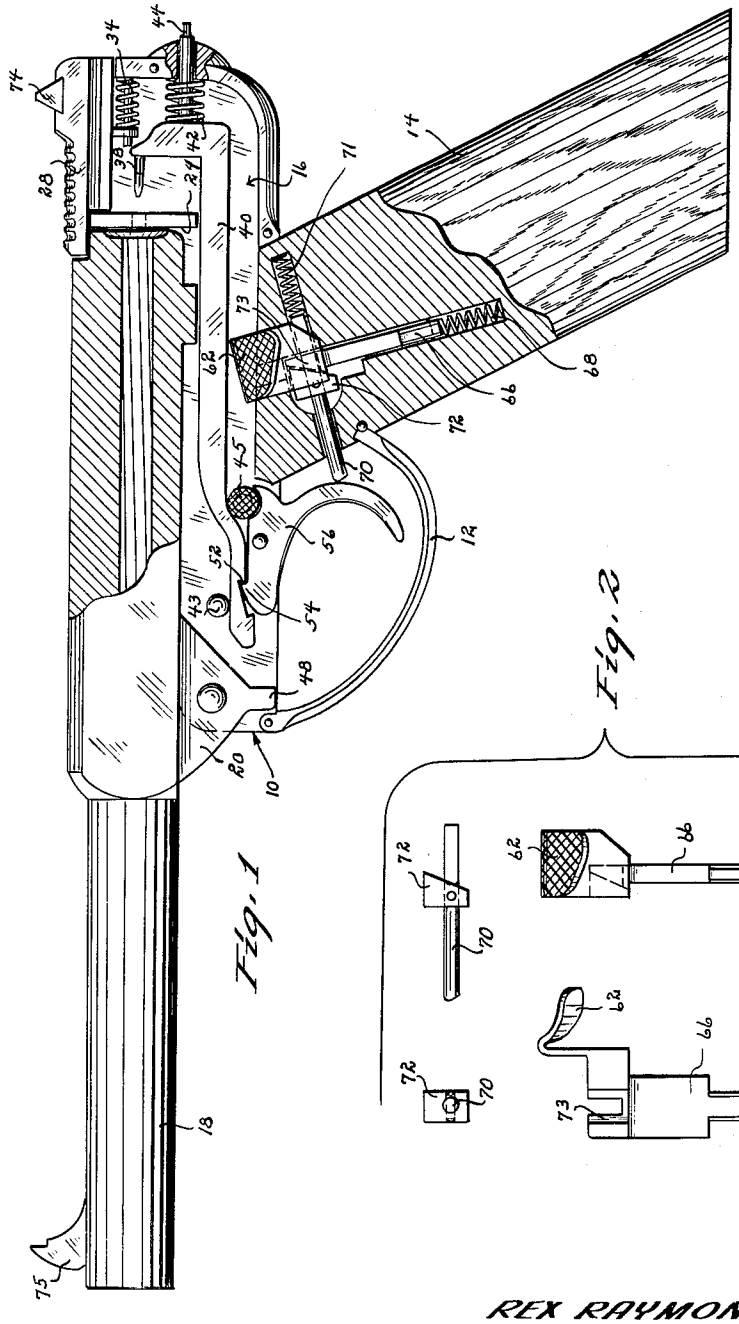


Fig. 1

Fig. 2

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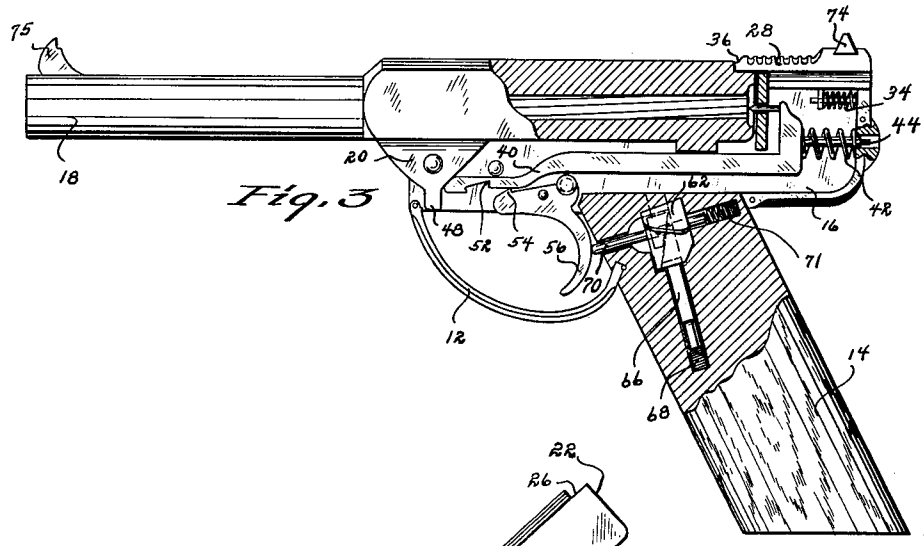


Fig. 3

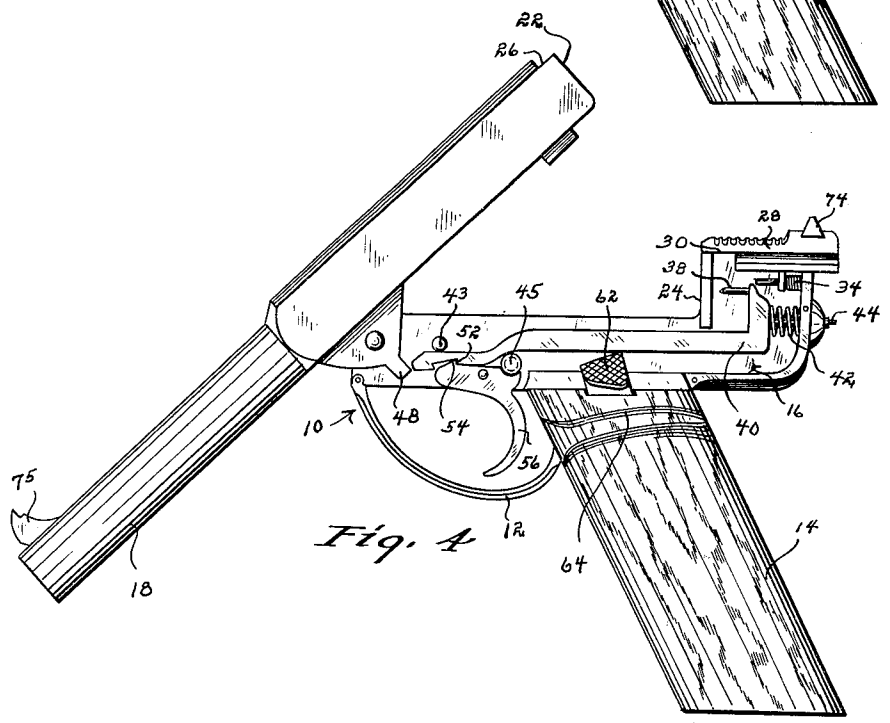


Fig. 4

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United States Patent Office 3,153,874 Patented Oct. 27, 1964

3,153,874

HINGED BARREL FIREARM WITH TRIGGER SAFETY MEANS

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Filed Aug. 1, 1962, Ser. No. 214,043
6 Claims. (Cl. 42—41)

This invention relates to hand guns and more particularly to a single shot target pistol having a plurality of operational and safety features.

Single shot pistols are old and well known in the art and have evolved into a variety of configurations. However, all such pistols, especially single shot target pistols, suffer from the problem of being too complex.

Another drawback to pistols of this class is that they are generally difficult to load and hard to "cock."

Still another drawback to previous one-shot pistols of this class is that they generally have no provision for wear compensation and thus will "shoot loose" in a very short time.

Still another drawback to previous one-shot pistols is that they have little or no "safety" provisions and, especially in the so-called "free pistol" category, are prone to accidentally discharge from a slight jar or from even a change in the weather and are thus undesirably dangerous. As is well known in the art, single-shot target pistol shooting has been discouraged in this country for this reason.

Therefore, one of the principal objects of this invention is to provide a pistol that is extremely simple in construction.

Another object of this invention is to provide a single shot pistol that is easy to load and unload.

A still further object of my invention is to provide a pistol of this class that is inherently easy to cock even when a "fast" hammer spring action is utilized.

A still further object of my invention is to provide a one-shot target pistol that makes provision for wear compensation and thus will "shoot tight" for a very long period of time.

A still further object of this invention is to provide a pistol having a unique direct "safety" provision whereby the pistol may be gripped in the usual manner and still be on safety until such time as it is actually "on target" and ready to be fired.

Still further objects of my invention are to provide a single-shot target pistol that is economical in manufacture, durable in use, and refined in appearance.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in my claims, and illustrated in the accompanying drawings, in which:

FIG. 1 is a side view of my pistol in cocked condition and with sections cut away to more fully illustrate its construction;

FIG. 2 is an exploded view of the parts that make up the auxiliary safety means;

FIG. 3 is a side view of my pistol in fired conditions, and with sections cut away; and

FIG. 4 is a side view of my pistol in opened position and with the left side plate removed to more fully illustrate the locations of the various parts.

In these drawings I have used the numeral **10** to generally designate the frame of my pistol which encloses the moving parts and includes the usual trigger guard **12**, grip or butt-stock **14**, and the enclosed rear area **16** of the gun commonly referred to in the art as the receiver or receiver area. The barrel **18** is vertically hingedly secured to the fore-end of the frame **10** by the downwardly projecting

hinge means **280**. The rear surface **22** of the barrel is adapted to fit flush against the front surface **24** of the receiver **16**. The top rear area portion of the barrel **18** is flat and is beveled to provide a depressed shoulder **26**. A sliding bolt **28** is suitably longitudinally slidably grooved onto the horizontal top surface **30** of the receiver **16**. The forward bottom surface **32** of the sliding bolt **28** is flat and adapted to slide over and contact the beveled shoulder surface **26** of the barrel **18** and thus detachably secure the barrel in closed position. The sliding bolt **28** is yieldingly urged toward its forward position by means of the spring **34**. The top forward edge **36** of the sliding bolt **28** is steeply beveled forwardly and downwardly so that it will automatically be pushed back by the bottom rear edge of the barrel **18** as the same is "snapped" shut. The firing pin **38** is operatively secured in its proper position within the receiver **16** by means of a suitable slidable arm and hammer means **40** and is yieldingly held toward its forward position by the coil spring **42** positioned between the receiver and hammer, as shown in FIG. 4. The pin **44** extends from the member **40** through the rear of the receiver and when the pistol is cocked it protrudes therefrom as shown in FIG. 1, to disclose to the user that the weapon is cocked. If desired, the hammer portion of the arm **40** may be a separate end of standard structure. The arm bar **40** extends forwardly over the pin **45** and under the roller pin **43**, as shown in FIG. 4. When the arm **40** is pushed rearwardly the hammer spring **42** is compressed. This is accomplished by the pistol being opened or "broken." A downwardly extending lug **48** on the bottom of the barrel hinge portion **20** engages the forward end of the arm bar **40** and pushes the arm and hammer assembly rearwardly as shown in FIG. 4. It will be seen that even light downward pressure on the forward end of the barrel **18**, due to the favorable leverage involved, will easily compress even a very heavy or "fast" hammer spring **42**. When the hammer arm **40** has been pushed rearwardly to its "firing" position, it is releasably held in check by the sear notch **52** in the forward bottom area of the arm **40** and which is operatively associated with and engaged by the usual trigger projection **54** of the trigger mechanism **56**, as shown in FIG. 4. The trigger mechanism **56** may be of any suitable type, such as the standard mechanical lever variety or the new electric powered type, or the like. The pistol carries the usual cross-bolt pin trigger safety, which may be the pin **45**. Therefore the pin **45** may be longitudinally slidable, with respect to its longitudinal axis, to perform two purposes, i.e., as a safety means and as a supporting means for the hammer arm **40**. Most important is my auxiliary safety. The auxiliary safety comprises a knurled exposed spur or plunger means **62** that operatively follows the contour of the thumb rest **64** of the grip **14** and is in closely spaced relation thereto. The spur **62** is an integral part of or suitably secured to a bar means **66** enclosed within the frame **10** and which is yieldingly held upwardly by the spring **68**. In its upward position the bar **66** positively locks the trigger mechanism in such a manner that the hammer arm **40** cannot be released. The spring **68** is, of course, suitably secured and located within the grip as shown in FIG. 1. The spring **68** should be of sufficient strength that the safety bar **66** will not be accidentally released until the shooter consciously depresses and holds the spur **62** down with his thumb, such as when the gun is actually being aimed at the target and the shooter is completely ready to fire. Thus it will be seen that even when the pistol is in a "hair-trigger," "free pistol" condition it is still safe from accidental discharge up to and including the time when it is actually safely aimed at the target; at which time, of course, the spur **60** is despressed. The locking of the trigger by the auxiliary safety means may be accomplished in several different ways. In the drawings, I show

a slidable rod **70** in the grip having its forward end engaging the back of the trigger **56**. This rod is yieldingly held in a forward sliding position by the spring **71**. On the rod **70** is a cam **72** having a cam face on its rear side that extends downwardly and forwardly and which engages a cam **73** on the bar tab **62**. The face of the cam **73** also extends forwardly and downwardly. Therefore, when the bar tab **62** is depressed, the cam **73** will be lowered and will permit the rod **70** to slide rearwardly. When the bar tab **62** is in an elevated position, the cam **73** will be in an elevated position and engaging the cam **72**, and preventing therefore the rear movement of the rod **70** and trigger **56**. A rear sight **74** is mounted on top of the sliding bolt **28**. The numeral **75** designates the front sight.

Some changes may be made in the construction and arrangement of my firearm without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a firearm, comprising in combination,
a frame means including a receiver, holding means and and a trigger,
a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adajcent its forward end,
a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
a spring in said receiver yieldably maintaining said hammer arm in a forward sliding position,
an elongated bore in said handle means extending through the forward end of said handle means,
a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,
a cam on said rod intermediate its length,
a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position,
a second elongated bore in said handle means extending at substantially a right angle to said first elongated bore and in communication therewith,
a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,
a spur on the upper end of said bar extending laterally through one side of said handle means,
a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,
said bar engaging said cam when said bar is in an upwardly sliding position,
said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,
means on said barrel means for slidably moving said hammer bar rearwardly when the forward end of said barrel means is hingedly moved downwardly,
means on said receiver for maintaining said barrel means in a firing position at times,
and means on said firearm for the aiming thereof.

2. In a firearm, comprising in combination,
a frame means including a receiver, holding means and a trigger,
a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adjacent its forward end,

a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
said safety means comprised of a first elongated pin slidably extending through said frame means transversely to the longitudinal axis of said frame means,
said first elongated pin engaging the upper portion of said trigger at times,
a spring in said receiver yieldably maintaining said hammer arm in a forward sliding position,
an elongated bore in said handle means extending through the forward end of said handle means,
a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,
a cam on said rod intermedite its length,
a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position,
a second elongated bore in said handle means extending at substantially a right angle to said first elongated bore and in communication therewith,
a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,
a spur on the upper end of said bar extending laterally through one side of said handle means,
a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,
said bar engaging said cam when said bar is in an upwardly sliding position,
said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,
means on said barrel means for slidably moving said hammer bar rearwardly when the forward end of said barrel means is hingedly moved downwardly,
means on said receiver for maintaining said barrel means in a firing position at times,
and means on said firearm for the aiming thereof.

3. In a firearm, comprising in combination,
a frame means including a receiver, holding means and a trigger,
a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adjacent its forward end,
a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
said safety means comprised of a first elongated pin slidably extending through said frame means transversely to the longitudinal axis of said frame means,
said first elongated pin engaging the upper portion of said trigger at times,
a second elongated pin secured to the rearward end of said hammer arm and extending rearwardly, outwardly through said receiver,
a spring means embracing said second elongated pin yieldably maintaining said hammer arm in a forwardly sliding position,
an elongated bore in said handle means extending through the forward end of said handle means,
a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,
a cam on said rod intermediate its length,
a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position,
a second elongated bore in said handle means extend-

ing at substantially a right angle to said first elongated bore and in communication therewith,
a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,
a spur on the upper end of said bar extending laterally through one side of said handle means,
a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,
said bar engaging said cam when said bar is in an upwardly sliding position,
said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,
means on said barrel means for slidably moving said hammer bar rearwardly when the forward end of said barrel means is hingedly moved downwardly,
means on said receiver for maintaining said barrel means in a firing position, at times,
and means on said firearm for the aiming thereof.

4. In a firearm, comprising in combination,
a frame means including a receiver, holding means and a trigger,
a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adjacent its forward end,
a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
said safety means comprised of a first elongated pin slidably extending through said frame means transversely to the longitudinal axis of said frame means,
said first elongated pin engaging the upper portion of said trigger at times, a second elongated pin secured to the rearward end of said hammer arm and extending rearwardly, outwardly through said receiver,
a spring means embracing said second elongated pin yieldably maintaining said hammer arm in a forwardly sliding position,
an elongated bore in said handle means extending through the forward end of said handle means,
a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,
a cam on said rod intermediate its length,
a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position.
a second elongated bore in said handle means extending at substantially a right angle to said first elongated bore and in communication therewith,
a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,
a spur on the upper end of said bar extending laterally through one side of said handle means,
a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,
said bar engaging said cam when said bar is in an upwardly sliding position, said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,
a lug on the bottom side of said barrel means,
said lug engaging the forward end of said hammer bar and slidably moving said hammer bar rearwardly until said sear notch engages said trigger projection at times,
means on said receiver for maintaining said barrel means in a firing position at times,
and means on said firearm for the aiming thereof.

5. In a firearm, comprising in combination,

a frame means including a receiver, holding means and a trigger, a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adjacent its forward end,
a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
said safety means comprised of a first elongated pin slidably extending through said frame means transversely to the longitudinal axis of said frame means,
said first elongated pin engaging the upper portion of said trigger at times, a second elongated pin secured to the rearward end of said hammer arm and extending rearwardly, outwardly through said receiver,
a spring means embracing said second elongated pin yielding maintaining said hammer arm in a forwardly sliding position,
an elongated bore in said handle means extending through the forward end of said handle means,
a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,
a cam on said rod intermediate its length,
a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position,
a second elongated bore in said handle means extending at substantially a right angle to said first elongated bore and in communication therewith,
a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,
a spur on the upper end of said bar extending laterally through one side of said handle means,
a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,
said bar engaging said cam when said bar is in an upwardly sliding position,
said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,
a lug on the bottom side of said barrel means,
said lug engaging the forward end of said hammer bar and slidably moving said hammer bar rearwardly until said sear notch engages said trigger projection at times,
said barrel means being locked into a firing position in relation to said frame means and said receiver by means of a sliding bolt secured to the upper rearward portion of said receiver when said sliding bolt is in a forwardly sliding position,
said sliding bolt having a beveled edge on its upper forward portion, and means on said firearm for the aiming thereof.

6. In a firearm, comprising in combination,
a frame means including a receiver, holding means and a trigger, a barrel means vertically hingedly secured to the forward portion of said frame means,
an elongated hammer arm slidably secured in said frame means and having a hammer on its rearward end,
a sear notch on the bottom surface of said hammer arm adjacent its forward end,
a trigger projection on the upper portion of said trigger capable of engaging said sear notch at times,
a safety means adapted to maintain said trigger projection in said sear notch at times,
said safety means comprised of a first elongated pin slidably extending through said frame means transversely to the longitudinal axis of said frame means,
said first elongated pin engaging the upper portion of said trigger at times,

a second elongated pin secured to the rearward end of said hammer arm and extending rearwardly, outwardly through said receiver,

a spring means embracing said second elongated pin yieldably maintaining said hammer arm in a forwardly sliding position,

an elongated bore in said handle means extending through the forward end of said handle means,

a rod slidably extending in said elongated bore having its outer end engaging the rearward portion of said trigger,

a cam on said rod intermediate its length,

a spring means in said elongated bore yieldably maintaining said rod in a forwardly extending position,

a second elongated bore in said handle means extending at substantially a right angle to said first elongated bore and in communication therewith,

a bar slidably extending in said second elongated bore capable of engaging said cam on said first rod at times,

a spur on the upper end of said bar extending laterally through one side of said handle means,

a spring means in said second elongated bore yieldably maintaining said bar in an upwardly sliding position,

said bar engaging said cam when said bar is in an upwardly sliding position,

said bar maintaining said rod in a forwardly sliding position when said bar is in an upwardly sliding position,

a lug on the bottom side of said barrel means,

said lug engaging the forward end of said hammer bar and slidably moving said hammer bar rearwardly until said sear notch engages said trigger projection at times,

said barrel means being locked into a firing position in relation to said frame means and said receiver by means of a sliding bolt secured to the upper rearward portion of said receiver when said sliding bolt is in a forwardly sliding position,

said sliding bolt having a beveled edge on its upper forward portion,

a spring means in said receiver yieldably maintaining said sliding bolt in a forwardly sliding position,

a sight means secured to the upper portion of said sliding bolt,

and a sight means secured to the upper portion of said barrel means adjacent its forward end.

References Cited in the file of this patent

UNITED STATES PATENTS

255,330	Pierce	Mar. 21, 1882
754,599	Novotny	Mar. 15, 1904
1,059,405	Sprague	Apr. 22, 1913
1,110,837	Swebilius et al.	Sept. 15, 1914
1,143,612	Clarus	June 22, 1915
1,434,628	Petrik	Nov. 7, 1922
2,225,583	Blizard	Dec. 17, 1940
2,551,166	Roemer et al.	May 1, 1951
2,914,877	Willenbacher	Dec. 1, 1959
2,978,826	Ivy	Apr. 11, 1961