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Ruger et al.

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[45] **Dec. 11, 1973**

[54] **MECHANISM FOR SINGLE ACTION FIREARM**

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[73] Assignee: **Sturm, Ruger & Co. Inc.**, Southport, Conn.

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[21] Appl. No.: **250,824**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 198,752, Nov. 15, 1971, abandoned.

[52] **U.S. Cl.** ..... **42/66**, 42/65, 42/70 E, 42/70 F

[51] **Int. Cl.** **F41c 17/08**, F41c 1/00, F41c 19/00

[58] **Field of Search** ..... 42/66, 70 E, 70 F, 42/65, 69 R, 69 B, 41

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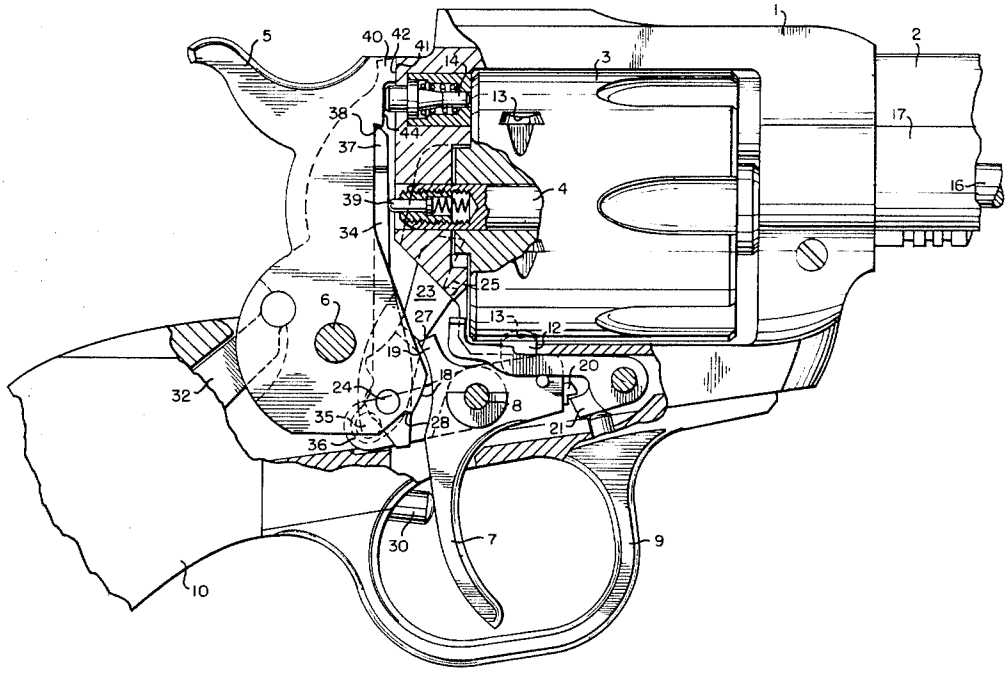
Assistant Examiner—C. T. Jordan
Attorney—Dean S. Edmonds et al.

[57] **ABSTRACT**

An improved firing mechanism for a firearm having an external hammer that is not rotated to its cocked position by the trigger when the trigger is pulled but which rotates the trigger to its ready-to-fire position when the hammer is manually cocked. The improved mechanism comprises a vertically disposed and movable trigger bar pivotally connected to the trigger, the upper end portion of the trigger bar being disposed in front of the hammer and being movable from its lower position to its upper position when the trigger is rotated from its rest position to its ready-to-fire position. Trigger bar blocking means engage the upper end of the trigger bar and prevent upward movement of the trigger bar when the hammer is at rest, and hammer blocking means engage a forward facing surface of the hammer and prevent forward movement of the hammer and firing pin against a cartridge in the chamber when the trigger is in its lower position. The upper end portion of the trigger bar is positioned relative to the hammer so that the hammer and firing pin can strike and fire a cartridge in the chamber when the trigger bar is in its upper position.

18 Claims, 16 Drawing Figures



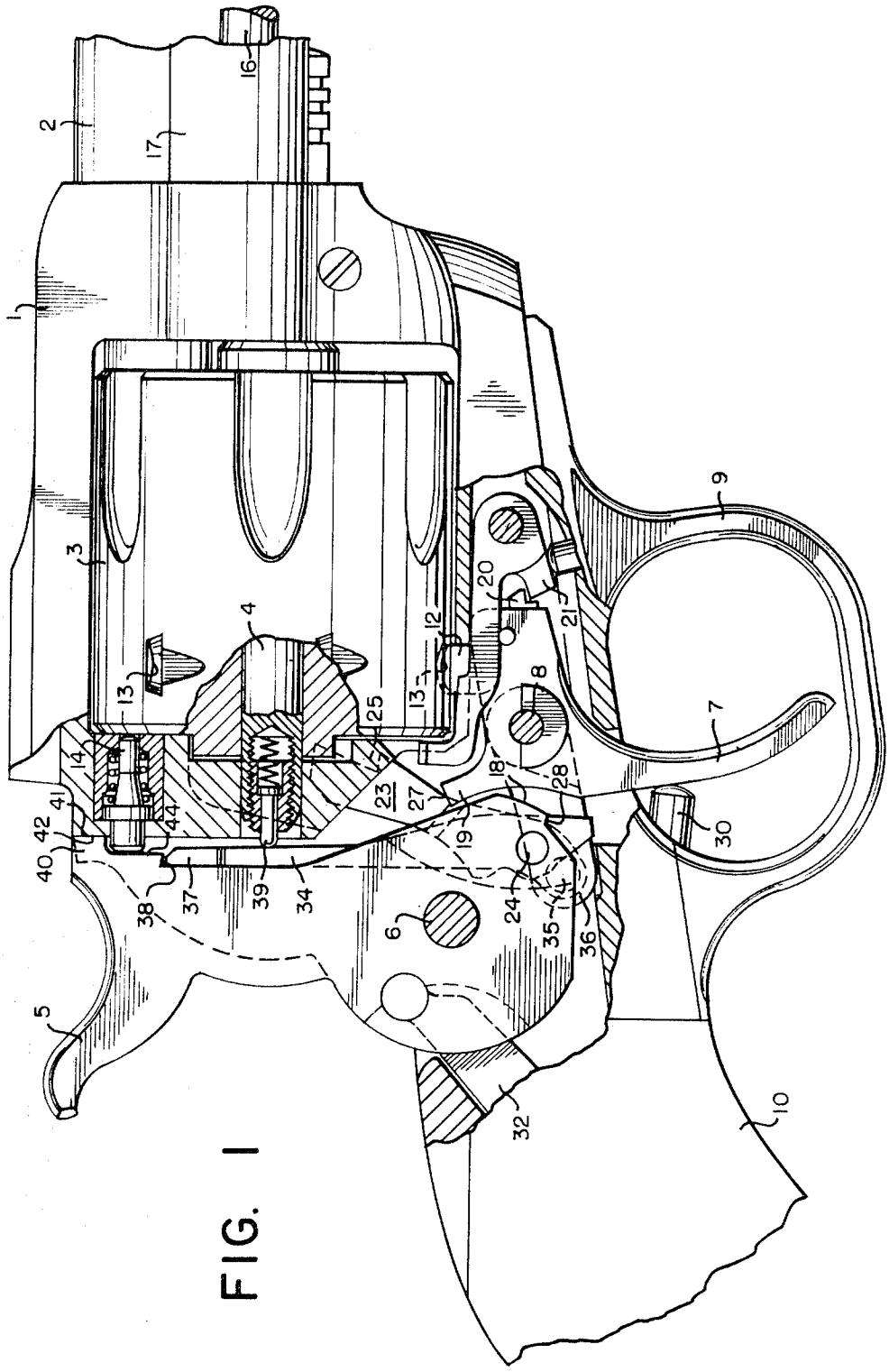

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FIG. 1

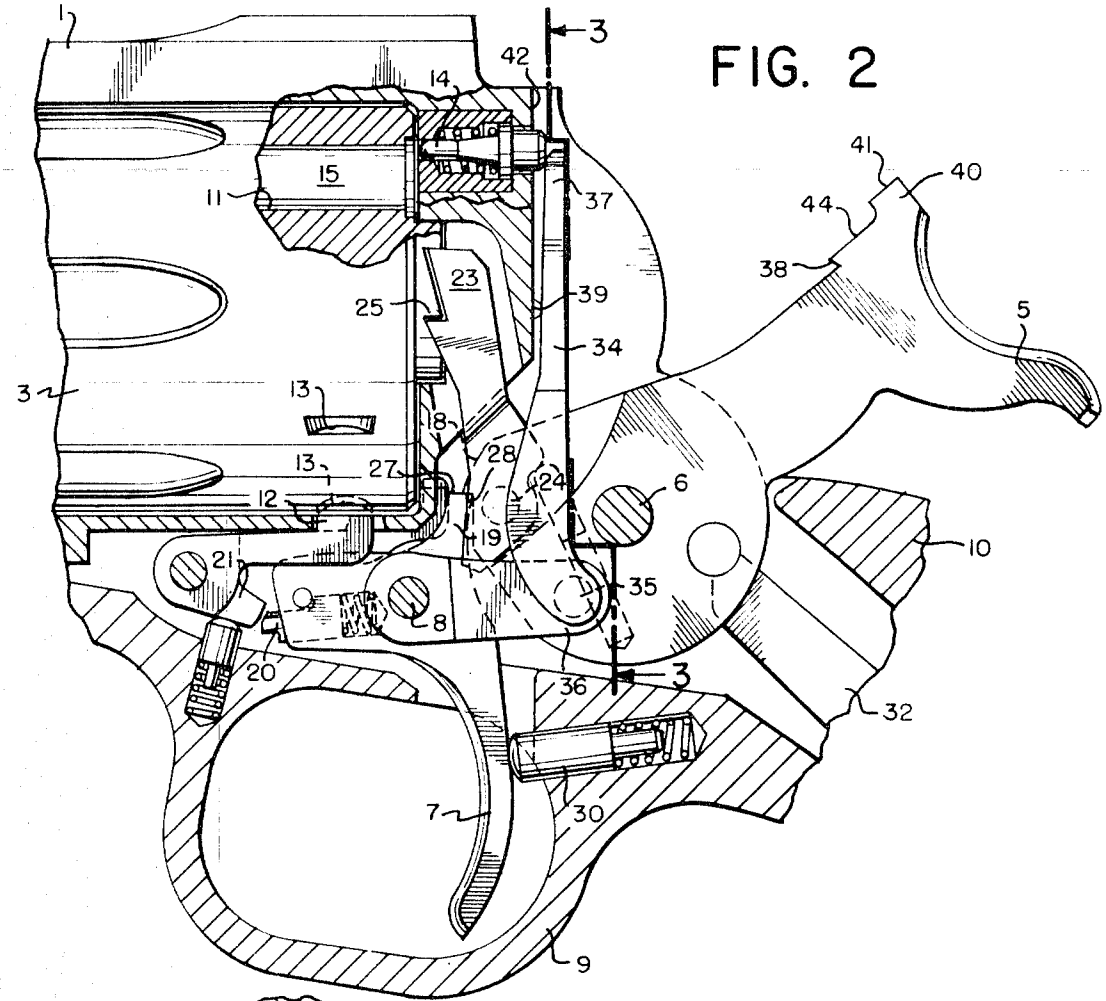
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FIG. 2

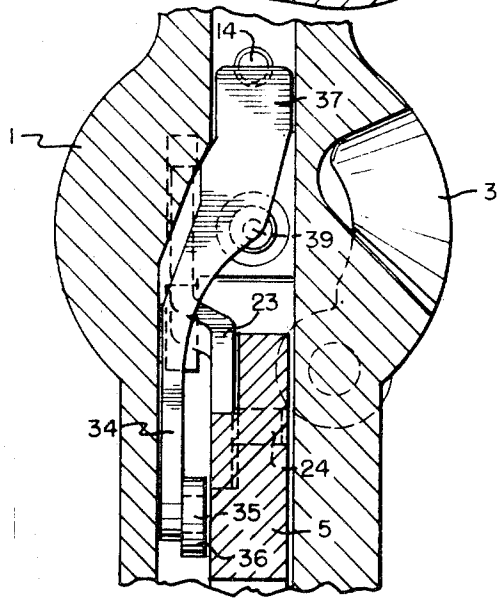
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FIG. 3

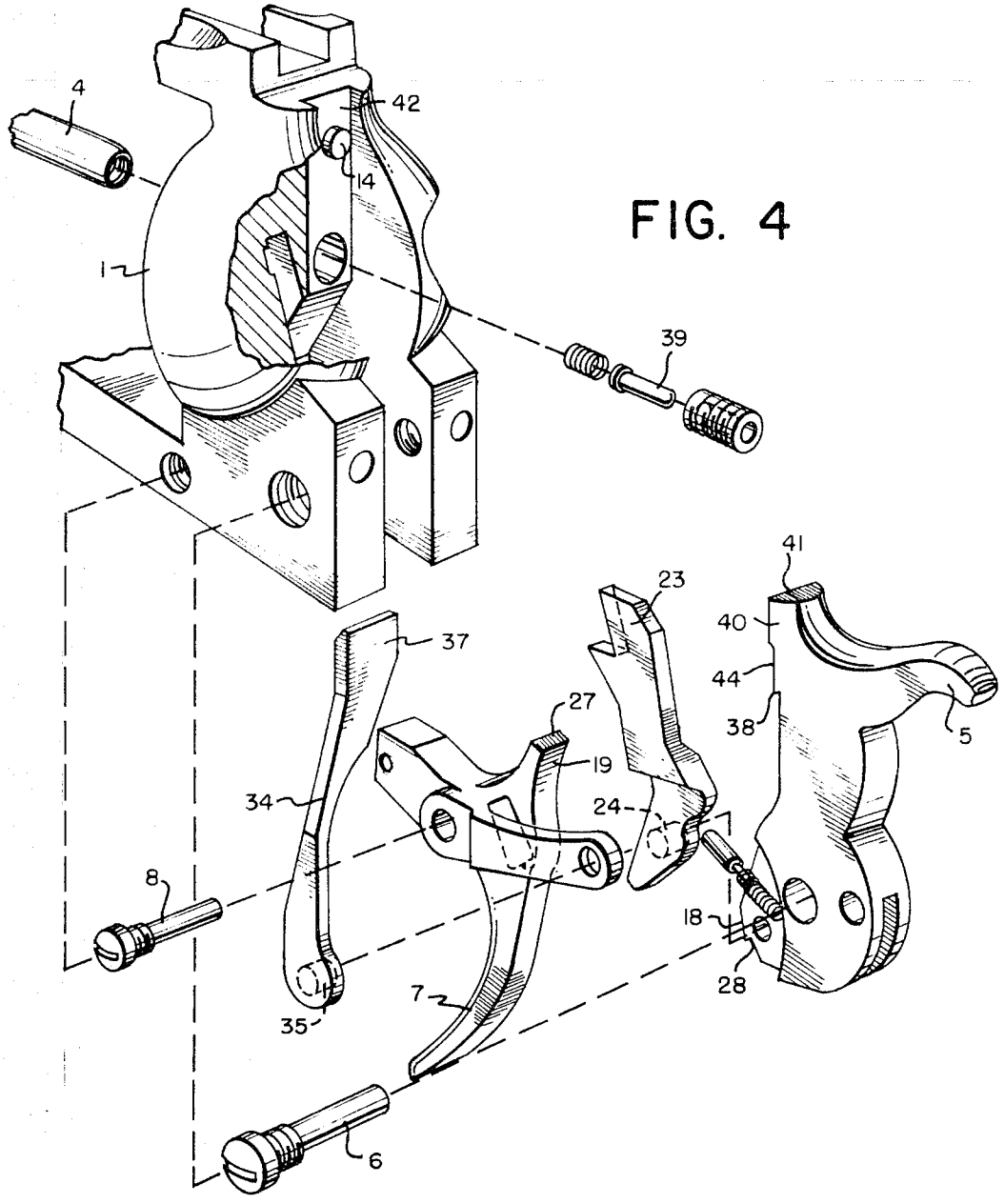


FIG. 4

FIG. 5

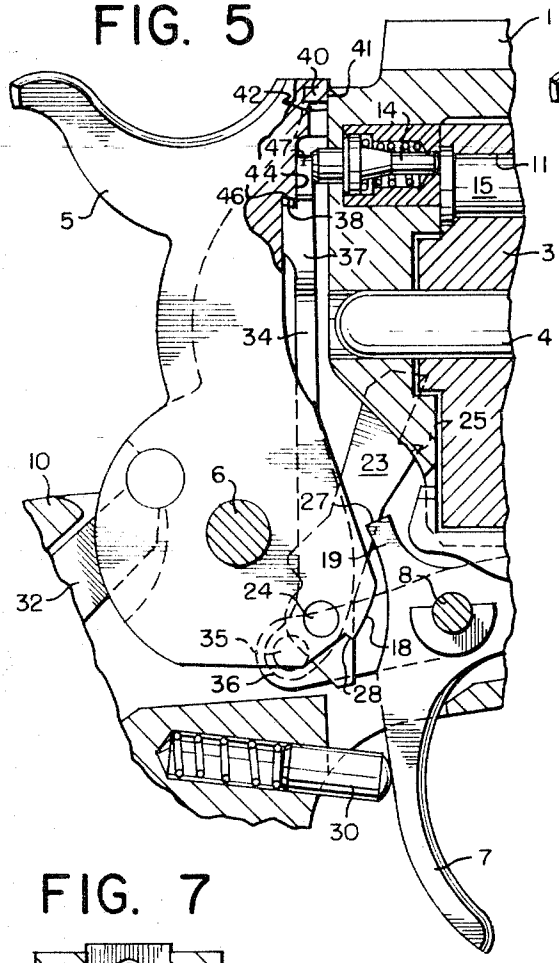


FIG. 6

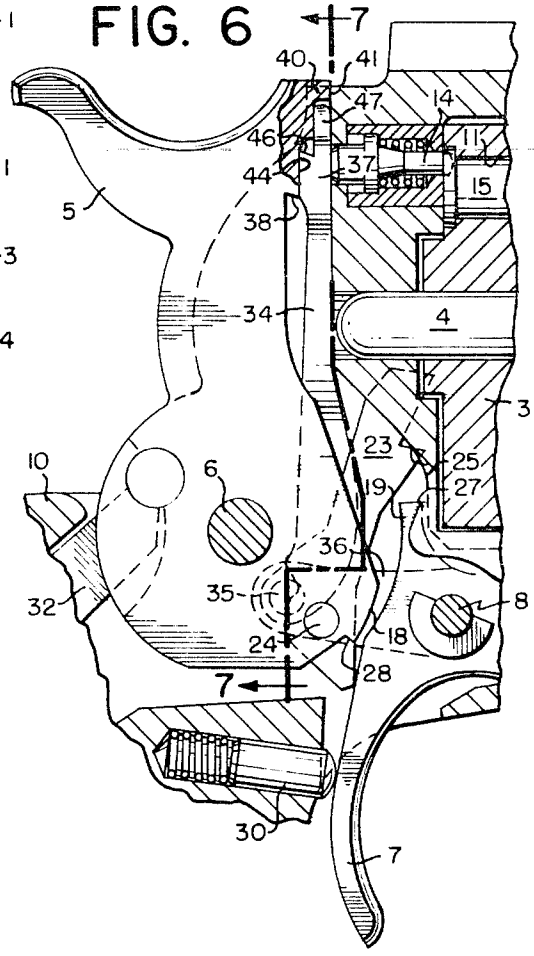


FIG. 7

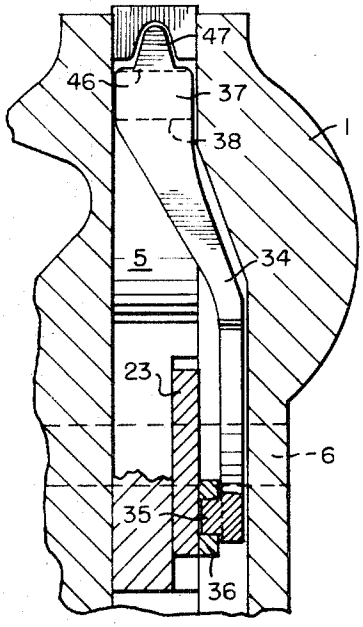


FIG. 8

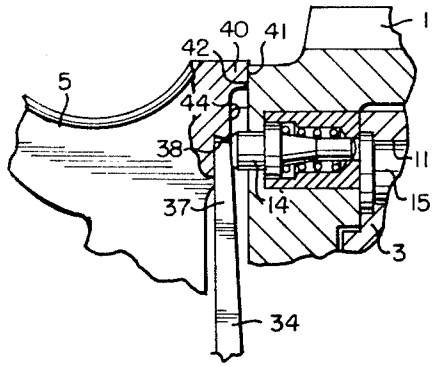


FIG. 9

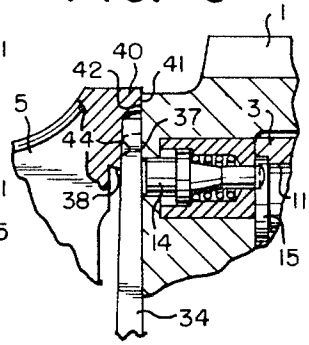


FIG. 10

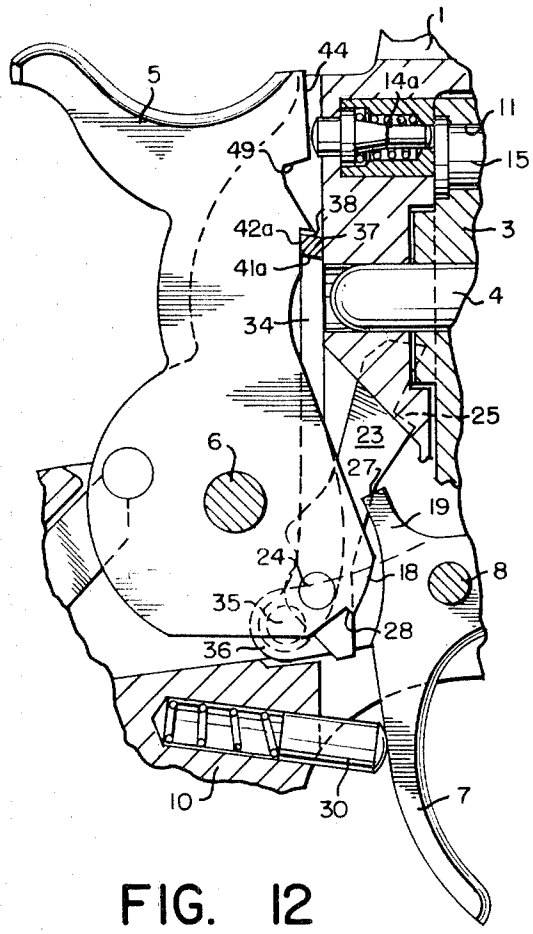


FIG. 11

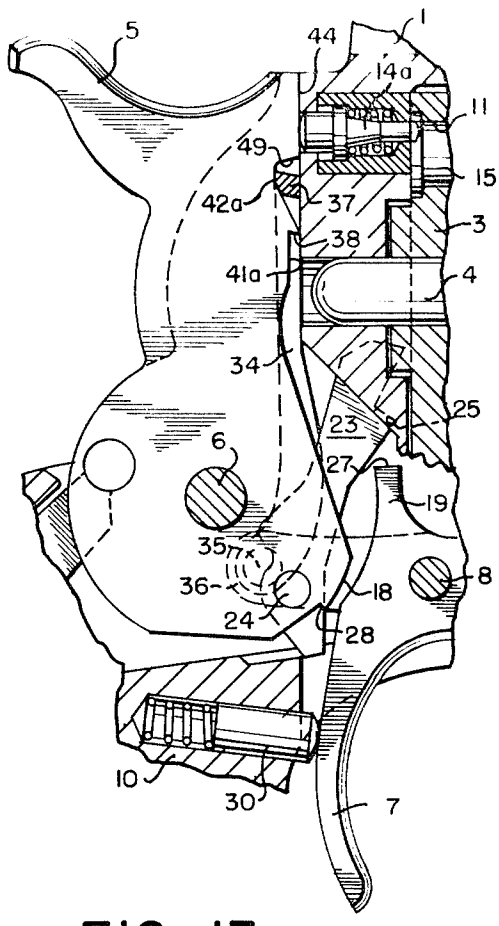


FIG. 12

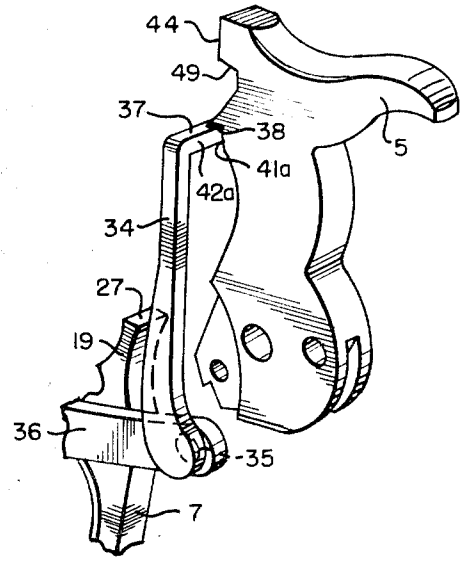


FIG. 13

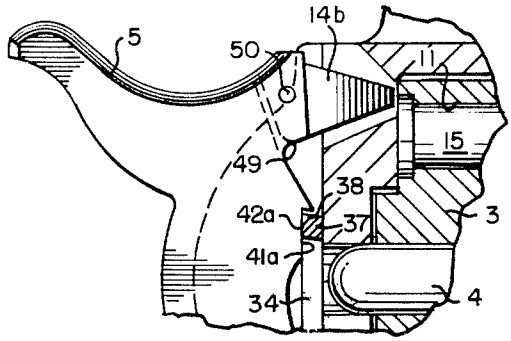


FIG. 14

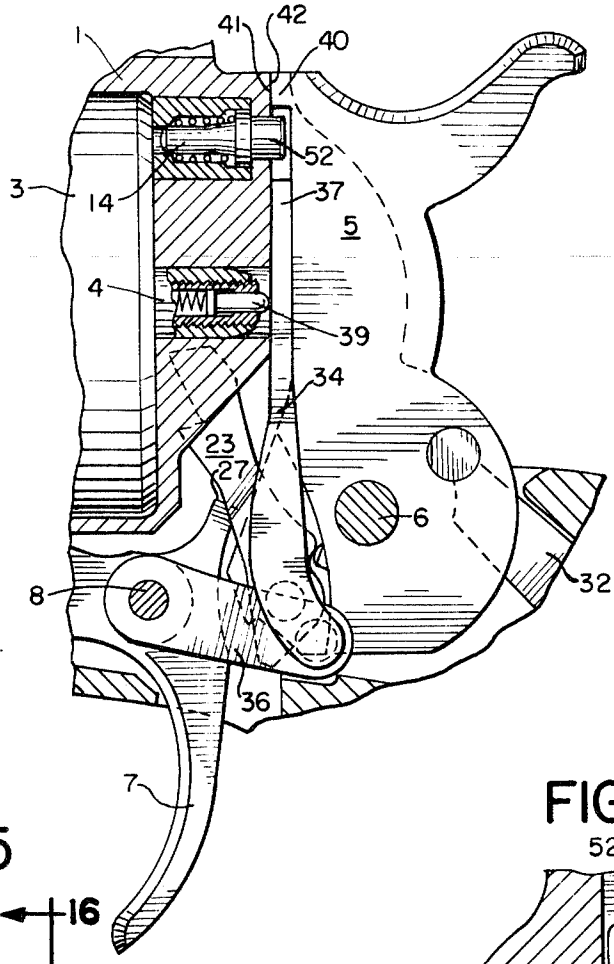


FIG. 15

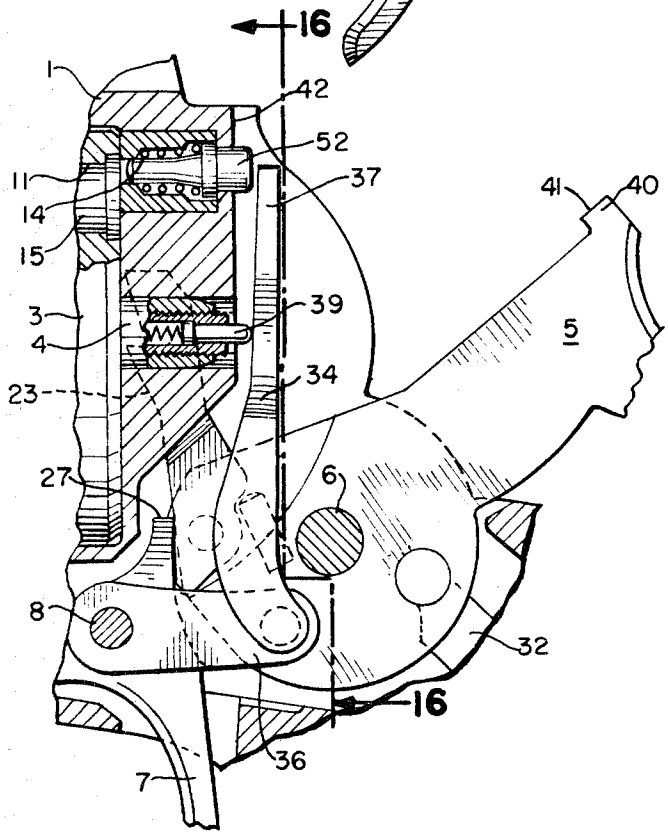
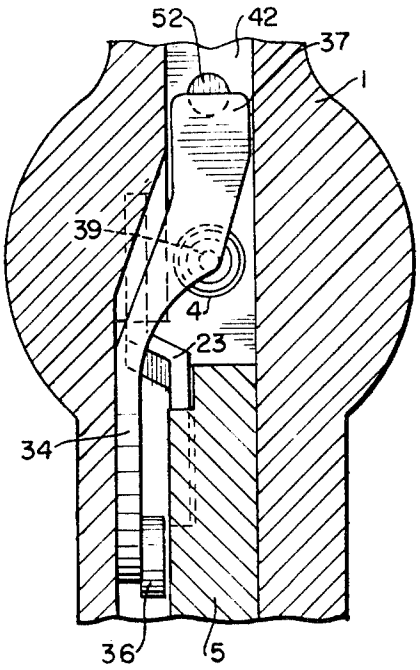


FIG. 16



MECHANISM FOR SINGLE ACTION FIREARM

RELATED APPLICATION

This is a continuation-in-part of the copending application of Ruger and Larson Ser. No. 198,752, filed Nov. 15, 1971, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to revolvers and other firearms having an external hammer, and in particular to an improved mechanism of such firearms.

2. Prior Art

Firearms of the type to which the present invention relates are those firearms having an external hammer that must be cocked before the trigger can be pulled, the hammer being functionally incapable of being cocked simply by pulling the trigger as is the case with double action firearms. Such firearms include single action revolvers, single shot rifles and shotguns of the breakopen type having an external, manually cocked hammer, lever or pump action repeating rifles and shotguns having an external hammer that may be cocked manually or when the action is worked, and similar single action firearms. All of these firearms share in common an external hammer having a sear notch that is engaged by the sear of the trigger when the hammer is cocked. The hammer also has a safety notch that is engaged by the shear (or some equivalent element) of the trigger when the hammer is in its safe position out of contact with a cartridge received in the chamber of the firearm. Thus, the hammer may be placed in any one of at least three positions — namely, its firing position at which the hammer and firing pin rest against a cartridge received in the chamber of the firearm, its safety position at which the trigger engages the safety notch formed in the hammer, and its fully cocked position at which the trigger sear engages the sear notch of the hammer. In addition, in the case of a single action revolver the hammer is provided with a loading notch which, when engaged by the trigger, maintains the hammer in its loading position.

The loaded firearm is normally carried with the hammer in its "safe" position at which the safety notch of the hammer is engaged by the trigger. However, the safety notch of the hammer is a point of mechanical weakness in the design of conventional single action firearms with consequent danger of accidental discharge of the firearm if the hammer or trigger are accidentally struck when in its presumed safe position. It is the purpose of the present invention to provide a new and accident proof safety and firing mechanism for single action firearms which eliminates the potentially dangerous safety notch of such conventional firearms.

SUMMARY OF THE INVENTION

The improved safety mechanism of the invention is applicable to firearms having an external pivotally mounted hammer that is adapted to be manually cocked, a trigger pivotally mounted below the hammer, a cylindrical member (for example, a rifle barrel or the rotatable cylinder of a revolver) mounted in front of the hammer and having at least one chamber that is adapted to receive a cartridge, and a firing pin associated with the hammer and mounted in position to strike a cartridge received in the chamber when the firearm is fired. The hammer cannot be cocked simply by pulling the trigger; it must be cocked manually either with the users thumb or, in the case of a repeating firearm, by operating the action of the firearm. However, the hammer is formed with a cam surface which contacts the trigger and causes the trigger to rotate from its rest position to its ready-to-fire position when the hammer is manually cocked as described. The trigger has a sear which releasably engages the sear notch of the hammer when the hammer is cocked, spring means turning the trigger to engage the sear in the sear notch when the hammer is fully cocked.

In accordance with the invention a vertically disposed and vertically movable trigger bar is pivotally connected to the trigger, the upper end portion of the trigger bar being disposed in front of the hammer and the trigger bar being moved vertically from its lower position to its upper position when the trigger is rotated from its rest position to its ready-to-fire position. Trigger bar blocking means engage the upper end of the trigger bar and prevent upward movement of the trigger bar when the hammer is at rest, and hammer blocking means engage a forward facing surface of the hammer and prevent forward movement of the hammer and firing pin against a cartridge in the chamber when the trigger is in its lower position. The upper end portion of the trigger bar is positioned relative to the hammer so that the hammer and firing pin can strike and fire a cartridge in the chamber when the trigger bar is in its upper position.

The trigger bar blocking means advantageously comprises a trigger bar notch formed in the forward surface of the hammer, the upper end of the trigger bar being received in the trigger bar notch when the hammer is at rest and the trigger bar is at its lower position. Alternatively, when the firing pin is a separate spring-loaded part mounted in the frame immediately to the rear of the cartridge receiving chamber, the trigger bar blocking means advantageously comprises a rearward extension of the firing pin that engages the upper end of and prevents upward movement of the trigger bar when the hammer is at rest.

The hammer blocking means advantageously comprises a forwardly facing hammer bearing surface of the hammer that rests against a forwardly immovable hammer stop element of the firearm when the hammer and trigger are at rest with the trigger bar in its lower position. The forwardly immovable hammer stop element is positioned longitudinally with respect to the hammer so as to maintain the hammer and the firing pin associated therewith out of impacting contact with a cartridge received in the chamber of the firearm when said hammer bearing surface rests against said forwardly immovable hammer stop element. In one advantageous embodiment of the invention, the upper end of the hammer is provided with a forwardly extended nose portion having a forwardly facing surface that comprises the hammer bearing surface of the hammer, the frame or receiver of the firearm being provided with a rearward facing surface that comprises the hammer stop element of the firearm. In another embodiment of the invention, the trigger bar notch of the hammer is formed with a forward facing surface that comprises the hammer bearing surface of the hammer, the upper end of the trigger bar being provided with a rearward facing surface that comprises the forwardly immovable hammer stop element of the firearm.

The improved firing mechanism of the invention eliminates the mechanically weak and potentially dangerous safety notch of conventional single action firearms providing in place thereof positive means for preventing accidentical discharge of the firearm either by striking the hammer or by pulling the trigger. Other advantages of our new mechanism will become apparent from the following detailed description thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

The improved firing mechanism of the invention will be better understood from the following description thereof in conjunction with the accompanying drawings of which:

FIG. 1 is an enlarged right hand side elevation, partly broken away, of a single action firearm (specifically, a single action revolver) provided with an advantageous embodiment of the safety mechanism of the invention;

FIG. 2 is a left hand side elevation, partly broken away, of the firearm of FIG. 1 showing the firing mechanism in its cocked position;

FIG. 3 is a sectional view along line 3—3 of FIG. 2;

FIG. 4 is an exploded perspective view of the safety and firing mechanism of the firearm of FIGS. 1 and 2;

FIG. 5 is a right hand side elevation, partly broken away, of a single action firearm that is provided with a modified form of the safety mechanism showing the mechanism in its rest or safe position;

FIG. 6 is a right hand side elevation, partly broken away, showing the firing mechanism of FIG. 5 in its firing position;

FIG. 7 is a sectional view along line 7—7 of FIG. 6;

FIGS. 8 and 9 are fragmentary sectional views of another modification of the firing mechanism of the invention;

FIGS. 10 and 11 are fragmentary sectional views of yet another modification of the firing mechanism of the invention, the firing pin being mounted in the frame of the firearm;

FIG. 12 is an exploded sectional view of the hammer and trigger bar of the firing mechanism shown in FIGS. 10 and 11;

FIG. 13 is a fragmentary sectional view of a modification of the firing mechanism shown in FIG. 10 in which the firing pin is mounted on the hammer;

FIG. 14 is a fragmentary sectional view of a modification of the firing mechanism in which the trigger bar blocking means comprises the rearward end portion of the firing pin;

FIG. 15 is a fragmentary sectional view of the modification of FIG. 14 showing the firing mechanism in its cocked position, and

FIG. 16 is a sectional view along line 16—16 of FIG. 15.

DETAILED DESCRIPTION

The improved mechanism of the present invention may be used in connection with all single action firearms having an external hammer that must be cocked before the trigger can be pulled. As previously noted, such single action firearms include, but are not limited to, single action revolvers, single shot rifles and shotguns of the breakopen type having an external hammer, and lever or pump action repeating rifles and shotguns having an external hammer that may be cocked manually or when the action is worked. However, in the interest of simplifying the description, the invention will be described in connection with a single action revolver of essentially conventional construction.

The major components of the single action revolver embodying the firing mechanism of the invention include a frame 1, a barrel 2 secured to the frame, a cylinder 3 rotatably mounted on the frame by means of the cylinder pivot shaft 4, a hammer 5 pivotally mounted on the fame by means of the hammer pivot pin 6, a trigger 7 pivotally mounted on the frame by means of a trigger pivot pin 8, a trigger guard 9, and hand grips 10. The cylinder 3 is formed with a plurality of cartridge receiving chambers 11, each chamber of the cylinder successively being held in alignment with the bore of the barrel 2 when the pivoted cylinder latch 12 successively engages the cylinder notches 13 formed in the cylinder 3. A firing pin 14 is mounted in position to strike a cartridge 15 contained in the uppermost chamber 11 of the cylinder 3 when the revolver is fired. The firing pin may be mounted in the frame 1 as exemplified by the spring loaded firing pin 14*a* shown in FIGS. 10 and 11, or it may be mounted on the upper end of the hammer 5 as exemplified by the firing pin 14*b* shown in FIG. 13 of the drawings. An ejector rod 16 is provided for ejecting spent cartridges from the chambers of the cylinder 3, the ejector rod being contained in an ejector rod housing 17 mounted on one side of the barrel 2.

Referring now to the single action revolver shown in FIGS. 1 through 4 of the drawing, FIG. 1 shows the revolver with the hammer 5, the trigger 7 and the parts associated therewith in their rest or safe position, and FIGS. 2 and 3 show the hammer, trigger and parts associated therewith when the hammer is in its cocked position. The hammer 5 is formed with a cam surface 18 that contacts the trigger arm 19 of the trigger 7 when the hammer is rotated from its rest position to its cocked position, thereby causing the trigger to rotate from its rest position to its ready-to-fire position. As the trigger 7 is rotated from its rest position to its ready-to-fire position the spring loaded cylinder latch release plunger 20 contacts and mementarily depresses the toe portion 21 of the cylinder latch 12, thereby momentarily withdrawing the cylinder latch 12 from engagement with the notch 13 formed in the cylinder 3. A cylinder pawl 23 is pivotally mounted on the hammer 5 by means of the pin or stud 24. The upper end of the cylinder pawl 23 engages the cylinder ratchet 25 at the rearward end of the cylinder 3, thereby causing the cylinder to rotate when the hammer 5 is rotated to its cocked position shown in FIG. 2. When the hammer and trigger are in their ready-to-fire positions the sear 27 of the trigger is received in the sear notch 28 of the hammer, the sear 27 being urged into engagement with the sear notch 28 by the pressure of the spring loaded plunger 30 against the trigger 7. When the trigger 7 is pulled, the sear 27 moves forwardly out of engagement with the sear notch 28, thereby allowing the hammer 5 to spring forwardly under the pressure of the hammer spring and hammer spring strut 32.

The hammer of a conventional single action revolver is formed with a safety notch that is engaged by the sear (or some equivalent element) of the trigger when the hammer is in its safe position. In contrast to this conventional arrangement the single action firing mechanism of the invention is provided with a vertically disposed trigger bar 34 that is pivotally connected by a pin or stud 35 to a rearwardly extending trigger bar lifting

arm 36 of the trigger 7. The upper end portion 37 of the trigger bar 34 is disposed in front of the hammer 5 between the hammer and frame 1 of the revolver, the trigger bar 34 being movable vertically from its lower position shown in FIG. 1 to its upper position shown in FIGS. 2 and 3 when the trigger 7 is rotated from its rest position to its ready-to-fire position as previously described. When the hammer 5 is at rest and the trigger bar 34 is at its lower position as shown in FIGS. 1, 5, 8, 10, 13 and 14, trigger bar blocking means engage the upper end portion 37 and prevent upward movement of the trigger bar 34 and rotation of the trigger 7 even when the trigger 7 is strongly pulled. In the embodiment of the invention shown in FIGS. 1 through 13, the trigger bar blocking means comprises a trigger bar notch 38 formed in the forward surface of the hammer 5, the upper end of the trigger bar 34 being received in and engaged by the trigger bar notch 38 when the hammer and trigger are at rest with the trigger bar in its lower position. In the embodiment of the invention shown in FIGS. 14 through 16, the trigger bar blocking means comprises the rearward end of the spring loaded firing pin 14 which engages the upper end of the trigger bar 34 when the hammer 5 is at rest as hereinafter more fully explained.

When the hammer 5 and trigger 7 are at their rest positions as shown in FIGS. 1, 5, 8, 10, 13 and 14, hammer blocking means hold the hammer 5 and the firing pin 14 associated therewith out of impacting contact against a cartridge 15 received in the uppermost chamber 11 of the cylinder 3. That is to say, the hammer is formed with a forwardly facing hammer bearing surface that rests against a forwardly immovable hammer stop surface or element of the firearm, the hammer stop element being positioned longitudinally with respect to the hammer resting thereagainst so as to prevent impacting contact of the hammer and firing pin against a cartridge received in the cylinder. In the embodiments shown in FIGS. 1 through 9 and FIGS. 14 through 16, the hammer 5 is provided with a forwardly extending nose portion 40 the forward facing surface 41 of which comprises the aforesaid hammer bearing surface, and the frame 1 is provided with a rearward facing surface 42 which comprises the aforesaid hammer stop element of the safety mechanism. In the embodiment shown in FIGS. 10 through 13, the trigger bar notch 38 of the hammer 5 has a forwardly facing hammer bearing surface 41*a* which rests against the rearwardly facing hammer stop surface 42*a* of the trigger bar 34 as hereinafter more fully described.

In the embodiment of the invention shown in FIGS. 1 through 4, the upper end of the trigger bar 34 is urged into engagement with the trigger bar notch 38 by means of the spring loaded plunger 39 located in the rearward end of the cylinder pivot shaft 4. When the trigger bar 34 is received in the trigger bar notch 38 upward movement of the trigger bar, and rotation of the trigger to its ready-to-fire position, are prevented. Moreover, impacting contact of the hammer 5 and the associated firing pin 14 against a cartridge in the cylinder 3 is also prevented. When the hammer 5 is rotated from its rest position shown in FIG. 1 to its cocked position shown in FIG. 2, the upper end of the trigger bar 34 is freed from engagement with the trigger bar notch 38, thereby allowing the trigger bar 34 to move upwardly as the trigger is rotated by the hammer 5 from its rest position to its ready-to-fire position in the manner previously described. When the trigger 7 reaches its ready-to-fire position as shown in FIG. 2, the upper end portion 37 of the trigger bar 34 is disposed directly in back of the spring loaded firing pin 14. When the trigger 7 is pulled to disengage the sear 27 and thereby release the hamer 5, the hammer springs forward until the striking surface 44 of the hammer strikes the upper end of the trigger bar 34, the impact of the hammer against the trigger bar being transferred to the firing pin 14 which, in turn, strikes and fires the cartridge 15 received in the upper chamber 11 of the cylinder 3.

It will be seen from the foregoing description that when the hammer 5 and trigger 7 are at their rest positions with the upper end of the trigger bar 34 received in the trigger bar notch 38, the hammer 5 and firing pin 14 are maintained out of impacting contact against a cartridge received in the uppermost chamber of the cylinder 3. Moreover, rotation of the trigger 7 with consequent upward movement of the trigger bar 34 is prevented so that the upper end portion 37 of the trigger bar 34 cannot be accidentally interposed between the striking surface 44 of the hammer and the firing pin 14. This provides a positive and accident proof safety mechanism for the single action firearms to which the invention relates.

In the modification of the invention shown in FIGS. 5 through 7 of the drawings, the upper end portion 37 of the trigger bar 34 is provided with a notch engaging shoulder 46 and upper extension 47. When the hammer 5 and trigger 7 are at rest with the trigger bar 34 in its lower position as shown in FIG. 5, the spring loaded firing pin 14 contacts the upper extension 47 of the trigger bar. The pressure of the firing pin 14 against the upper extension 47 urges the notch engaging shoulder 46 of the trigger bar 34 into engagement with the trigger bar notch 38 of the hammer in the same manner as the spring loaded plunger 39 functions in the previously described modification of the invention. In addition, the hammer bearing surface 41 of the nose portion 40 of the hammer rests against the forwardly immovable hammer stop element 42 of the frame, thereby preventing impacting contact of the hammer 5 and firing pin 14 against a cartridge received in the upper chamber of the cylinder 3. When the hammer 5 is at its fired position with the trigger bar 34 in its upper position as shown in FIGS. 6 and 7, the striking surface 44 of the hammer impacts against the upper end portion 37 of the trigger bar 34, the impact of the hammer against the trigger bar being transferred to the firing pin 14 which, in turn, strikes and fires the cartridge 15 received in the upper chamber 11 of the cylinder 3.

In the modification of the invention shown in FIGS. 8 and 9, the spring loaded firing pin 14 again is utilized to urge the upper end of the trigger bar 34 into engagement with the trigger bar notch 38 of the hammer 5. Thus, when the hammer 5 (and the trigger 7) are at rest with the trigger bar 34 in its lower position, as shown in FIG. 8, the upper end of the trigger bar is received in the trigger bar notch 38 and the hammer bearing surface 41 of the hammer rests against the hammer stop element 42 of the frame in the manner previously described. When the hammer 5 is at its fired position with the trigger bar 34 in its upper position as shown in FIG. 9, the striking surface 44 of the hammer impacts against the upper end portion 37 of the trigger bar, the impact of the hammer against the trigger bar being transferred to the firing pin 14 which, in turn, strikes

and fires the cartridge **15** received in the upper chamber of the cylinder **3.**

In the embodiment of the invention shown in FIGS. **10** through **12** of the drawings, the upper end portion **37** of the trigger bar **34** not only serves to prevent the trigger **7** from being pulled when it is received in the trigger bar notch **38** of the hammer **5,** but it also serves as the forwardly immovable hammer stop element of the firearm which prevents impacting contact of the hammer against the firing pin **14***a*. That is to say, the trigger bar notch **38** of the hammer **5** has a forwardly facing surface **41***a* which rests against the rearwardly facing surface **42***a* of the portion **37** of the trigger bar **34** when the trigger bar is received in the trigger bar notch **38,** the forwardly facing surface **41***a* comprising the aforementioned hammer bearing surface of the hammer and the rearward facing surface **42***a* comprising the aforementioned forwardly immovable hammer stop element of the firearm. When the hammer **5** and trigger **7** are in their ready-to-fire positions with the trigger bar **34** its upper position, the upper end portion **37** of the trigger bar may be interposed between the striking surface **44** of the hammer and the firing pin **14***a* in the manner previously described in connection with modifications of the invention shown in FIGS. **1** through **9** of the drawings. Alternatively, as shown in FIGS. **10** through **12** of the drawings, the forward surface of the hammer **5** above the trigger bar notch **38** may be formed with a trigger bar receiving recess **49** that is adapted to receive the upper end portion **37** of the trigger bar **34** when the trigger bar is in its upper position. The rearwardly extending trigger bar receiving recess **49** is of sufficient longitudinal depth so that when the upper end portion **37** of the trigger bar **34** is received in the recess **49** the striking surface **44** of the hammer **5** can impact against the firing pin **14***a* as shown in FIG. **11.**

In the modification shown in FIG. **13,** the firing pin **14***b* is secured to the upper end of the hammer **5** by means of the pin **50.** When the hammer **5** (and the trigger **7**) are at rest with the trigger bar **34** in its lower position, the upper end portion **37** of the trigger bar **34** is received in and is engaged by the trigger bar notch **38** of the hammer. In addition, the forwardly facing hammer bearing surface **41***a* of the hammer rests against the hammer stop element **42***a* of the firearm (that is, the rearwardly facing surface **42***a* of the upper end of the trigger bar **34**), thereby maintaining the firing pin **14***b* out ofimpacting of impacting with the cartridge **15** received in the cylinder **3.** When the trigger bar **34** is in its upper position, the upper end portion **37** thereof is received in the trigger bar receiving recess **49** of the hammer, thereby permitting the hammer **5** and firing pin **14***b* to impact against the cartridge **15** in the cylinder **3.**

In the embodiment of the invention shown in FIGS. **14** through **16,** the rearward extension **52** of the spring loaded firing pin **14** serves as the trigger bar blocking means of the revolver. That is to say, the firing pin **14** is mounted in the frame **1** in position to strike a cartridge **15** received in the uppermost chamber **11** of the cylinder **3,** the firing pin being provided with a spring which normally maintains the forward or cartridge striking end of the firing pin out of contact with the cartridge **15,** the firing pin having a rearward extension **52** which projects into the space immediately in front of the hammer **5.** When the hammer **5** is at rest as shown in FIG. **14,** the hammer is held out of impacting contact against the rearward extension of the firing pin by the hammer blocking means which, as previously described, is comprised of the forwardly facing hammer bearing surface **41** of the hammer and the rearwardly facing hammer stop surface **42** of the frame. The hammer **5** is not formed with a trigger bar notch **38** which in the previously described embodiments serves as the trigger bar blocking means when the hammer is at rest. Instead, the rearward extension **52** of the firing pin **14** prevents upward movement of the trigger bar **34** when the hammer **5** is at rest as clearly shown in FIG. **14.**

When the hammer **5** and trigger **7** are rotated from their rest positions as shown in FIG. **14** to their ready-to-fire positions as shown in FIG. **15,** the trigger bar **34** is moved upwardly by the trigger bar lifting arm **36,** spring loaded plunger **39** in the cylinder pivot shaft **4** pressing the trigger bar **34** rearwardly so that its upper end portion **37** will clear the rearward extension **52** of the firing pin as the hammer is cocked. When the hammer is fully cocked, the sear **27** of the trigger **7** engages the sear notch of the hammer, and the upper end portion **37** of the trigger bar is disposed between the rearward extension **52** of the firing pin and the striking surface of the hammer **5** as shown in FIGS. **15** and **16.** When the trigger **7** is pulled, the sear **27** is withdrawn from engagement with the sear notch **28,** thereby allowing the hammer **5** to spring forward to strike the upper end portion **37** of the trigger bar which, in turn, transmits the impact of the falling hammer to the firing pin **14.**

We claim:

1. In a firearm having an external pivotally mounted hammer that is adapted to be manually cocked, a trigger pivotally mounted below the hammer, a cartridge-receiving chamber in front of the hammer, a firing pin associated with the hammer and mounted in position to strike and fire a cartridge in the chamber, a cam surface on the hammer which contacts and rotates the trigger from its rest position to its ready-to-fire position as the hammer is being cocked, a sear notch in the hammer, a sear for the trigger, and spring means which turns the trigger to engage the sear in the sear notch when the hammer is fully cocked,

the improvement which comprises a vertically disposed and movable trigger bar pivotally connected to the trigger, the upper end portion of the trigger bar being disposed in front of the hammer, said trigger bar being moved vertically from its lower position to its upper position when the trigger is rotated from its rest position to its ready-to-fire position, trigger bar blocking means engaging the upper end of the trigger bar and preventing upward movement of the trigger bar when the hammer is at rest, and hammer blocking means engaging the hammer and preventing forward movement of the hammer and firing pin against a cartridge in the chamber when the trigger bar is at its lower position, the upper end portion of the trigger bar being positioned relative to the hammer so that the hammer and firing pin can strike and fire a cartridge in the chamber when the trigger bar is at its upper position.

2. The firearm according to claim **1** in which the forward surface of the hammer is formed with a trigger bar notch, said trigger bar notch being adapted to receive and engage the upper end of the trigger bar and to pre-

vent upward movement of the trigger bar when the hammer is at rest.

3. The firearm according to claim 2 in which the firearm is provided with a spring loaded plunger that bears against a forward facing surface of the upper end portion of the trigger bar, said plunger urging the trigger bar rearwardly so that the upper end thereof is engaged by the trigger bar notch when the hammer is at rest.

4. The firearm according to claim 1 in which the firing pin is mounted independantly in front of the hammer, said firing pin having a spring which normally presses the firing pin rearwardly out of contact with a cartridge received in the chamber of the firearm and having a rearward extension which normally projects rearwardly into a space directly in front of the hammer, and in which the upper end of the trigger bar is disposed below the firing pin when at its lower position and is disposed between the firing pin and the hammer when at its upper position, said rearward extension of the firing pin engaging the upper end of the trigger bar and preventing upward movement of the trigger bar when the hammer is at rest.

5. The firearm according to claim 4 in which the firearm is provided with a spring loaded plunger that bears against a forward facing surface of the upper end portion of the trigger bar, said plunger urging the trigger bar rearwardly so that the upper end thereof is disposed rearwardly of the firing pin when the trigger bar is at its upper position.

6. The firearm according to claim 1 in which the hammer is formed with a forward facing hammer bearing surface that rests against a forwardly immovable hammer stop element of the firearm when the hammer and trigger are at rest with the trigger bar in its lower position, said forwardly immovable hammer stop element being positioned longitudinally with respect to the hammer so as to maintain the hammer and the firing pin associated therewith out of impacting contact with a cartridge received in the chamber of the firearm when said hammer bearing surface rests against said forwardly immovable hammer stop element.

7. The firearm according to claim 6 in which the upper end of the hammer is provided with a forwardly extending nose portion having a forward facing surface that comprises the hammer bearing surface of the hammer, and in which the frame of the firearm is provided with a rearward facing surface that comprises the hammer stop element of the firearm, said hammer bearing surface resting on said hammer stop element when the hammer and trigger are at rest with the trigger bar in its lower position.

8. The firearm according to claim 7 in which the firing pin is mounted in the frame of the firearm, in which the hammer has a firing pin striking surface that is maintained out of contact with the firing pin when the trigger bar is in its lower position with the hammer bearing surface of the hammer resting against the hammer stop element of the firearm, and in which the upper end of the trigger bar is interposed between the firing pin striking surface of the hammer and the firing pin when the trigger bar is in its upper position whereby impact of the firing pin striking surface against the upper end of the trigger bar is transferred directly to the firing pin thereby causing the firing pin to strike a cartridge received in the chamber of the firearm.

9. The firearm according to claim 6 in which the hammer has a forward facing surface that comprises the hammer bearing surface of the hammer, and in which the upper end of the trigger bar is provided with a rearward facing surface that comprises the hammer stop element of the firearm, said hammer bearing surface resting on said hammer stop element when the hammer and trigger are at rest with the trigger bar in its lower position.

10. The firearm according to claim 9 in which the firing pin is mounted independently in front of the hammer, in which the hammer has a firing pin striking surface that is maintained out of contact with the firing pin when the trigger bar is in its lower position with the hammer bearing surface of the hammer resting against the hammer stop element of the firearm, and in which the upper end of the trigger bar is interposed between the firing pin striking surface of the hammer and the firing pin when the trigger bar is in its upper position whereby impact of the firing pin striking surface against the upper end of the trigger bar is transferred directly to the firing pin thereby causing the firing pin to strike a cartridge received in the chamber of the firearm.

11. The firearm according to claim 6 in which the firing pin is mounted independently in front of the hammer, in which the hammer has a firing pin striking surface and is formed with a trigger bar notch disposed below said firing pin striking surface, said trigger bar notch being adapted to receive the upper end of the trigger bar when the hammer is at rest and being provided with a forward facing surface that comprises the hammer bearing surface of the hammer, and in which the upper end of the trigger bar is provided with a rearward facing surface that comprises the hammer stop element of the firearm, the firing pin striking surface of the hammer being maintained out of contact with the firing pin when the trigger bar is received in the trigger bar notch with the hammer bearing surface of the hammer resting against the hammer stop element of the trigger bar.

12. The firearm according to claim 11 in which the forward surface of the hammer above the trigger bar notch is formed with a rearwardly extending trigger bar receiving recess of sufficient depth to permit the firing pin striking surface of the hammer to impact against the firing pin when the upper end of the trigger bar is received in said trigger bar receiving recess, and in which the upper end of the trigger bar is disposed in the trigger bar receiving recess of the hammer when the trigger bar is in its upper position whereby impact of the firing pin striking surface against the firing pin causes the firing pin to strike a cartridge received in the chamber of the firearm.

13. The firearm according to claim 6 in which the firing pin is mounted on the upper end of the hammer, in which the forward surface of the hammer is formed with a trigger bar notch that is adapted to receive the upper end of the trigger bar when the hammer is at rest, said trigger bar notch being provided with a forward facing surface that comprises the hammer bearing surface of the hammer, in which the upper end of the trigger bar is provided with a rearward facing surface that comprises the hammer stop element of the firearm, the firing pin being maintained out of contact with a cartridge received in the chamber of the firearm when the trigger bar is in its lower position with the hammer bearing surface of the hammer resting against the hammer stop element of the trigger bar, in which the forward surface of the hammer above the trigger bar

notch is formed with a rearwardly extending trigger bar receiving recess of sufficient depth to permit the firing pin to impact against a cartridge received in the chamber of the firearm when the upper end of the trigger bar is received in said trigger bar receiving recess, and in which the upper end of the trigger bar is disposed in said trigger bar receiving recess when the trigger bar is in its upper position whereby the firing pin impacts against a cartridge received in the chamber of the firearm when the firearm is fired.

14. The firearm according to claim **3** in which the spring loaded plunger is mounted on the firearm below the firing pin.

15. The firearm according to claim **5** in which the spring loaded plunger is mounted on the firearm below the firing pin.

16. The firearm according to claim **3** in which the firearm is provided with a spring loaded firing pin mounted in the frame of the firearm, said spring loaded firing pin also serving as the plunger which urges the upper end of the trigger bar into engagement with the trigger bar notch.

17. The firearm according to claim **3** in which the firearm comprises a single action revolver having a frame and a chambered cylinder rotatably mounted on the frame by means of a cylinder pivot shaft, and in which the spring loaded plunger is disposed in the rearward end of the cylinder pivot shaft of the revolver.

18. The firearm according to claim **5** in which the firearm comprises a single action revolver having a frame and a chambered cylinder rotatably mounted on the frame by means of a cylinder pivot shaft, and in which the spring loaded plunger is disposed in the rearward end of the cylinder pivot shaft of the revolver.

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