Nov. 1, 1960 H. H. SEFRIED II 2,958,151

TRIGGER ACTUATED CYLINDER STOP FOR REVOLVERS

Filed Feb. 10, 1956 3 Sheets-Sheet 1

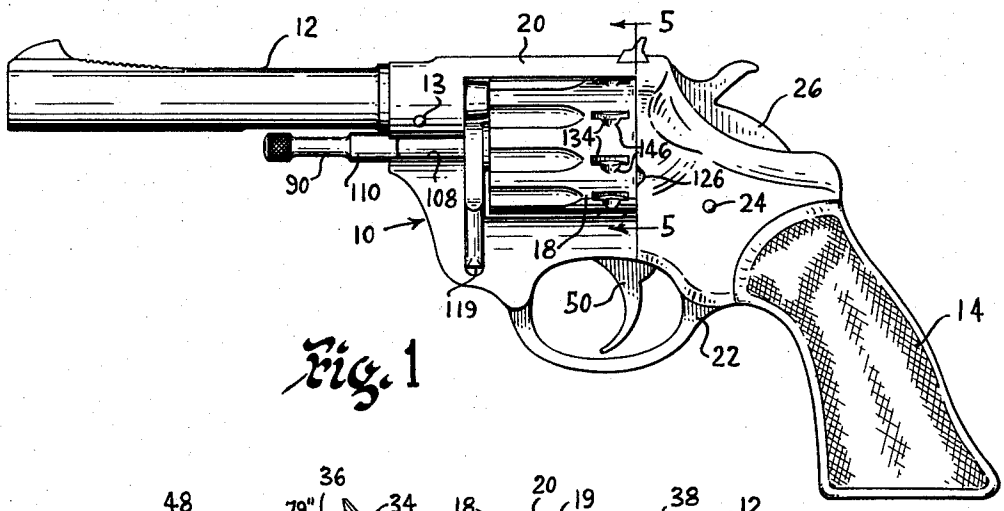


Fig. 1

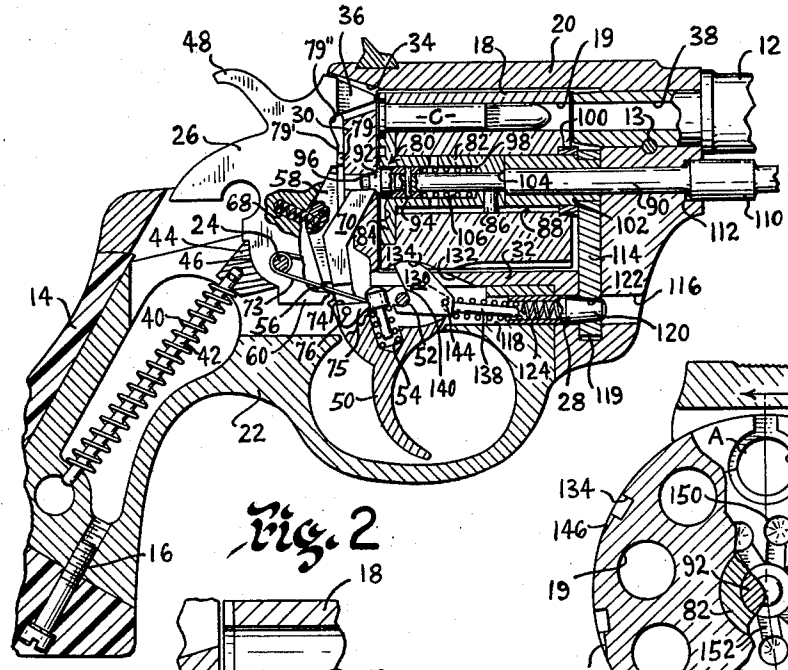


Fig. 2

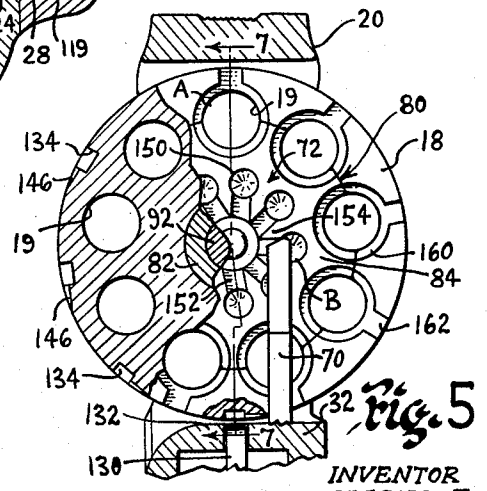


Fig. 5

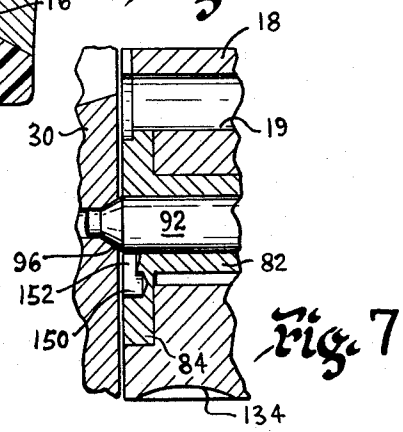


Fig. 7

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Nov. 1, 1960 H. H. SEFRIED II 2,958,151

TRIGGER ACTUATED CYLINDER STOP FOR REVOLVERS

Filed Feb. 10, 1956 3 Sheets-Sheet 2

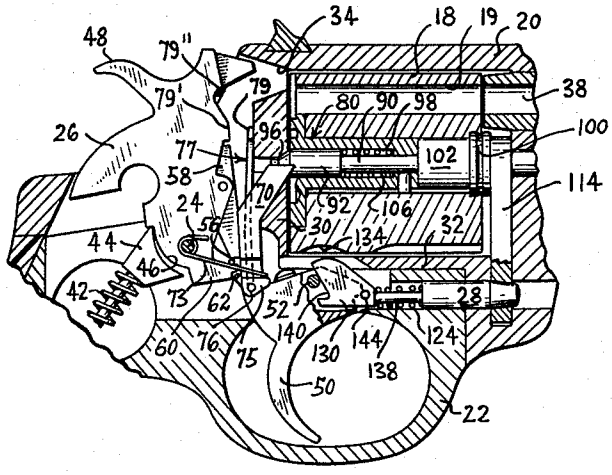


Fig. 3

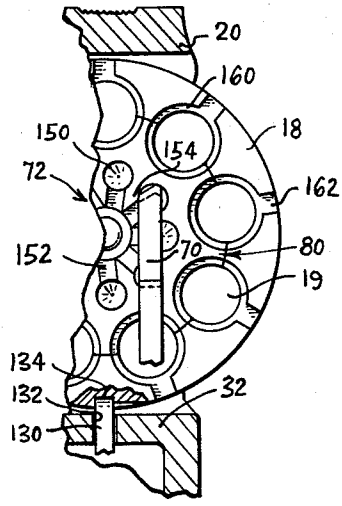


Fig. 6

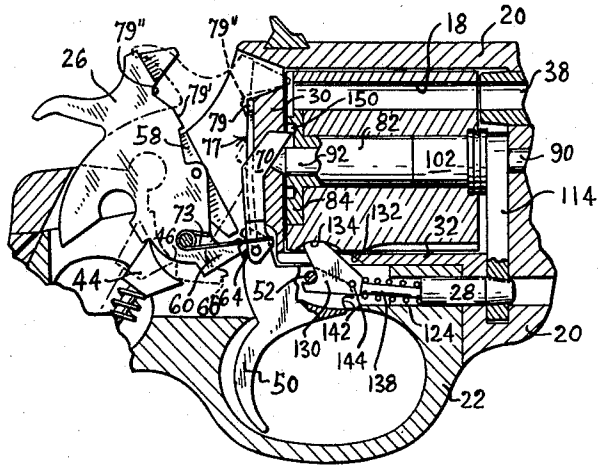


Fig. 4

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TRIGGER ACTUATED CYLINDER STOP FOR REVOLVERS

Filed Feb. 10, 1956 3 Sheets-Sheet 3

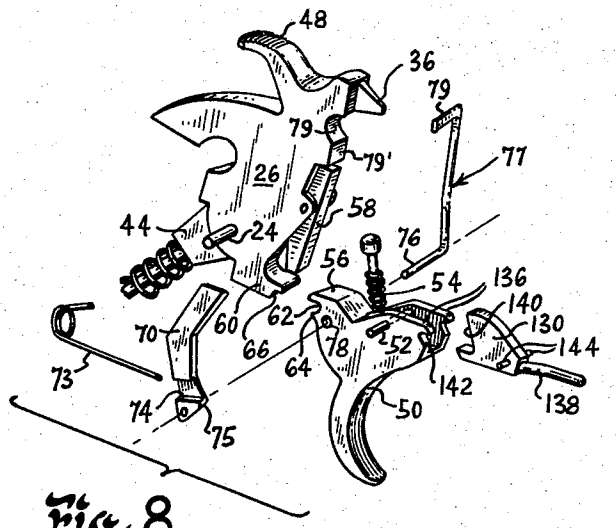


Fig. 8

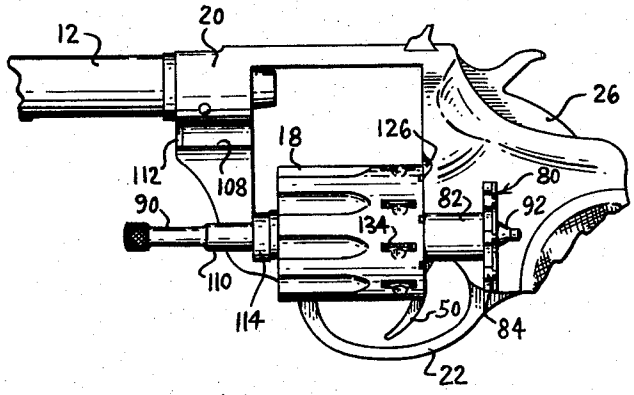


Fig. 9

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2,958,151

TRIGGER ACTUATED CYLINDER STOP FOR REVOLVERS

Harry H. Sefried II, New Haven, Conn., assignor, by direct and mesne assignments, to The High Standard Manufacturing Corporation, Hamden, Conn., a corporation of Connecticut

Filed Feb. 10, 1956, Ser. No. 564,729

1 Claim. (Cl. 42—67)

This invention relates to firearms, and it relates more particularly to improvements in revolvers.

The cylinder in a revolver is rotated through a predetermined angle of rotation by means of a pawl and ratchet arrangement, the pawl or cylinder hand, as it is sometimes called, being actuated when the trigger is pulled to engage a tooth of the ratchet located on the rear face of the cylinder. As each cartridge chamber in the cylinder is brought into alignment with the bore in the barrel of the revolver by means of the pawl and ratchet, it is locked in such aligned position while the cartridge is fired and, upon return of the trigger to its forward position, the pawl is returned to its initial position where it is ready to engage the next ratchet tooth, whereby the cylinder is successively indexed from one cartridge chamber to the next each time the trigger is pulled.

In order to stop the cylinder as each chamber is brought into alignment with the bore, a cylinder stop lug retractably mounted in the frame of the revolver is usually adapted for engagement in stop notches located around the periphery of the cylinder. When the trigger is pulled, the stop lug is retracted from one of the stop notches in the cylinder to permit the cylinder to be rotated and, when the cylinder is fully indexed through the required number of degrees, the stop lug is moved into engagement with the next stop notch to hold the cylinder in that position. The stop lug remains thus engaged when the gun is fired and when the trigger is released, thereby preventing rotation of the cylinder at all times except while it is being indexed from one chamber to the next.

If only the cylinder stop is depended upon to lock the cylinder in accurate alignment with the bore in the barrel of the revolver, the parts associated with the cylinder stop including the portion of the frame in which the stop lug is mounted, the stop lug itself, and each of the stop notches in the cylinder, must be carefully machined within close tolerances. One way of avoiding such close tolerances in connection with the cylinder stop has been to maintain engagement of the cylinder hand with the ratchet teeth in the indexing means after the stop lug moves into engagement with the stop notch in the cylinder so that upon continued pull on the trigger, the cylinder hand continues to try to rotate the cylinder against the stop lug. This effectively locks the cylinder with respect to the barrel and reduces the necessary tolerances in connection with the cylinder stop but makes it essential that the hammer be released to fire the gun just at the instant that the cylinder becomes fully indexed and locked. This in turn requires very close tolerances in the cylinder indexing means and firing mechanism, and each gun must be carefully fitted by hand in order to prevent malfunctioning.

It is a primary object of the present invention to accurately index and rigidly lock the cylinder with respect to the barrel in a revolver while permitting relatively

large machining tolerances in the cylinder stop, the firing mechanism and cylinder indexing means.

It is also an object of the invention to provide a revolver which is less expensive to manufacture than are revolvers manufactured heretofore yet functions equally as well as and possesses all the advantages of such prior guns.

Another object of the invention is to provide an improved cylinder stop means which is simpler in construction and operation and which may be combined with a novel cylinder crane mounting pivot, where the revolver is of the type in which the cylinder may be swung outwardly from the side of the frame of the gun in order to eject the empty cartridges and reload the cylinder with fresh cartridges.

These and other objects of the invention, as well as its novel features and advantages, will become further apparent from the description hereinafter. A revolver embodying the invention in its most advantageous form is illustrated in the accompanying drawings, in which

Fig. 1 is a side elevational view of a revolver embodying the invention;

Fig. 2 is a vertical sectional view through the center of the revolver and partially broken away, showing the parts in their normal positions;

Fig. 3 is a view similar to Fig. 2 showing the parts in the positions which they assume when the trigger is partially retracted;

Fig. 4 is a view similar to Figs. 2 and 3 showing the hammer fully cocked;

Fig. 5 is an enlarged transverse sectional view taken on the line 5—5 in Fig. 1 showing the parts in the same positions as they are shown in Fig. 3;

Fig. 6 is a fragmentary view similar to Fig. 5 but showing the parts in the positions shown in Fig. 4;

Fig .7 is a fragmentary detailed sectional view taken on the line 7—7 in Fig. 5;

Fig. 8 is an exploded perspective view of certain of the parts in their general relationship to each other; and

Fig. 9 is a side elevational view similar to Fig. 1 but showing the cylinder swung out and the ejector in cartridge ejecting position.

The revolver consists of a two piece frame indicated generally in Fig. 1 at **10**. A barrel **12** is rigidly mounted and locked as by pin **13** in the forward end of the frame and a hand grip **14** is secured to the rear of the frame by a screw **16** (Fig. 2). A cylinder **18** is rotatably mounted in a central opening in the frame and has a plurality, in this instance nine, cartridge receiving chambers **19** bored longitudinally therein as shown in Figs. 5 and 6. The frame **10** comprises an upper housing **20** and a unitary trigger guard and grip portion **22** which fits within an opening in the bottom of the upper housing **20** and is fastened thereto by means of a pin **24** passing through apertures in both sides of the upper housing **20** and in the trigger guard **22**. As will be pointed out herein, pin **24** acts also as the pivot for the hammer **26**. The forward end of the trigger guard is secured to the housing **20** by a pin **28** to be described hereinafter.

The upper housing **20** is divided into two sections by means of a vertical wall **30** and a horizontal wall **32**, the section in front of wall **30** and above wall **32** being open on both sides for the reception of the cylinder **18**. The space to the rear of and below walls **30** and **32** is enclosed except for the bottom, into which the trigger guard **22** fits. Hammer **26** extends upwardly through a slot provided in the upper wall of housing **20** to the rear of wall **30**. An aperture **34** in the upper part of wall **30** provides access for the nose **36** of hammer **26** to strike the rim of a cartridge *c* in one of the chambers

19 of cylinder 18, such chamber being of course the one which is aligned with the bore 38 of barrel 12.

Hammer spring 40 surrounds a guide rod 42, the upper end of which is provided with a guide head 44 which engages hammer 26, the lower end of guide rod 42 passing freely through a hole in the base of the hollow grip portion of frame member 22. Hammer spring 40 is therefore restrained between the guide head 44 and the base of the grip portion 22. A convex surface 46 is formed near the lower end of hammer 26 adjacent pivot pin 24 for engagement by a corresponding concave surface provided in guide head 44, the upper and lower edges of guide head 44 contacting shoulders at opposite ends of the surface 46 on the hammer. Since hammer spring 40 is placed under compression when it is assembled in the gun, it continuously exerts a force on the hammer 26. It will be noted, however, that when the hammer is in the position shown in Fig. 2 with its nose 36 retracted from engagement with the cartridge and with the corresponding curved surfaces on the hammer and guide head in full engagement, hammer spring 40 does not tend to pivot the hammer in either direction. Nevertheless, when the hammer is retracted either by means of the finger 48 extending upwardly therefrom for this purpose or by a trigger 50, as will be presently explained, only the upper edge of the guide head 44 bears against the hammer as shown in Fig. 3 and as shown in full lines in Fig. 4. Consequently, the hammer spring 40 urges the hammer in a clockwise direction as viewed in Figs. 2–4, so that when released it will snap back to the position shown in broken lines in Fig. 4 where its nose 36 strikes the cartridge. When the hammer is released, its momentum carries it beyond its normal position shown in Fig. 2 to the position shown in broken lines in Fig. 4 and, in this position at the moment the cartridge is fired, the guide head 44 engages the hammer only at its lower edge which is on the opposite side of the hammer pivot pin 24 from the point of engagement shown in full lines in Fig. 4. Therefore, the hammer spring will cause the hammer to be swung counterclockwise from the broken line position of Fig. 4 to the normal position of rest shown in Fig. 2, where it will not interfere with the rotation of cylinder 18.

Trigger 50 is pivotally mounted on a pin 52 supported in opposite upstanding walls of the trigger guard 22 which fit up within the side walls of the upper housing 20 of the frame 10. A trigger spring and plunger 54 located in a recess in the trigger and exerting an upward force against the underside of wall 32 of the frame urge the trigger in a counterclockwise direction, as viewed in Figs. 2–4, toward its normal position shown in Fig. 2. A cocking finger 56 on trigger 50 is arranged to engage the lower end of a hammer pawl 58 pivotally mounted in the forward edge of hammer 26 in a well known manner. Upon retraction of the trigger 50, the finger 56 is raised turning the hammer 26 counterlockwise as shown in Fig. 3. As the trigger is further retracted the hammer is pivoted back causing the tip of its foot 60 to move into a notch 62 (Fig. 8) below the cocking finger 56 on the trigger 50. The lower edge of notch 62 then contacts the underside of the foot 60 pivoting the hammer still further in a counterclockwise direction and permitting the cocking finger 56 to move out clear of the hammer pawl 58, as may be seen in Fig. 4.

When the trigger is retracted sufficiently to move the shoulder 64 at the lower edge of notch 62 out of engagement with the forward corner of the foot 60 of the hammer, i.e. slightly beyond the position shown in Fig. 4, the hammer will be released permitting it to swing rapidly under the influence of the hammer spring 40 in a clockwise direction in Figs. 2–4 to fire the cartridge. A cocking notch 66 is provided in the tip of the foot 60 of the hammer so that when the hammer is retracted by means of the finger 48, the shoulder 64 on the trigger will engage the notch 66 and hold the hammer fully cocked until the trigger is pulled.

After the gun is fired, the trigger 50 is returned to its forward position by the trigger spring 54. During the return stroke of the trigger, its cocking finger 56 engages the forward edge of hammer pawl 58 pivoting the latter clockwise to permit the finger 56 to move into the position shown in Fig. 2. Pawl 58 will then snap back to its initial position under the urge of a pawl spring 68.

Each time the trigger is pulled and the hammer cocked and released as described above, the cylinder 18 is rotated to move the chamber in which a cartridge has been previously fired out of alignment with the barrel and to bring the next chamber into firing position. To this end, a cylinder indexing pawl or cylinder hand 70 is pivoted at its lower end to trigger 50 at a point adjacent the cocking finger 56. The upper tip of cylinder hand 70 is urged forwardly into engagement with a ratchet, indicated generally at 72 in Figs. 5 and 6, in the rear face of cylinder 18 by means of a wire spring 73. Spring 73 is looped around hammer pivot pin 24, one end bearing downwardly on a shoulder 74 formed by a slot cut in the side of cylinder hand 70 above its pivot point. The other end of spring 73 engages a fixed shoulder (not shown) in a part of the frame member 22. Hand 70 is formed with a forwardly projecting foot 75, against which the end of spring 73 rests to urge the hand in a clockwise direction.

As may be seen best in Fig. 8, cylinder hand 70 is pivoted on the end of a pin 76, which is part of a hammer safety-stop link 77, the pin 76 extending through a hole 78 in the trigger 50 and projecting beyond it for the reception of the cylinder hand 70. Link 77 is an elongated member, made in this instance of heavy steel wire, the upper portion or stop-finger 79 of which is bent at right angles to the main portion in the same direction as the lower portion or pin 76. Safety stop 77 extends upwardly from trigger 50 along the rear face of wall 30 (Figs. 3 and 4) with the stop-finger 79 normally positioned between a flat projection 79′ on the hammer and the wall 30 as seen in Fig. 2. When stop-finger 79 is in this position, the hammer is positively prevented from being moved forwardly into contact with the head of cartridge *c*. However, when the trigger is fully retracted, the stop-finger 79 is raised to the position shown in Fig. 4 so that when the hammer strikes, a recess 79″ just under the nose 36 of the hammer encompasses stop-finger 79 permitting the hammer to travel the required additional amount to fire the cartridge. The hammer immediately moves back a short distance to its normal position as has been described and, as soon as the trigger is released, stop-finger 79 will again be in a position to block the hammer in case it is inadvertently retracted and released without pulling the trigger all the way back, or in case of an accidental blow which might tend to throw the hammer forward against a live cartridge.

The ratchet 72 provided in the rear face of cylinder 18 is formed in the head portion of a cartridge ejector 80 of the kind sometimes referred to as a "star ejector." A cylindrical shank portion 82 of ejector 80 is received in a central bore in the cylinder, and a wheel or star shaped head portion 84 of the ejector fits in a counterbored recess in the rear face of the cylinder so that it is flush therewith. The ejector is capable of being moved rearwardly axially of cylinder 18 when the latter is swung out to the side of the revolver as shown in Fig. 9 in order to eject empty cartridge cases. It is, however, keyed to cylinder 18 by means of a key 86 extending into a longitudinal keyway 88 in the cylinder 18, so that it can not rotate with respect thereto and may, therefore, so far as the ratchet 72 is concerned, be considered to be an integral part of the cylinder. Consequently, a force applied on the ratchet 72 by the cylinder hand 70 will cause the cylinder to rotate as if the ejector 72 and cylinder 18 were one piece.

The shank 82 of ejector 80 is hollow, forming a longitudinal passage for a plunger 90 which functions as an axle on which cylinder 18 rotates. Plunger 90 is, moreover, adapted to be moved axially so that it can be engaged and disengaged from the housing 20 to permit the cylinder 18 to be swung out for loading purposes. A plunger tip 92 is fixed to the rear end of plunger 90 by a pin 94 and has a conical surface for reception in a correspondingly formed aperture or recess 96 located in the center of vertical wall 30 in the housing 20. The outside diameter of the cylindrical portion of tip 92 is the same as the inside diameter of a counterbore 98 in the center of ejector 80, thereby forming a bearing for rotation of cylinder 18 at the rear end thereof. A bushing 100 secured to the cylinder 18 at its other or forward end provides a bearing surface on a hub member 102 to be described. The portion of plunger 90 which extends into the shank 82 of ejector 80 is of smaller diameter than the main part thereof and forms a shoulder 104 which is positioned so as to abut the end of shank 82 and limit the rearward movement of plunger 90 with respect to ejector 80. A spring 106 is compressed between the inner end of plunger tip 92 and the end of the counterbore 98 and urges the plunger rearwardly into engagement with the conical wall of aperture 96 in the frame.

The forward portion of plunger 90 extends through an elongated recess 108 (Figs. 1 and 9) in the side of the housing 20 and is held in position in this recess by an enlarged cylindrical section 110 which is received in a countersunk space 112 at the forward end of recess 108. Since the section 110 is larger than the width of the opening in the side of the frame provided by recess 108, it can not move laterally out of such recess when in the position shown in Fig. 1, and plunger 90 is therefore retained in the frame at its forward end in this manner. As may be seen in Fig. 2, when the enlarged section 110 is received within the space 112 of recess 108, the tip 92 is supported within the aperture 96 at the other end of plunger 90, and the conical surfaces on the tip 92 and on the wall of aperture 96 ensure accurate positioning of the plunger 90 at all times.

In order to free the plunger 90 from the frame so that the cylinder 18 can be swung out to the side, it is only necessary to move the plunger forwardly against spring 106 by means of the forward end of the plunger extending under the barrel 12 and in front of frame 10. This disengages the tip 92 from the aperture 96 in wall 30, freeing the rear end of the plunger, and moves the enlarged section 110 out of the forward end of recess 108, permitting the portion of plunger 90 which extends through recess 108 to be moved laterally out the side of the frame. Cylinder 18 is then supported solely by a cylinder crane link 114 which is pivoted at its lower end to the frame of the revolver and is rigidly secured at its upper end to the above mentioned hub 102, on which cylinder 18 is rotatably mounted. Plunger 90 is movable axially in a longitudinal passage in hub 102 so that it can be engaged and disengaged from its mountings in the frame of the revolver in the manner just described.

Crane link 114 is pivoted on pivot pin 28 which, as has already been mentioned, also functions to fasten the forward end of trigger guard 22 to the housing 20. Thus, the forward portion of housing 20 which extends down in front of the trigger guard is provided with a passage 116 which is aligned with a similar passage 118 in trigger guard 22. Pin 28 fits closely within passages 116 and 118 and is movable longitudinally therein. A vertical slot 119 is provided in one side of housing 20 adjacent the front end of cylinder 18 and extending downwardly across passage 116. Slot 119 is adapted to receive the lower end of link 114. The forward end 120 of pivot pin 28 is tapered and is urged forwardly into engagement with link 114 in a correspondingly tapered aperture 122 in the lower end thereof by means of a spring 124 which performs a dual function, as will be described hereinafter. This arrangement provides novel means for mounting the crane link whereby it can be readily disconnected by simply inserting a slender rod or similar tool into the open end of passage 116 and pressing the end of pin 28 back until it is clear of link 114. Link 114 and cylinder 18 mounted on it can then be removed from the frame of the gun. When link 114 is disassembled from the gun, pin 28 is also free to be removed longitudinally out through passage 116, thereby disconnecting the forward end of trigger guard 22 from the housing 20 so that these two sections of the frame 10 can be separated when the pin 24 near the middle of the gun is also removed.

Fig. 9 shows ejector 80 moved rearwardly into cartridge ejecting position while cylinder 18 is swung out to its cartridge loading and ejecting position. Ejector 80 is actuated by pressing rearwardly on the forward end of plunger 90. Since shoulder 104 engages the end of shank 82 of ejector 80, the ejector will be moved rearwardly, the empty cartridges being forced out of the chambers in the cylinder by peripheral portion of the head 84 which engage the underside of the rims of the cartridges in the usual manner. The rearward travel of the ejector is limited by the rear shoulder on the enlarged portion 110 of the plunger which comes in contact with the cylinder crane link 114. The ejector is then returned to its normal position within cylinder 18, and the cylinder may be reloaded. When the cylinder is swung back into position in the frame 10, the nose of plunger tip 92 comes into engagement with a cam slot 126 in the side of the housing 20 which moves plunger 90 forwardly so that the enlarged portion 110 at the forward end will pass in front of and into alignment with the countersunk space 112 at the forward end of recess 108. The tip 92 of plunger 90 will then, under the urge of spring 106, snap into the aperture 96, and at the same time engage portion 110 in the space 112 to lock the cylinder 18 in place.

A cylinder stop element 130 is located in the trigger guard 22 adjacent the bottom of cylinder 18 and projects upwardly through a slot 132 in wall 32 of housing 20 into engagement with stop notches 134 in the periphery of cylinder 18. Cylinder stop 130 is so arranged that it is moved out of engagement with cylinder 18 as soon as the trigger is pulled and is held out of engagement long enough for the cylinder to be rotated somewhat by the cylinder hand 70. It is then resiliently moved back into engagement with the periphery of cylinder 18 before the cylinder is fully indexed to bring the next chamber 19 into firing position. Since the next notch 134 in cylinder 18 has not at this point moved into position to receive the cylinder stop 130, the latter will ride along the cylindrical surface of cylinder 18 until it engages another notch 134 to prevent further rotation of cylinder 18 until the trigger is returned to its full forward position and is again retracted. This is accomplished in a very simple and effective manner by means for actuating stop element 130 according to the present invention as will now be brought out.

Trigger 50 is provided adjacent to and forwardly of its pivot pin 52 with spaced sidewalls 136 (Fig. 8). Stop element 130 fits between sidewalls 136 and is constantly urged rearwardly against pin 52 by means of the hereinbefore mentioned spring 124 which fits over an extension 138 of stop element 130 projecting forwardly therefrom. Pin 52 is received within a substantially V-shaped notch 140, one wall of which extends generally in the same direction as the spring 124. The other, and considerably longer, wall of notch 140 extends upwardly and at an acute angle to the first. Notches 142 in the forward edges of the sidewalls 136 of trigger 50 are adapted, when the trigger is in the position shown in Fig. 2, to engage projections 144 on opposite sides of stop element

130. Projections 144 are, in this instance, formed by means of a pin extending through and fixed in the body of stop element 130 intermediate the notch 140 and the extension 138. It will be noted that stop element 130 is thus suspended between the trigger pivot pin 52, against which it is urged, and the extension 138 which rests in the spring 124 within the recess in the crane link pivot pin 28.

When the trigger is retracted, the forward nose portion moves downwardly and, since the projections 144 are engaged in notches 142 in the sidewalls 136 of the trigger, the cylinder stop element 130 also moves downward, pivoting about a point along or near the end of its extension 138. This moves the upper cylinder-engaging portion of stop element 130 out of the stop notch 134 in the cylinder so that the latter can be rotated. As the stop element 130 is moved downwardly, its rear end slides on pin 52 along the inclined wall of notch 140 to the position shown in Fig. 3. Because of the engagement between the inclined wall of notch 140 and pin 52, stop element 130 is moved forwardly against spring 124 at the same time that it pivots downwardly. This causes the projections 144 on the stop element to be moved out of the notches 142 in the nose portion of the trigger so that when the trigger is retracted beyond the position shown in Fig. 3, projections 144 will be free of notches 142 permitting the spring 124 to move stop element 130 rearwardly again. Due to contact between the inclined wall of the notch 140 of the stop element and pin 52 and to the fact that projections 144 ride up over the upper edges of side walls 136 of the trigger, the stop element 130 is resiliently urged upwardly into contact with cylinder 18 again as it is moved rearwardly by spring 124. In the meantime, cylinder 18 has been rotated sufficiently to move the stop notch 134, with which the element 130 had previously been engaged, out of alignment with the stop element.

As the cylinder approaches the next position at which it will be fully indexed, the stop element 130 is guided into the next stop notch 134 by a beveled surface 146 which is cut in the leading edge of each notch 134. This helps ensure proper engagement of stop element 130 in the stop notches 134.

When trigger 50 is returned to its forward position, the inclined surfaces on the upper edges of the sidewalls 136 comprising the nose portion of the trigger bear against the projections 144 moving stop element 130 forwardly against spring 124 until projections 144 are again engaged in notches 142. This, however, does not cause the stop element 130 to move downwardly because the nose portion of the trigger is also pressing upwardly on projections 144 bringing the lower wall of notch 140 at the rear of element 130 into engagement with pin 52. Since this wall extends horizontally, forward movement of element 130 will simply cause it to move along pin 52 without any vertical movement being imparted to it. Consequently, stop element 130 remains in engagement with the stop notch 134 of cylinder 18 as the trigger is returned to its initial position. Upon reengagement of projections 144 on the stop element with the notches 142 in the trigger, the cycle of movements can be repeated.

Going back now to the cylinder indexing means and referring more particularly to Figs. 5 and 6, the cylinder indexing ratchet 72 comprises a novel formation of recesses in which cylinder hand or pawl 70 may be successively engaged to rotate cylinder 18. These recesses take the place of the usual ratchet teeth which project outwardly from the end of the cylinder in revolvers made heretofore and are more adaptable to large scale production, since they are more readily machined and do not require individual hand operations which are often necessary in connection with the types of ratchets previously employed.

Thus, a ring of circular recesses 150, equal in number to the number of cartridge chambers 19, nine in this instance, are drilled at equal distances from the axis of rotation of cylinder 18 and spaced equally from each other. As has been mentioned hereinbefore, recesses 150 are located in the rear face of ejector 80 but, since this is flush with the rear face of cylinder 18 when the cylinder is being indexed and since ejector 80 is keyed against rotation relative to cylinder 18, the recesses may be considered to be in the cylinder itself. This of course would actually be the case if the revolver were of the type in which the cylinder is permanently fixed in the frame and another kind of ejector were used. The positions of recesses 150 relative to the cartridge chambers 19 are such that when one of the chambers, indicated by reference character A, is in firing position exactly centered at the top of the cylinder, as shown in Fig. 5, the center of one of the recesses 150, designated by reference character B, on the side adjacent pawl 70 is located approximately on a horizontal line through the center of the cylinder. The rest of the recesses are located relative to the first one, at 40° intervals of arc where there are nine recesses as in this case.

A slot 152 is cut generally radially toward the center of cylinder 18 from each of the recesses 150 forming a plurality of more or less keyhole shaped depressions which are radially disposed and separated by arrowhead shaped lugs or teeth 154 against which the tip of cylinder hand 70 works to rotate cylinder 18. The walls of the slot 152 associated with the circular recess 150 which is in the position designated at B are most desirably disposed horizontally so that when pawl 70 first comes in contact with the lug 154 disposed just above the recess at position B, the slot 152 is substantially at right angles to the direction in which pawl 70 moves as shown in Fig. 5.

When trigger 50 is in its normal position, the tip of pawl 70 is retracted from engagement with ratchet 72, with the lower edge of pawl 70 resting on the bottom of a vertical slot (not shown) through wall 30 which provides access to cylinder 18. During the first part of the rearward stroke of the trigger, pawl 70 is raised to the position shown in Fig. 5 where it starts to engage a side wall of one of the slots 152, and at the same time cylinder stop 130 is retracted to the position shown in Figs. 3 and 5 so that cylinder 18 can be rotated. Continued rearward movement of trigger 50 raises pawl 70 to the position shown in broken lines in Fig. 6 causing cylinder 18 to rotate with it. At this point, the lug 154 with which pawl 70 is engaged has moved to a position where pawl 70 no longer bears on the straight wall of slot 152 and is about to pass into the circular recess 150 adjacent thereto without rotating cylinder 18. It will be noted that when pawl 70 reaches this broken line position (Fig. 6), cylinder 18 is fully indexed and cylinder stop 130 is engaged in the next stop notch 134 arresting any further appreciable amount of rotation of the cylinder. As may be seen in Fig. 4, trigger 50 is at this same instant on the verge of releasing the hammer 26.

Due to the enlarged space provided by circular recess 150, pawl 70 is permitted a limited amount of upward movement or overtravel from its broken line position (Fig. 6) to its full line position where it engages the cylindrical wall of recess 150 and, under the squeeze of the shooter's finger on trigger 50, forces the cylinder against cylinder stop 130. During such overtravel of pawl 70, trigger 50 is moved an additional amount sufficient to release hammer 26 to fire the cartridge as has already been explained. Pawl 70 will be moved into locking engagement in circular recess 150 before the hammer has time to strike the cartridge and the cylinder will, therefore, be fully indexed and locked with the chamber accurately aligned with the bore of barrel 12 at the instant the gun is fired.

It will be understood that this novel means of causing overtravel in pawl 70 permits greater manufacturing tolerances in the firing mechanism because of the additional amount of movement permitted the trigger after the cyl-

inder is fully indexed and before it is locked by pawl **70**, during which movement the hammer is released. Moreover, close tolerances in the cylinder stop are also kept to a minimum, because all play in the cylinder is taken up when pawl **70** comes into engagement with the wall of circular recess **150** thereby tending to rotate cylinder **18** further and forcing it against cylinder stop **130**.

As shown in Figs. 5 and 6, the tip of pawl **70** which engages the ratchet surfaces in recesses **150**, **152** comes to a point which is most desirably offset to the outside of the pawl in order to provide suitable contact with the ratchet surfaces during indexing and for locking the cylinder. However, the tip of pawl **70** may be rounded if desired, and this is preferable where manufacturing considerations permit.

When the gun has been fired in the manner described above, the trigger is released and will be returned to its forward position by trigger spring **54**. Cylinder hand or pawl **70** is therefore lowered to its original position, and at the same time is moved out of engagement with cylinder **18**. When the trigger is actuated again, pawl **70** will engage the next recess in ratchet **72** which has moved into position B shown in Fig. 5, and the cylinder will again be indexed so as to bring the next cartridge into firing position.

In the revolver shown and described herein, the rear face of the cylinder is flush against the front surface of the vertical wall **30** of housing **20**, there being no indexing ratchet teeth or other parts projecting from the rear of the cylinder which would require clearance. Head spaces **160**, within which the heads of the cartridges are received, are therefore provided in the rear face of the cylinder around each chamber **19**, half of such head space for each chamber being formed in the periphery of ejector **80**. Clearance cuts **162** are also provided adjacent each chamber **19** to accommodate the nose **36** of hammer **26** as it strikes the rim of a cartridge.

What is claimed is:

In a revolver having a cylinder rotatably mounted in a frame, a cylinder stop element supported in said frame and having a cylinder engaging portion projecting upwardly through a slot in said frame, an elongated forward portion extending generally horizontally, and a notch in the rear portion, one side of said notch being substantially horizontally disposed while the other is inclined at an acute angle with respect thereto, a pin mounted in said frame adapted to be received in said notch, a coil spring surrounding and guiding said elongated forward portion of said stop element and urging the latter rearwardly into engagement with said pin in said notch, and a trigger pivotally mounted in said frame and having a nose portion engageable with a projection on said stop element intermediate said spring and said notch, whereby upon retraction of said trigger its said nose portion engages the upper side of said projection forcing said stop element downwardly retracting it from engagement with said cylinder and, due to engagement between the inclined side of said notch and said pin, forwardly until said projection becomes disengaged from the nose portion of the trigger permitting said spring to move said stop element rearwardly and causing said stop element to be moved upwardly into engagement with said cylinder, the upper side of said nose portion of said trigger being so formed as to contact said projection on said stop element during the return stroke of said trigger and to force said stop element forwardly without retracting it from engagement with said cylinder.

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