

May 19, 1936.

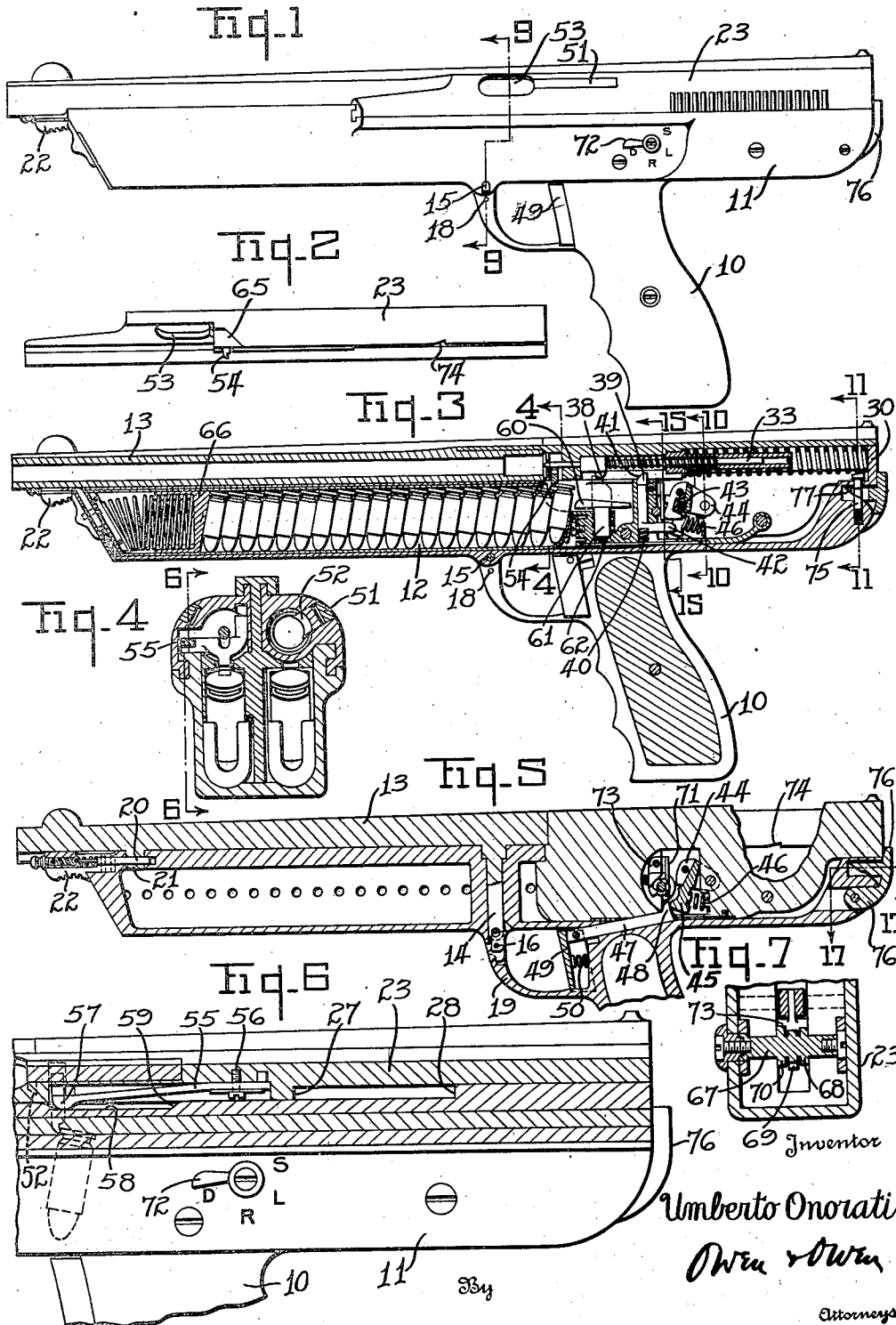
U. ONORATI

2,041,015

FIREARM

Filed May 10, 1934

4 Sheets-Sheet 1



May 19, 1936.

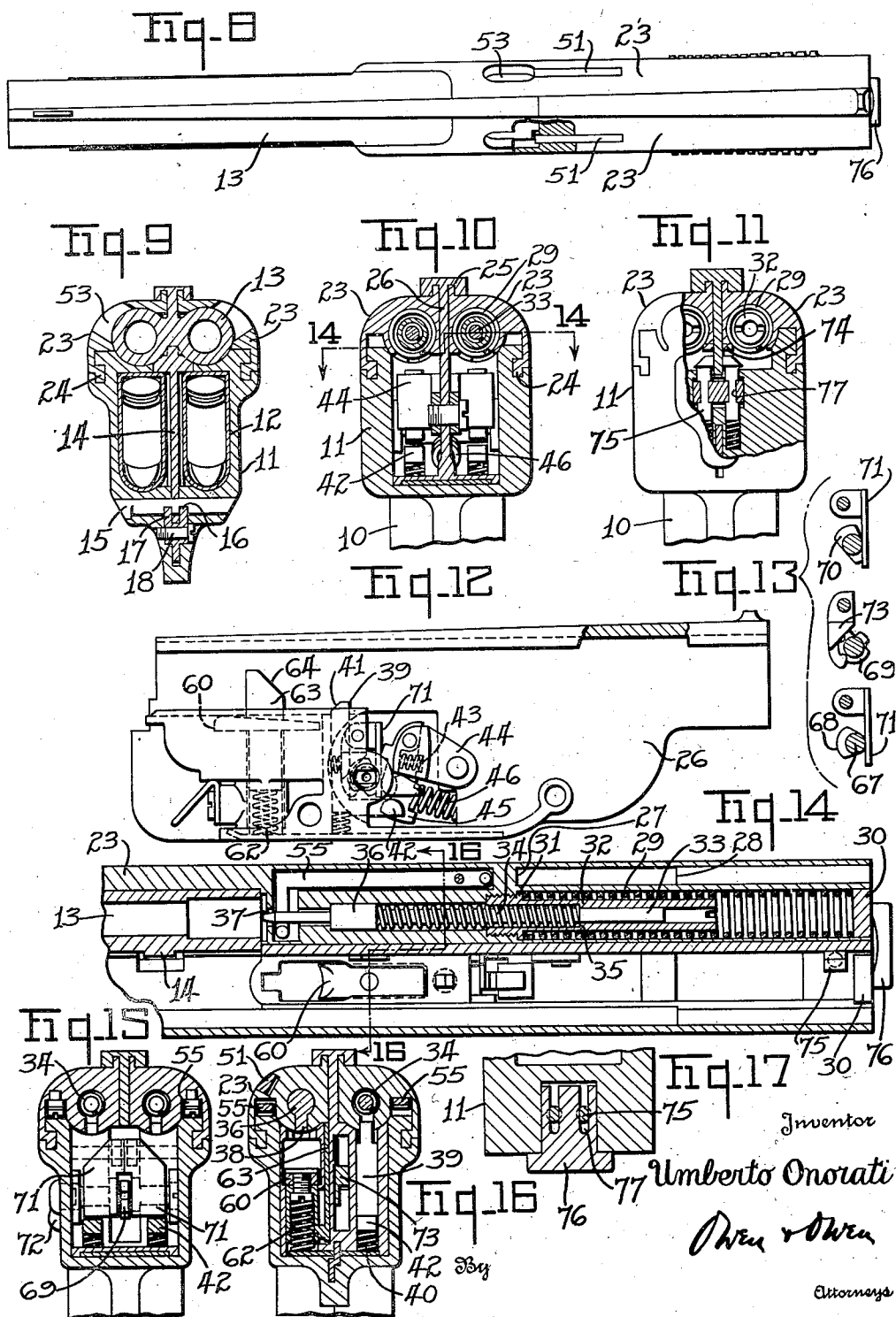
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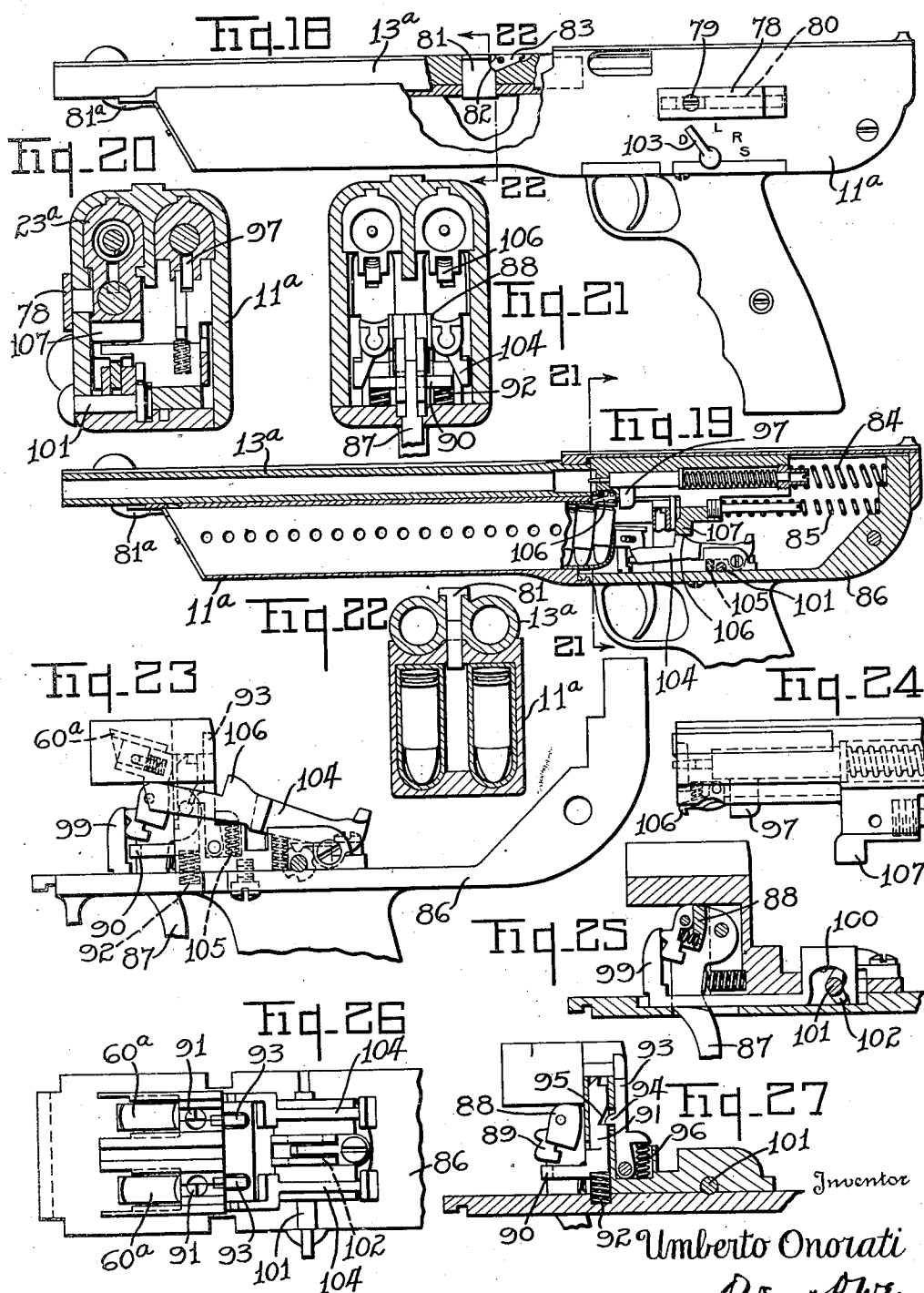
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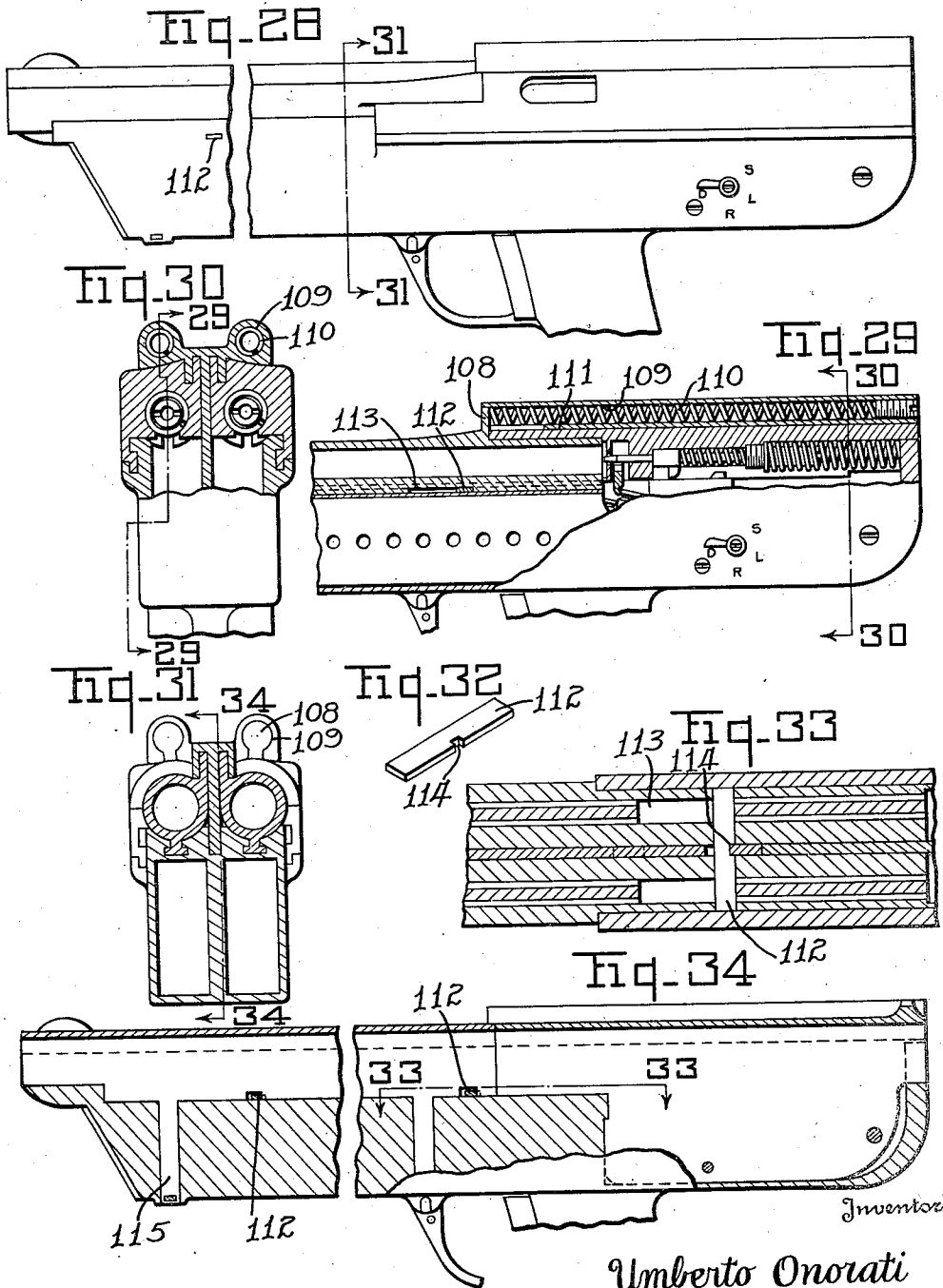
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UNITED STATES PATENT OFFICE

2,041,015

FIREARM

Umberto Onorati, Toledo, Ohio

Application May 10, 1934, Serial No. 724,900

8 Claims. (Cl. 42—69)

This invention relates to fire arms, but more particularly to fire arms of the repeater type, which are adapted successively to fire a number of cartridges without the necessity of reloading.

An object of this invention is to produce a new and improved fire arm having more than one barrel and which is operable to fire a number of barrels simultaneously, or to fire one barrel or another independently, by the manipulation of a single trigger so that the weapon continues to fire in the manner selected as long as desired, or until the magazines are depleted.

Other objects of the invention reside in details of construction, arrangement and operation of a fire arm with the view of enhancing its efficiency and practicability as will be more specifically hereinafter described.

Further objects and advantages of the invention will appear as the description proceeds, and, for purposes of illustration, but not of limitation, embodiments of the invention are shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a double barreled pistol in which the breeches are mounted for operation on the outside of the frame;

Figure 2 is an inside elevation of one of the breeches for the pistol shown in Figure 1;

Figure 3 is a vertical sectional elevation of the pistol shown in Figure 1 taken through one of the barrels;

Figure 4 is a transverse section on the line 4—4 of Figure 3;

Figure 5 is a vertical section of the pistol shown in Figure 1 taken between the barrels;

Figure 6 is an enlarged sectional view taken on the line 6—6 of Figure 4;

Figure 7 is an enlarged sectional view showing a part of the firing control mechanism;

Figure 8 is a top plan view of the pistol shown in Figure 1;

Figure 9 is a transverse sectional view on the line 9—9 of Figure 1;

Figure 10 is a transverse section on the line 10—10 of Figure 3 showing a portion of the mechanism for releasing the firing pin;

Figure 11 is a view partly in section of the rear end of the pistol taken substantially on the line 11—11 of Figure 3;

Figure 12 is a side elevation of the mounting plate on which the main actuating mechanism is carried;

Figure 13 is a composite view showing diagrammatically the operation of the control to enable firing of the barrels simultaneously or one barrel independently of the other;

Figure 14 is a longitudinal section taken substantially on the line 14—14 of Figure 10 with the breech on one side removed;

Figure 15 is a transverse section on the line 15—15 of Figure 3;

Figure 16 is a transverse section on the line 16—16 of Figure 14 showing particularly the arrangement of the firing release pin and the shell supporting table;

Figure 17 is an enlarged sectional view on the line 17—17 of Figure 5 showing the detail of the breech releasing latch;

Figure 18 is a side elevation partly in section of an alternate form of pistol in which the breeches operate inside of the main frame;

Figure 19 is a vertical sectional view of the pistol shown in Figure 18 taken between the barrels;

Figure 20 is an enlarged transverse sectional view taken through the pistol shown on Figure 18 to show the arrangement of the breeches and the latch for controlling the firing pin catch;

Figure 21 is an enlarged transverse section on the line 21—21 of Figure 19;

Figure 22 is an enlarged transverse section on the line 22—22 of Figure 18 showing the device for holding the barrels in position;

Figure 23 is a side elevation of the mounting plate which carries the actuating mechanism for moving the shells into position and releasing the firing pin;

Figure 24 is a side elevation of the front end portion of one of the breeches;

Figure 25 is an enlarged vertical sectional view of a portion of the mounting plate showing a detail of the selector control;

Figure 26 is a top plan view of the mechanism shown in Figure 23;

Figure 27 is an enlarged vertical sectional elevation of a portion of the mounting plate showing the firing pin catch held in inoperative position by its controlling latch;

Figure 28 is a side elevation of an alternate form of pistol in which the barrels are mounted for longitudinal movement to enable them to recoil upon firing;

Figure 29 is an enlarged view partly in vertical section between the two barrels taken substantially on the line 29—29 of Figure 30;

Figure 30 is an enlarged sectional view on the line 30—30 of Figure 29;

Figure 31 is an enlarged transverse section on the line 31—31 of Figure 28;

Figure 32 is a perspective view of combined retaining and buffer plate for the barrels;

Figure 33 is an enlarged horizontal section on the line 33—33 of Figure 34; and

Figure 34 is a vertical section on the line 34—34 of Figure 31.

The illustrated embodiment of the invention shown in Figs. 1 to 17 comprises a pistol having a handle 10 integral with the main frame, a portion of which extends rearwardly of the handle, 60

and the other portion of which extends forwardly to provide two pockets to receive the cartridge magazines 12 arranged one on each side of the pistol and disposed directly beneath their respective barrels. As shown in Figure 9 the barrels 13 are mounted on the forward extension of the main frame, and in this instance, are of one piece. At the rear end of the barrel part 13 is a depending arm 14, which is secured in place by a transverse pin 15 extending through the frame. The pin 15 is provided with a pair of notches 16 intermediate its ends to receive a substantially U-shaped latch 17, which is pivoted on a screw 18 mounted in the trigger guard 19. The trigger guard 15 is recessed to afford access to the catch 17 to enable the same to be manually rocked to release the pin 15. The front end of the barrel part 13 is secured to the main frame by a spring pressed catch 20, which is adapted to extend through an opening provided in a lug 21 depending from the barrel. The pin 20 can be withdrawn to release the barrel by a thumb-piece 22 conveniently arranged for access.

Mounted on opposite sides of the frame are breeches 23, each of which has tongue and groove connections 24 with a main frame at the lower end, and a tongue and groove connection 25 with a mounting plate 26 at the upper end. It is apparent that the breeches are guided for longitudinal reciprocating movement toward and away from the barrels, and one breech is free to move independently of the other breech. To limit the recoil or retrograde movement of the breeches, each breech is provided with a recessed portion forming an abutment 27 (Figure 6), which is engageable with an abutment 28 of the main frame. For cushioning the recoil movement of each breech and to return the same to normal position, a coil spring 29 is interposed between an upwardly extending projection 30 on the main frame and a collar 31 formed on a sleeve 32, which extends for a distance inside of the spring 29. The sleeve 32 is screwed into the respective breech and provides a guide for the firing pin 33, on which is mounted a coil spring 34, which bears at one end against a shoulder 35 formed in the sleeve 32 and at the other end against a collar 36 fixed to the firing pin. It is apparent that the striking end of the firing pin is adapted to extend forwardly beyond the end of the breech through an opening 37 in the forward end portion of the breech to hit against the cartridge introduced into the respective barrel.

Each of the firing pins 33 is releasably held in cocked or retracted position compressing the coil spring 34 by a lug 38 depending from the collar 36, which is engaged by a vertically slidable catch 39. The catch 39 is urged upwardly by a coil spring 40, the forward exposed edge of the catch having a beveled surface 41 over which the lug 38 rides when the firing pin is moved rearwardly. Extending rearwardly or laterally of the lower end of the slide 39 is an arm 42, which is actuated by one of the spring-pressed fingers 43, two of which are pivotally mounted on a pivoted rock arm 44. It is to be understood that a catch 39 is provided for each firing pin, and a finger 43 is individual to each of the catches; but both of the fingers 43 are mounted on the rock arm 44. Depending from and integral with an intermediate portion of the rock arm 44 is a finger 45, which is urged outwardly by a coil spring 46, thereby normally holding both of the fingers 43 in position to engage the laterally projecting arms 42

on the catches 39 upon counter clockwise movement of the rocker arm 44 (Figure 3).

Actuation of the finger 45 is effected by a slide 47 having a foot 48, which engages the lower end of the finger 45. The opposite end of the slide 47 is pivoted to a trigger 49 slidably mounted in the trigger guard 19 and urged outwardly by a coil spring 50. In operation it is apparent that upon squeezing the trigger 49, the slide 47 is pushed inwardly against the finger 45, thereby rocking the arm 44 to cause the finger or fingers 43 to depress one or both of the arms 42, and thus slide the catches downwardly to release one or both of the firing pins. It will be apparent that upon releasing the firing pins the cartridges are fired and the recoil of the explosion moves the breeches 23 rearwardly in the usual manner against the force of the coil springs 29. Such retrograde or retracting movement operates to supply new cartridges to the barrels and at the same time eject the exploded shells. Ejection of the shells is accomplished by spring fingers 51 having hooks or flanges 52 (Figure 4), which engage the rim of the shell and eject the same through the slot 53 in the usual manner.

At the same time that each breech moves rearwardly, a hook 54 engages a rim of a fresh cartridge (Figure 3) and moves the same rearwardly, each catch 54 is carried by a substantially L-shaped arm 55 (Fig. 14), one end of which is anchored by a screw 56 to the respective breech. As shown in Fig. 6, each arm 55 has a cam projection 57, which rides in a groove on the main frame having a cam surface 59 at the rear end. The projection rides over the cam surface 59, whereupon the catch 54 is raised upwardly to release the cartridge. The cartridge is moved rearwardly in this manner and disposed upon a table 60, which has an upwardly inclined upper surface. The table 60 is mounted on a post 61, 40 which is urged upwardly by a coil spring 62. Fixed for movement with the table 60 is an upright actuating plate 63 having a beveled surface 64 at the upper end. The arrangement is such that upon rearward movement of the breech the vertically disposed plate 63 is forced upwardly so that the beveled end 64 extends into a complementary shaped recess 65 in the respective breech, thereby allowing the table 60 to move upwardly and carry with it the cartridge disposed thereon so that upon forward movement of the breech the shell is abruptly forced into the adjacent barrel, and, subsequently, fired by release of the respective firing pin. It is to be understood that although description has been given only of one breech, both breeches are constructed and operate in the same manner. It will further be understood that when the breech 23 moves forwardly, the beveled surface 64 of the plate 63 is engaged by the cam groove 65, thereby forcing the table 60 downwardly in position to receive the next succeeding cartridge, which is urged from the respective magazines by the usual spring-pressed follower 66.

A control mechanism is provided to enable manually the firearm to fire one barrel or the other independently of each other, or to enable both barrels to be fired simultaneously, or to prevent firing of both barrels. For this purpose a shaft 67 is mounted for turning movements in the frame 11 and is provided with cams 68 and 70 formed in the intermediate portion thereof (Fig. 7.) Arranged for engagement by the cam surfaces 68 and 70 is a pair of plates 71, which are mounted for swinging movement on a pin 72.

The plates 71 are adapted to be swung independently of each other by the cams 68 and 70, respectively, and the plates are arranged respectively directly in advance of the spring pressed fingers 43. The arrangement of the cams 68 and 70 is such that upon turning the shaft 67 to one position, the cam 68 bears against the adjacent plate 71 and swings it outwardly, thereby to move the respective finger 43 inwardly against the force of its spring so that upon rocking movement of the rocker arm 44 the finger 43 will move downwardly free from engagement of the adjacent laterally projecting arm 42. In this manner, the trigger may be squeezed or pulled without firing one or the other of the barrels, according to the position of the cams 68 and 70. This is visibly indicated on the outside of the pistol by an indicator arm 72 and letters R and L disposed adjacent thereto. When the arm 72 is moved to R the right hand barrel will be in condition for firing, but the left hand barrel will be rendered inoperative or ineffective because of the depression of the finger 43 for such barrel. On the other hand, when the arm 72 is moved to the letter L, only the left hand barrel will be in condition for firing, and in this position the finger 43 controlling the right hand barrel, will be depressed, as above described, to render it inoperative.

When it is desired to fire both barrels simultaneously, the indicator arm 72 is moved to the letter D, in which position both of the fingers 43 are released to enable simultaneous release of both of the catches 39, thereby allowing both barrels to be fired at the same time.

For safety purposes, such as in carrying the pistol it is desirable to have the mechanism locked or rendered ineffective so that accidental pulling or squeezing of the trigger will not fire the weapon. For this purpose the cams 68 and 70 are so constructed and arranged that upon turning the shaft 67 to such position that the indicator arm 72 is at the letter S (Fig. 1), both plates 71 will be swung outwardly to render ineffective both of the actuating fingers 43. Disposed between the cams 68 and 70 on the shaft 67 is a notched flange 69, and a spring pressed dog 73 pivoted on the shaft or pin 72, is adapted to snap into latching engagement with one or another notch on the flange 69 when the shaft 67 is turned to one position or another, as indicated by the letters on the outside of the frame. In this manner the shaft 69 is releasably held in the individual position desired.

In order to assemble or disassemble the mechanism to enable the barrel assembly 13 to be mounted or removed, it is necessary that the breeches be retained in retracted position. For this purpose, a notch 74 is formed on the under-surface of each of the breeches, and engageable in the notches 74 are two spring pressed catches 75, but before the breeches can be pulled rearwardly to enable the catches to snap into engagement with the notches 74, an arm 76 which is pivoted to the main frame, must be swung outwardly. The arm 76 is provided with a pair of notches 77 which slide over the shanks of the catches 75, the shanks being provided with angularly disposed shoulders so that upon forcing the arm 76 inwardly, the catches are cammed or forced downwardly.

In the alternate form shown in Figures 18 to 27, the mechanism operates substantially the same as the form above described, but in this form the breeches 23^a, are disposed on the inside

of the main frame 11^a. To enable the breeches to be retracted manually, a plate 78 is mounted on the outside of the frame 11^a and is connected by a screw 79 to the adjacent breech, the screw riding in an elongate slot 80 in the main frame.

In this form the barrel 13^a is retained in place at its rear end by a plate 81, which is inserted from the top surface of the barrel through to the main frame. The plate 81 is provided with a notched portion 82 and a pivoted catch 83 on the barrel engages this surface and retains the plate in position. The front end of the barrel is secured by a hook 81^a on the barrel which hooks over the front end of the main frame. To cushion the recoil movement of each breech 23^a, two coil springs 84 and 85 are employed, one arranged above the other, the spring 84 being similar to the spring 29 above described and the spring 85 which is somewhat weaker is disposed directly beneath and in parallel relation to the spring 84.

Although the trigger-actuating mechanism operates substantially the same as above described, the construction is somewhat different. This mechanism is mounted as a unit on a frame part 86 and comprises a pivotally mounted trigger 87 having at its upper end a transverse arm 88 on which are mounted spring-pressed fingers 89 similar to the above described fingers 43, one being provided for each firing pin. Each finger 89 is adapted to engage a lateral L-shaped arm 90 formed on a vertically slidable firing pin catch 91 which is urged upwardly by a coiled spring 92. The catch 91 is held in its released or downward position by a pivoted latch arm 93 which is provided with a lug 94 engageable with a notch 95 formed in the catch 91, a coil spring 96 urging the latch 93 to latching position.

Upon rearward movement of each breech a lug 97 which depends from each firing pin, and is normally caught by the catch 91, strikes against the arm 93 thereby releasing the catch and enabling the firing pin to be released. It is further apparent that upon squeezing the trigger 87, the spring-pressed fingers 89 move the catches 91 downwardly to release the firing pins.

To render one or the other or both barrels inoperative, slides 98 having a vertical foot 99 at one end and a cam surface 100 at the opposite end, one slide being provided for each actuating finger. By moving both slides rearwardly to swing the fingers 89 to compress their springs, both barrels are rendered inoperative, since squeezing of the trigger will not release the firing pins. In a similar manner, one or the other barrel may be rendered inoperative by actuating the slide for the particular barrel. Actuation of the slides 98 is accomplished by a shaft 101 having arms 102 so arranged with respect to the cam surfaces 100 as to effect movement of one or the other, or both slides, as desired. The shaft 101 is turned by an indicator arm 103 similar to the arm 72, above described.

The cartridge feed operates in substantially the same manner as above described, a table 60^a being resiliently mounted relative to an arm 104 which is urged upwardly to operative position by a coil spring 105. A cam lug 106 on the arm 105 is engaged by a lug 107 depending from the respective breech so that upon forward movement of the breech the arm is depressed to cartridge-receiving position. Cartridges are drawn from the magazines by spring-tension catches 106 which engage a cartridge and pull it onto the table 60^a when the breech moves rearwardly.

Further operation of the mechanism shown in Figs. 18 to 27 will be understood to be similar to that above described and detail description is not considered necessary.

5 In the form of the invention shown in Figs. 28 to 34, the mechanism for actuating the firing pins and for loading may be as above described. The important feature shown in these figures is to enable the barrels to move rearwardly or recoil
10 with the breeches so as to fire higher powered cartridges. In this form the mounting plate and actuating mechanism as shown and described in connection with Figs. 1 to 17 may be used without modification or change. Each of the two
15 barrels has a vertical lip 108 adjacent the rear end which is guided for horizontal movement in a groove 109 formed in the main frame and disposed in the groove is a coil spring 110 for cushioning the rearward movement of the barrel. The
20 lips 108 can move rearwardly until they contact with the front end of the mounting plate 111.

It is found desirable to hold the barrels in place by keys 112 which extend transversely through apertures in the main frame, the mounting plate and horizontally elongate grooves 113 formed in
25 each barrel. A key is disposed at the front and rear end portions of the barrels and each has a notch 114 to fit over a vertical portion of the mounting plate for retaining same against end-
30 wise movements. In addition to holding the barrels in position the keys 112 also serve as stops to limit the rearward movement of the barrels. As shown the mounting plate has legs 115 which
35 extend downwardly and are inserted into apertures in the main frame, transverse pins 116 serving to hold the plate in position. The pins 116 may be retained in position similar to the manner in which the pin 15 is held, as above described.

Although I have shown and described embodiments of my invention in connection with double barreled pistols, it is to be understood that the invention may be embodied in rifles or other
40 weapons and, if desired, a single barreled weapon can utilize mechanism described. Numerous changes may be made in details of construction, arrangements and operation without departing
45 from the spirit of the invention as defined by the following claims.

What I claim as new, and desire to secure by United States Letters Patent, is:

1. A firearm having a plurality of barrels and firing mechanism individual to each barrel, each firing mechanism comprising a sear normally urged to operative position, a detent for actuating
55 said sear, a trigger-responsive rotatable mounting for said detent, and manual means including rotatable cam members for swinging one or another or both detents out of operative relation to their respective sears.

2. A firearm having a plurality of barrels and firing mechanism individual to each barrel, each firing mechanism comprising a sear normally urged to operative position, a detent for actuating
60 said sear, a trigger-responsive rotatable mounting for said detent, and manual means including rotatable cam members for swinging one or another or both detents out of operative relation to their respective sears, and means to insure retention of said cam members in position to hold both
65 detents in inoperative position.

3. A firearm having a plurality of barrels and firing mechanism individual to each barrel, each firing mechanism comprising a sear normally urged to operative position, a detent for actuat-

ing said sear, a trigger-responsive rotatable mounting for said detent, a rotatable member operable from the outside, cams on said member individual to each detent, and means interposed between said cams and detents respectively for rendering one, another or all detents inoperative depending upon the adjustment of said rotatable member.

4. A firearm comprising a spring tensioned slidable sear, a lateral extension on said sear, a trigger responsive rockable member, a sear engageable dent carried by and movable toward or away from said member, spring means for urging said detent outwardly to operative position for engagement with said extension upon
10 rocking of said member, and manual means for pressing said detent inwardly toward said member thereby to permit rocking of said member without said detent engaging said extension.

5. A firearm comprising an upright spring tensioned sear, a lateral extension on said sear, a rockable member, a trigger responsive slide for rocking said member, a detent pivoted to said member, a spring urging said detent away from
15 said member, said detent being engageable with the upper side of said extension for depressing said sear, and manual means to press said detent toward said member out of operative relation to said extension.

6. A firearm comprising a main frame, a mounting plate carried by said main frame and disposed centrally thereof, a breech on opposite sides of said mounting plate, means on said plate and main frame respectively for guiding said breeches, a barrel individual to each breech, and
30 firing mechanism individual to each barrel and carried by said mounting plate, each firing mechanism comprising a sear normally urged to operative position, a detent for actuating said sear, a trigger-responsive rotatable mounting for
35 said detent, and manual means including rotatable cam members for swinging one or another or both detents out of operative relation to their respective sears.

7. A firearm comprising a main frame having spaced sides, a detachable mounting plate between the sides of said main frame, a breech on each side of said mounting plate, a tongue and groove connection between each breech and the main frame and mounting plate respectively, and firing mechanism for each breech on said
45 mounting plate, said firing mechanism comprising a sear normally urged to operative position, a detent for actuating said sear, a trigger-responsive rotatable mounting for said detent, and manual means including rotatable cam members for swinging one or another or both detents out of operative relation to their respective sears.

8. A firearm comprising a plurality of barrels mounted for independent bodily recoil movement, spring means for cushioning the recoil movement of said barrels, and firing mechanism individual to each barrel, each firing mechanism comprising a spring tensioned sear, a lateral extension on said sear, a trigger-responsive rockable member, a detent carried by and movable toward and away from said member, spring means for urging said detent outwardly to operative position for engagement with said sear extension upon rocking of said member, and manual means including rotatable cam members for depressing one or another or both detents out of operative relation to their respective sears.

UMBERTO ONORATI.