

April 26, 1938.

A. OBREGON

2,115,041

AUTOMATIC LOADING FIREARM

Filed Feb. 4, 1935

3 Sheets-Sheet 1

Fig. 1.

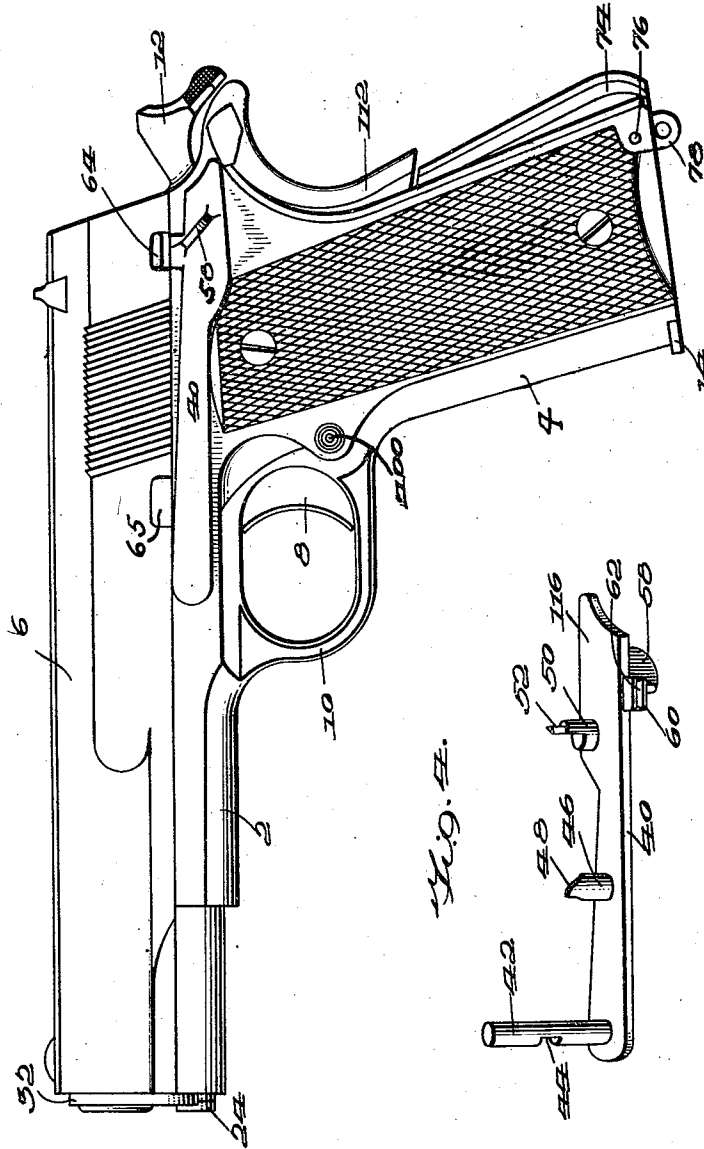


Fig. 4.

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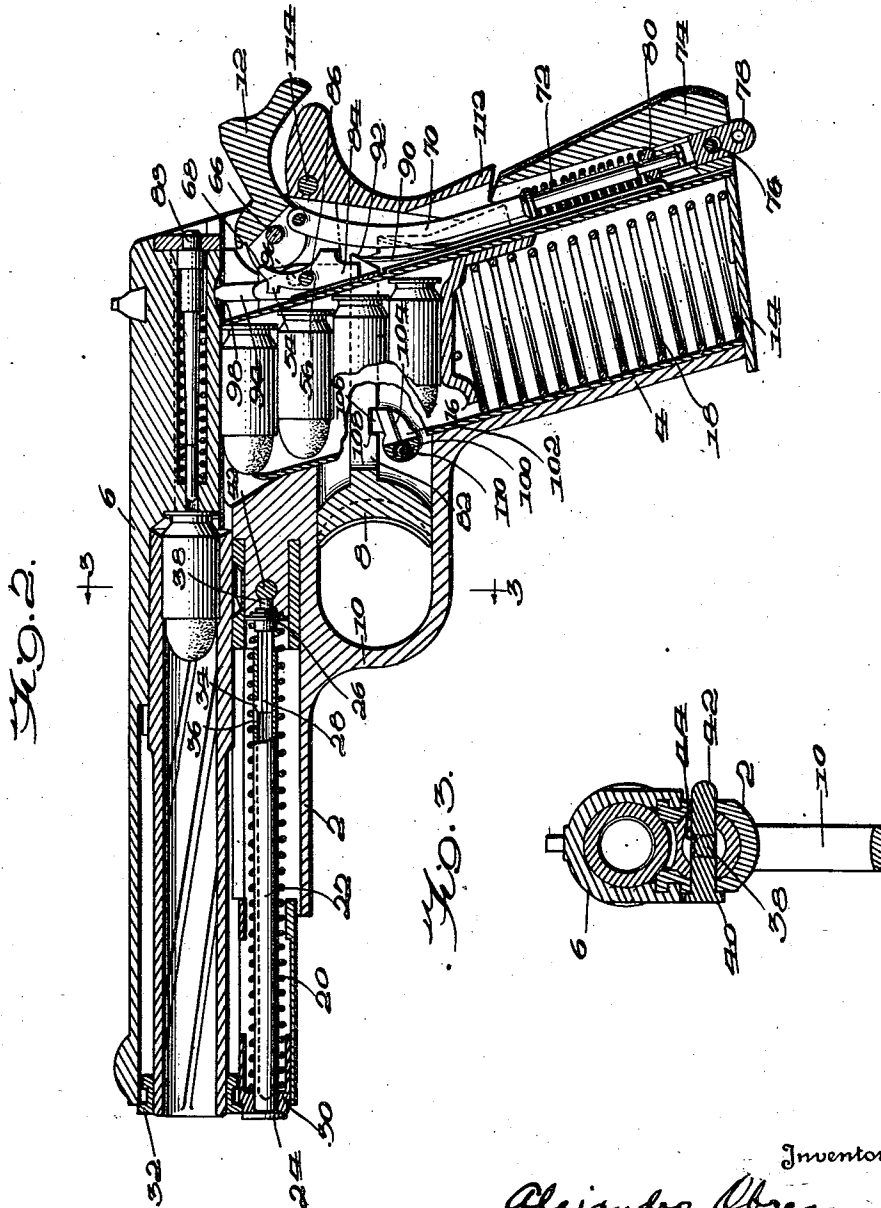
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3 Sheets-Sheet 2



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Fig. 5.

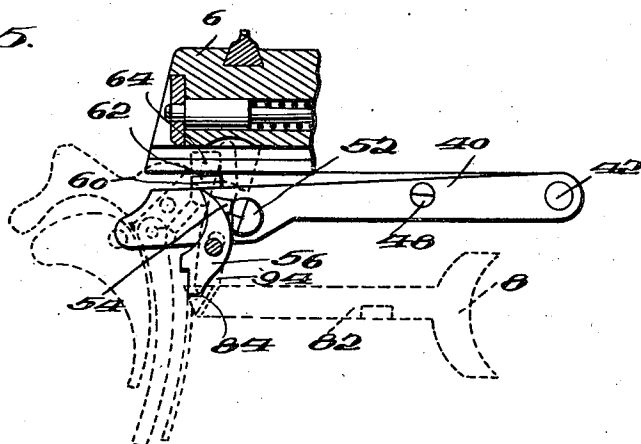


Fig. 6.

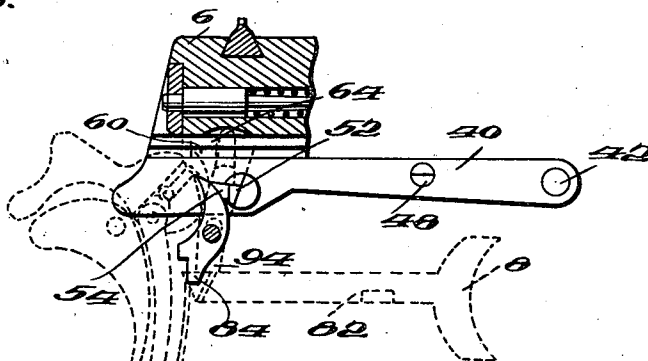
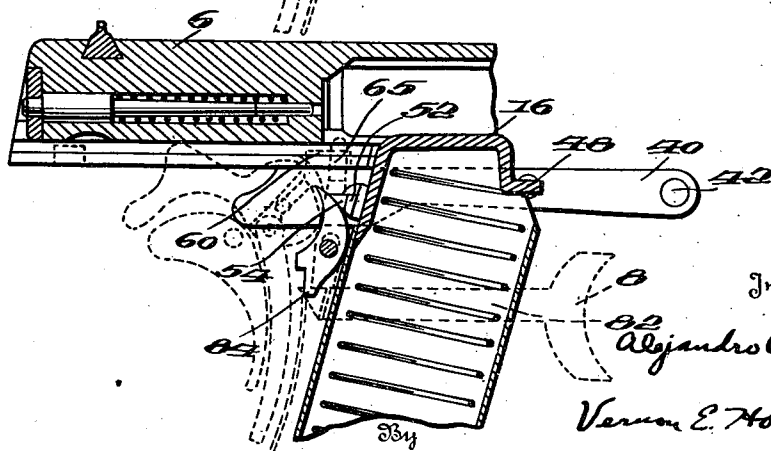


Fig. 7.



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# UNITED STATES PATENT OFFICE

2,115,041

## AUTOMATIC LOADING FIREARM

Alejandro Obregon, Mexico, D. F., Mexico

Application February 4, 1935, Serial No. 4,966  
In Mexico February 8, 1934

8 Claims. (Cl. 42-4)

My invention relates to automatic loading firearms of the type in which all operations, except the actuation of the trigger for firing, are automatically effected by the energy of the recoil of the breech-closing part. Application was filed in Mexico on February 8, 1934, for which Patent No. 35,053 was issued July 5, 1934.

In the specification and drawings many parts of an automatic firearm are shown and described of the structure shown generally in the patent to Browning, No. 984,519, granted February 14, 1911, so that a more complete understanding may be had of the particular novel features of my present invention.

An object of my invention is to provide a combined safety and retention mechanism made in one piece and adapted to act as a safety device, a retention device to hold the breech-slide when the last cartridge is fired, a device for holding pivot pins in assembled position, and to hold the main frame and breech-slide in their assembled positions for firing.

A further object of my invention is to provide a reaction-spring which will remain partly compressed when removed from the main frame to disassemble the breech-slide from the frame.

Another object of my invention is to provide a safety lock which will prevent the firing of the pistol and the movement of the breech-slide when the hammer is either in a cocked, or half-cocked position.

Other objects will appear obvious in the specification and the appended drawings:

In the drawings,

Fig. 1 is a side elevation of the left side of my automatic firearm, showing the hammer in its cocked position, the gun being ready to be fired.

Fig. 2 is a longitudinal vertical section of the gun shown in Fig. 1,

Fig. 3 is a cross-section on the line 3-3 of Fig. 2 looking toward the muzzle,

Fig. 4 is a perspective view of the combined safety-lock and retention device.

Fig. 5 is a fragmentary detail partly in section of the hammer and trigger mechanism showing the safety in position for firing;

Fig. 6 is a fragmentary detail partly in section of the hammer and trigger mechanism showing the safety in locked position; and

Fig. 7 is a vertical cross section of the hammer and trigger mechanism showing the safety held in locked position by the cartridge magazine.

The main frame 2 is conventional in form and is provided with a depending pistol grip 4. The upper edge of the frame 2 is provided with inter-

gral lengthwise grooves and ribs which interlock with corresponding ribs and grooves in the breech-slide 6, by which the breech-slide 6 is vertically secured to the frame 2 and is guided in its forward and backward movements thereon (see Fig. 3).

On the forward side of the grip 4, I provide a trigger 8 which is protected by the trigger guard 10. The rear portion of the grip 4 provides space for the operating mechanism for the hammer 12, to be more fully described hereinafter. The center part of the grip 4 is hollow and is adapted to receive the cartridge-magazine 14 which holds cartridges, spring-pressed by the follower 16 and the spring 18, in position to enter the breech.

The breech-slide 6 is mounted on the frame 2 as described above and is adapted to move backward by the recoil as a cartridge is fired. The reaction spring 20 returns the breech-slide 6 to the position shown in Figs. 1 and 2 after the shell which has been fired has been ejected, the hammer 12 has been cocked, and a new cartridge has entered the breech.

The reaction spring 20, and its associated parts, differs from reaction-springs commonly used in similar automatic firearms in that the reaction spring 20 is mounted over or encircling the guide 22, and is partially compressed thereon by the plug 24 at the forward end thereof and the collar 26 at the rear end thereof, which collar is secured to one end of the hooked leaf spring 28 which slides within the guide 22. The shoulder 30 bears against the bushing 32 which is mounted on the forward end of the breech-slide 6, and thus the tension of the reaction-spring 20 tends to hold the breech-slide in its forward position.

The hooked leaf spring 28 has on its forward end, the end thereof remote from the collar 26, a lug 34 which slides in the groove 36 in the guide 22. By the use of this assembly the reaction spring may be removed from the frame 2 by applying pressure by a finger on the plug 24 and then turning the bushing so that the reaction-spring and its guide become disengaged from the bushing 32. On the side of the collar 26 remote from the reaction-spring, I provide a projection 38.

When the breech-slide 6 has been placed in position on the frame 2, the safety-lever 40 is placed along the left side of the frame 2, as shown in Fig. 1. The safety lever 40 is provided with a pivot pin 42 near the forward end thereof. The pivot pin 42 is provided with a notch 44 in one side thereof, which notch 44 is adapted to

receive the projection 38 which is held within the notch 44 by the reaction-spring 20. The reaction-spring assembly (described above) is, of course, placed into position after the safety lever has been positioned.

On the safety lever 40 I provide a lug 46 which has a rabbet portion 48 on the end thereof away from the safety lever 40. This lug 46 is positioned so that it will pass through the grip 4, the rabbet 48 allowing the cartridges in the magazine 14 to pass unobstructed. After the last cartridge in the magazine 14 passes the rabbet 48, however, the rabbet obstructs the passage of the follower 16, the safety lever is forced upwardly, and the lug 60 enters the notch 64 in the breech-slide, when the breech-slide is in its backward or recoil position.

The stud 50, with the reduced portion 52 thereon, is secured to the safety lever 40 in position to engage the projection 54 on the sear 56 and prohibits the movement thereof when the safety-lever 40 is in its upper position.

The lever 40 is provided on the outside thereof with a projection 58, which projection provides a means whereby the safety lever 40 may be operated manually if desired. In close proximity to the projection 58, and along the upper edge of the safety lever 40, I provide a lug 60 which lug carries a smaller projection 62 which is adapted to enter into the notch 64 in the breech-slide 6 when the safety-lever 40 is placed in its upper position. This projection 62 when engaged in the notch 64 will lock the breech-slide 6 so that it cannot be moved in either direction. The projection 62 may be engaged in a notch in the frame 2 when the gun is in firing condition but in this case it is only resiliently held and may be automatically changed to a non-firing condition as described above.

The hammer 12 is pivoted to the frame 2 by the pivot pin 66. A conventional hub is provided for the hammer 12 and has a tooth 68 which the sear 56 engages when the hammer is in a cocked position, as shown in Fig. 2. A hammer strut 70 is pivotally secured to the hub of the hammer and is spring-pressed by the spring 72 which is secured within the handle butt piece 74 by the pin 76. The pin 76 is smaller in diameter through the center part thereof, so that the projecting end 78 of the abutment 80 for the spring 72 must be pushed inwardly slightly before the pin 76 may be removed. The abutment 80 is slidably secured to the hammer strut 70 by a bayonet joint connection so that the entire hammer strut 70 may be removed without displacing the spring 72.

When the hammer 12 is in a cocked position and the gun is in readiness to be fired, the trigger 8 is pulled, and the trigger connecting piece 82 (which is made integral with the trigger) is forced toward the handle. The end 84 of the sear 56 is held at the end of the trigger connecting piece, and the sear 56 is pivoted on its pivot pin 86 releasing the hammer. The hammer on being released strikes a conventional firing-pin 88 which transmits the blow to the primer of the cartridge. The recoil of the cartridge which has just been fired forces the breech-slide back, throwing out the cartridge shell, cocking the hammer, and allowing a new cartridge to enter the breech.

The trigger 8 and its connecting piece 82 are normally held in a forward and upward position by the spring 90, the upper end of which bears

against the end 92 of the trigger connecting piece.

I provide a safety device 94 which is slidably mounted over the pivot pin 86 by means of an elongated or elliptical hole 96. The safety 94 extends upwardly and when the breech-slide is in firing position enters the grooves 98 in the under side of the breech-slide 6. If the breech-slide 6 is not in a proper position for firing, the safety 94 will be forced downwardly and will force the trigger connecting piece 82 out of engagement with the sear 56, the lower end 84 thereof being disengaged from the connecting piece 82.

I provide a safety device 100 which is controlled by a button extending from the left face of the handle. This safety 100 is provided with an inclined surface 102 which is engaged by the cartridge magazine 14 and forced to the right (viewed from the rear of the grip). The inclined surface 102 forms a pawl 104 which engages a notch (not shown) on the cartridge magazine 14 to hold the latter in place. An up-standing lug 106 is provided on the upper edge of the inclined surface 102 and is adapted to fit within the notch 108 on the under side of the trigger connecting piece 82 when the cartridge magazine is removed from the handle.

When the cartridge magazine is to be removed, it is necessary to press the safety 100 inward (to the right as viewed from the grip) to release the magazine. The safety 100 being spring-pressed by the spring 110 is normally either holding the cartridge magazine in place or is restraining the trigger from being pulled.

The grip lever 112 is similar to those used in many guns of this type. The function of this grip lever 112, which is pivoted to the frame 2 by the pivot pin 114, is to prevent the gun from being fired unless the grip lever has been forced inwardly as the gun is held for firing, this being done by normally gripping the gun for firing.

The safety lever 40 is provided, at its end near the projection 58, with an enlarged plane surface 116, on the side of the safety lever away from the projection 58. This plane surface 116 is adapted to cover the pivot pins 66, 86, and 114 to hold them in their proper positions.

In disassembling the gun, for cleaning or any other purpose, the safety-lever 40 is the first part to be removed, that is, after the pivot pin 42 thereof has been released by the removal of the projection 38 from the notch 44. After this has been done, the safety lever 40 may be withdrawn and the several parts of the gun may be disassembled.

The safety lever 40 is novel in its construction in view of the fact that it is made all in one piece and has four separate functions: it is a safety lock; it is a retention device for the breech slide after the last cartridge has left the cartridge magazine; it prevents the dismantling of the pivot pins 66, 86 and 114; and it serves as a means for holding the gun in assembled condition, that is, it secures the breech slide 6 to the frame 2. For details shown or described generally above which form no part of the present invention, reference is had to Browning patent, No. 984,519, granted February 14, 1911.

I claim:

1. In a recoil-loading firearm, the combination of a frame, a breech-slide slidable thereon, a reaction spring secured between the frame and the breech-slide, an extensible guide, said reaction spring being mounted on said extensible guide and secured thereto at each end thereof, a lateral

safety lever securing the breech-slide and frame together, and means secured to an end of the reaction-spring guide to hold the safety lever in place.

5 2. In a recoil-loading firearm, a frame, a breech-slide slidable thereon, an extensible guide, a reaction spring mounted on said extensible guide and secured thereto at each end thereof, a lateral safety lever securing the breech-slide and frame together, and means secured to an end of the said  
10 extensible guide to hold the safety lever in place, said reaction spring being interposed between the frame and the breech-slide, and said extensible guide extending approximately throughout the  
15 entire length of said spring between the breech-slide and frame.

3. In a firearm, the combination of a frame, a breech-slide thereon, an extensible guide, a reaction spring sleeved on the guide and interposed  
20 between the frame and breech-slide and bearing thereagainst, said guide extending approximately throughout the entire length of said spring between the breech-slide and frame, a lateral safety lever securing the breech-slide and frame together,  
25 and means secured to an end of the guide to hold the safety lever in place.

4. In a firearm, the combination of a frame, a breech-slide thereon, an extensible guide having relatively movable sections interlocked together,  
30 one section being secured to the breech-slide, and the other section being connected with the frame, and a reaction spring sleeved on the extensible guide and bearing against the breech-slide and  
frame.

35 5. In a firearm, the combination of a frame, a

breech-slide thereon, an extensible guide having relatively movable sections interlocked together, one section being secured to the breech-slide, the other section bearing against the frame, a reaction spring sleeved on the extensible guide and bearing against the breech-slide and the last-mentioned guide section, a lateral safety lever securing the breech-slide and frame together, and the last-mentioned guide section having means  
5 to hold the safety lever in place. 10

6. In a firearm, the combination of a frame, a breech-slide slidably mounted thereon, recoil means between said frame and breech-slide having resilient means and detachable portions and connecting the frame and breech-slide together,  
15 and a safety lever having means for controlling the detachment of said portions.

7. In a firearm, the combination of a frame, a breech-slide slidably mounted thereon, recoil means between said frame and breech-slide having resilient means and detachable elements and connecting the frame and breech-slide together,  
20 and a safety lever having a pivot pin constructed for controlling the detachment of said elements.

8. In a firearm, the combination of a frame, a breech-slide slidably mounted thereon, a cartridge magazine, hammer means, and a safety lever having means for controlling the action of the hammer, said lever having separate means for locking the breech-slide when the cartridge magazine  
25 is empty, and having separate means for holding the breech-slide on the frame in assembled relation. 30

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