J. M. BROWNING.

FIREARM.

APPLICATION FILED AUG. 18, 1914.

1,202,024.

Patented Oct. 24, 1916.

3 SHEETS—SHEET 1.

Fig. 1

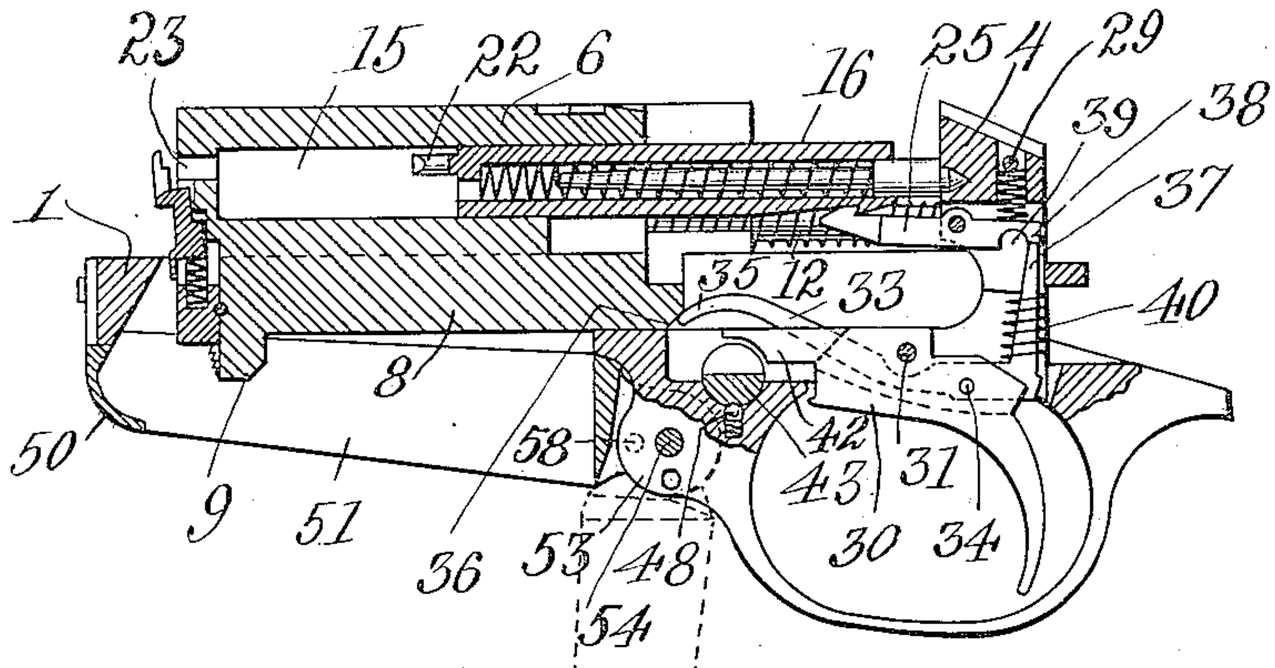


Fig. 2

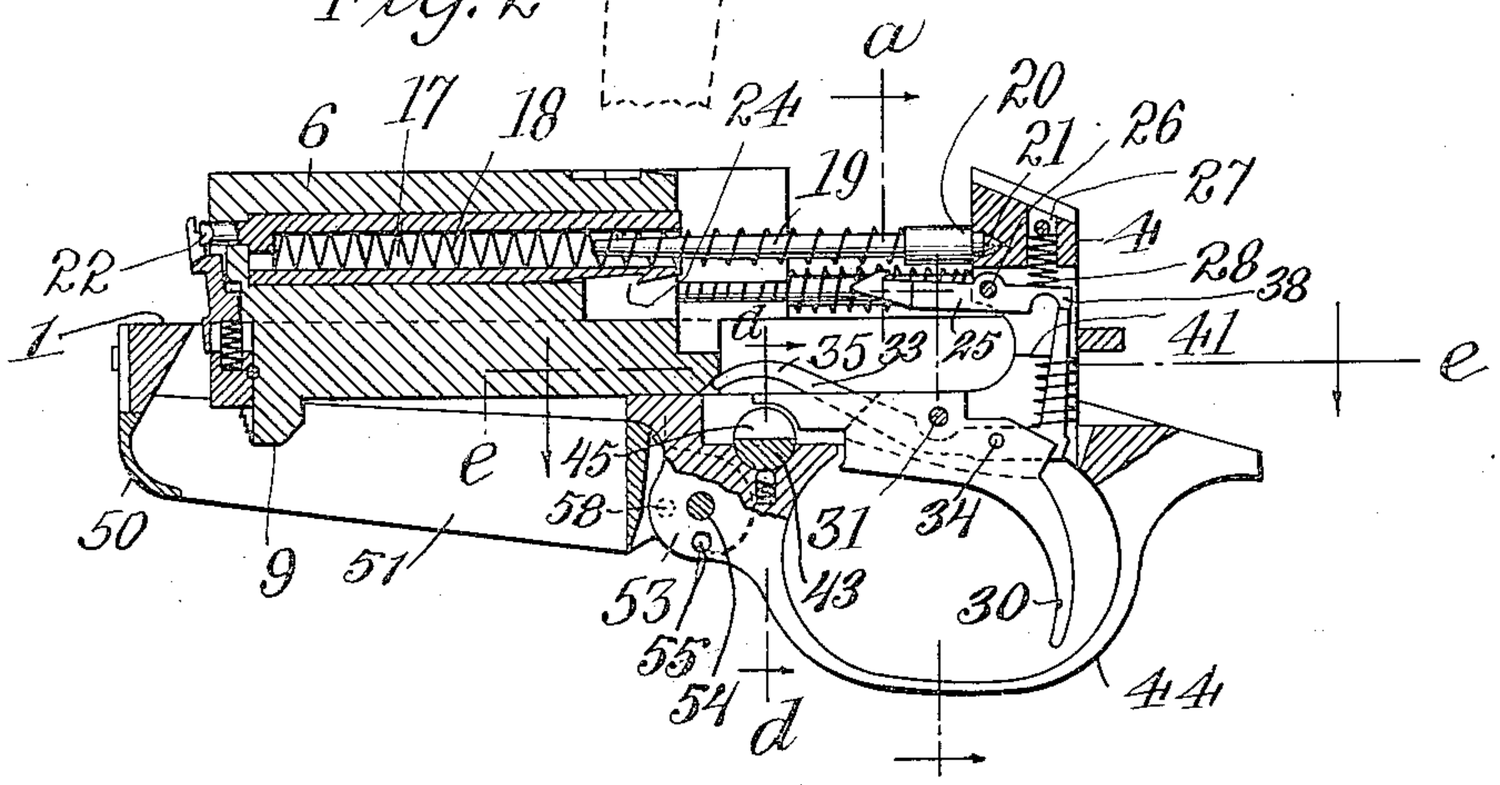
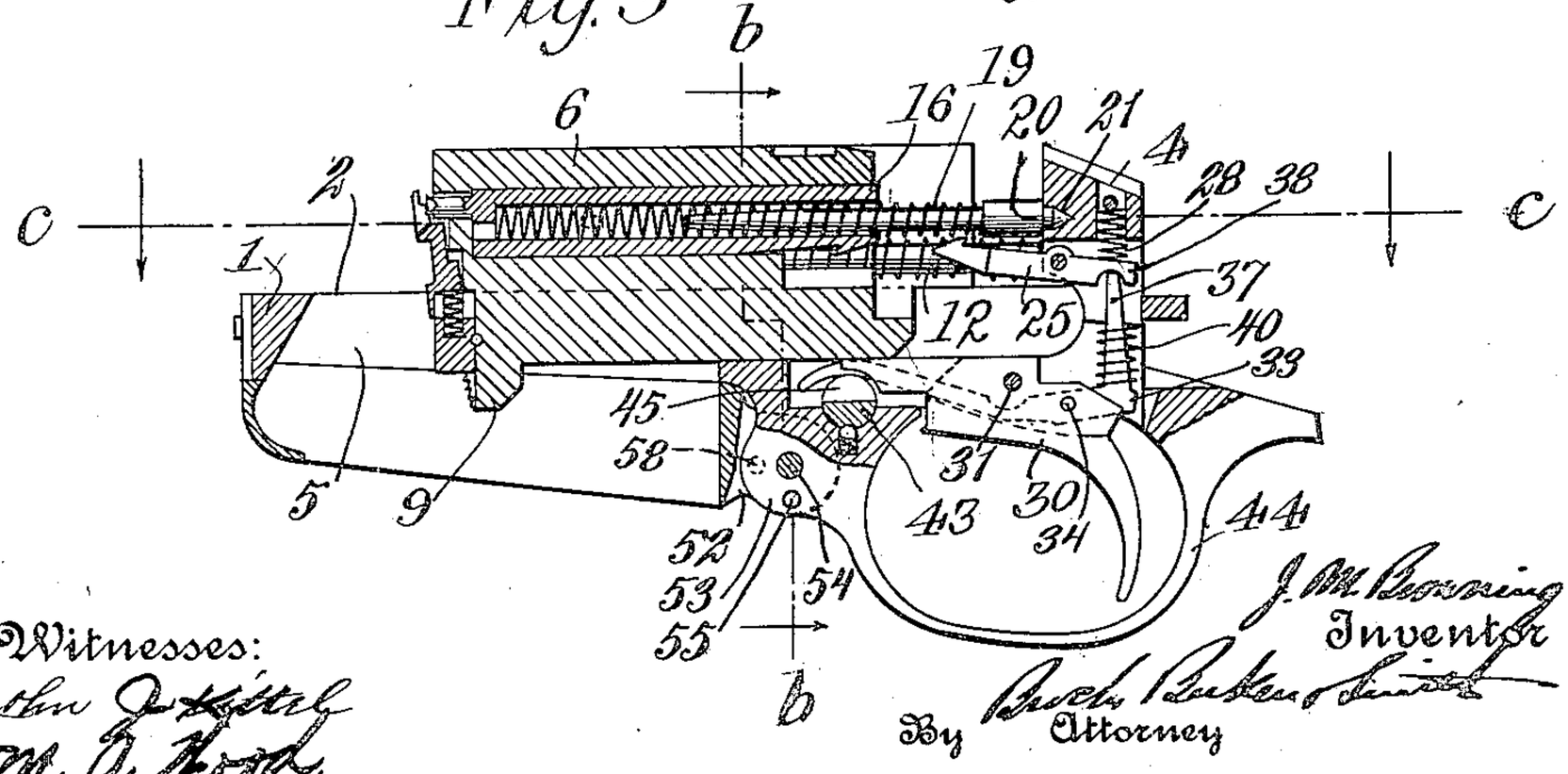


Fig. 3



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3 SHEETS—SHEET 2.

Fig. 4

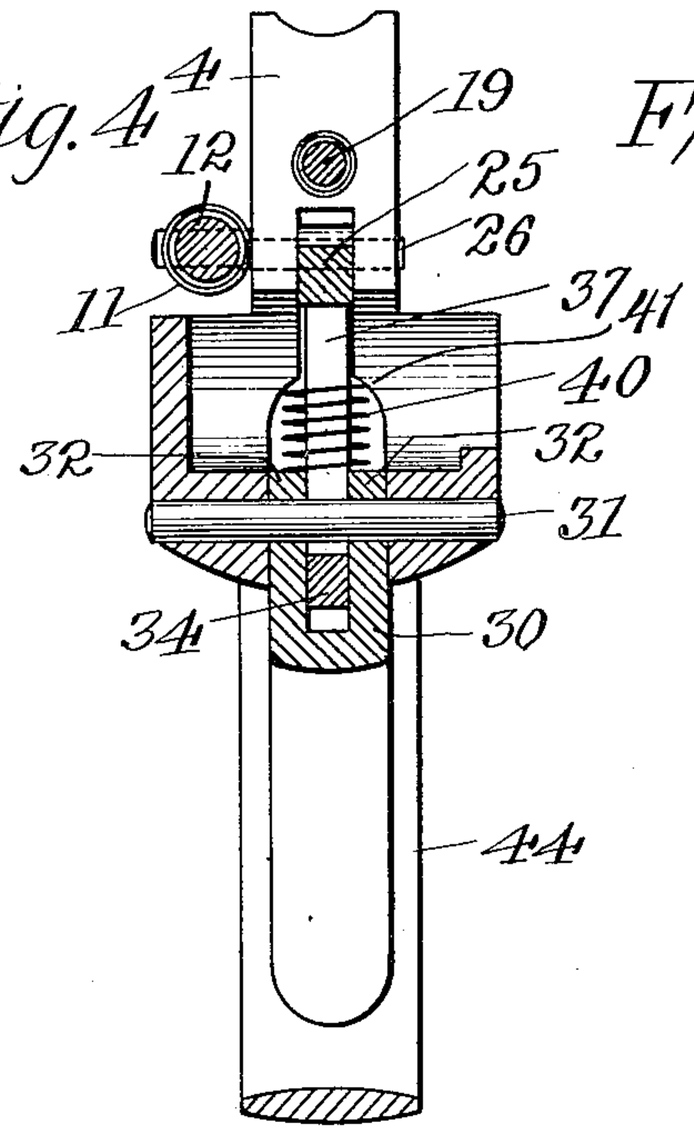


Fig. 5

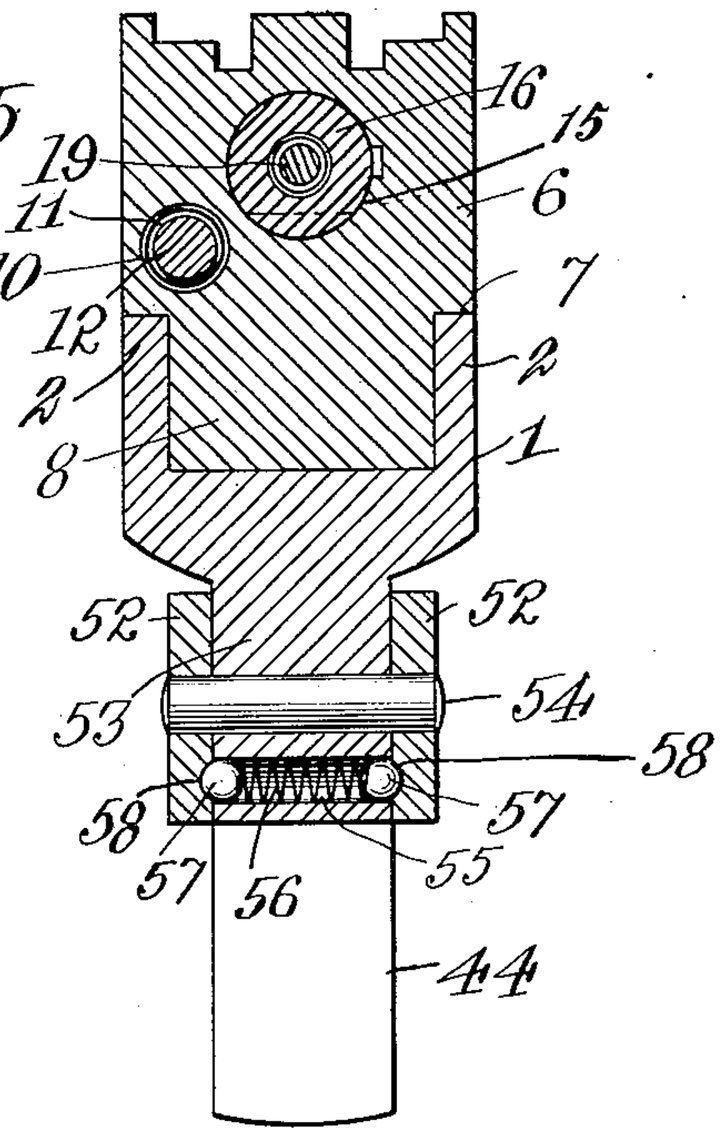


Fig. 6

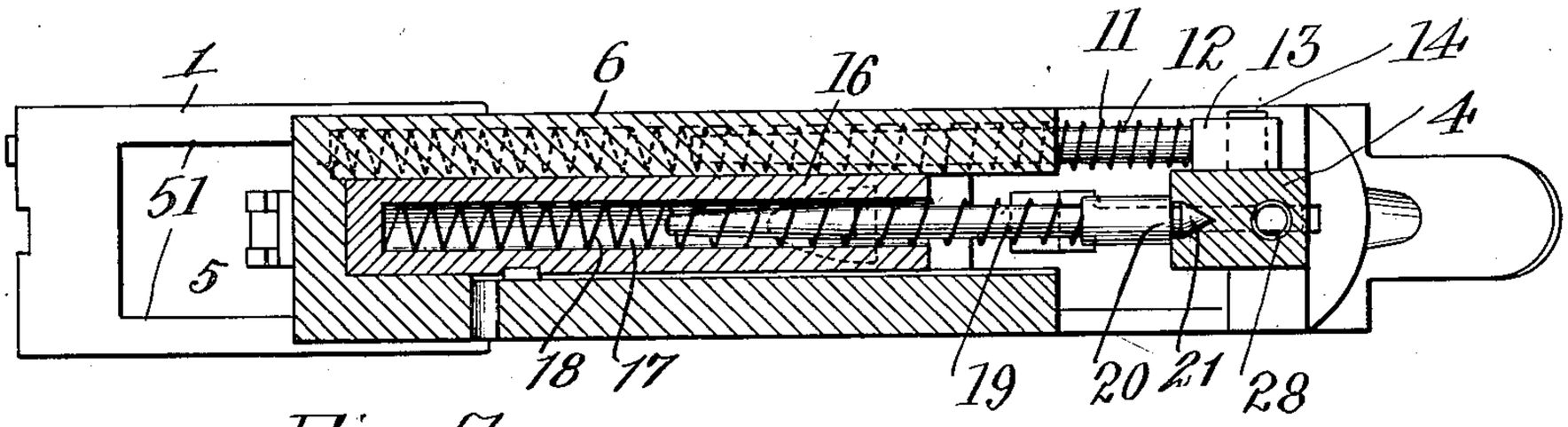


Fig. 7

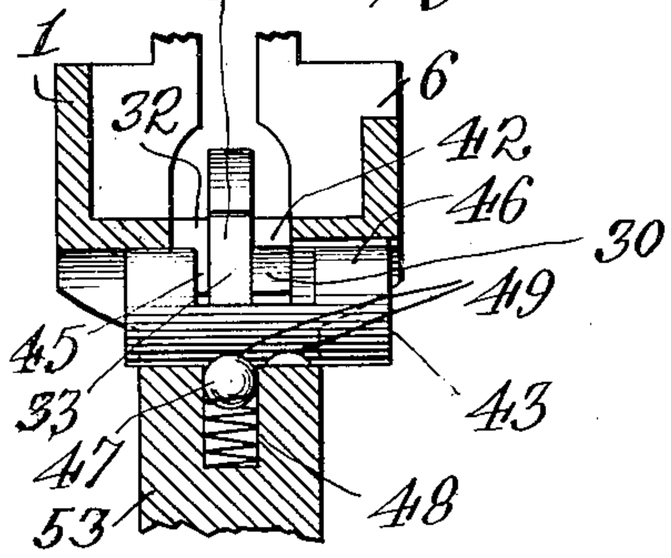
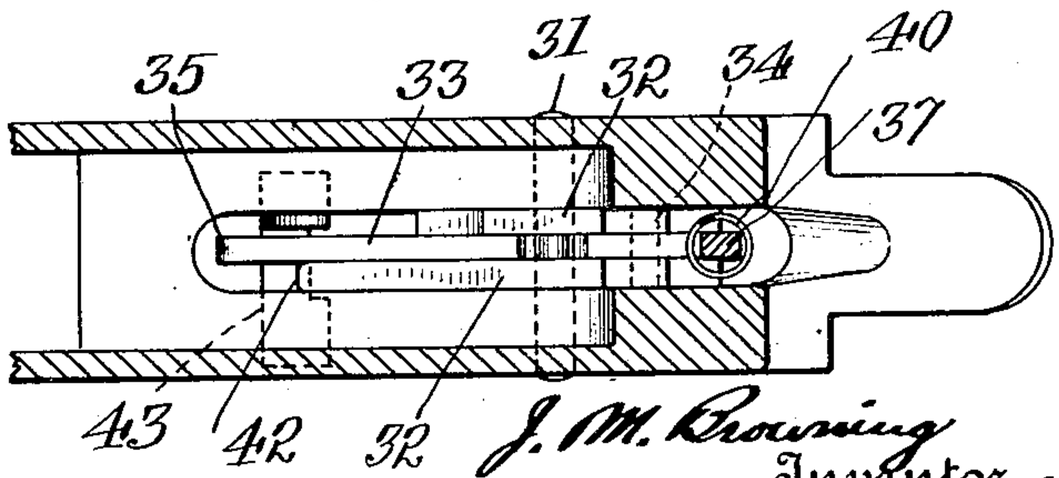


Fig. 8



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FIREARM.

APPLICATION FILED AUG. 18, 1914.

1,202,024.

Patented Oct. 24, 1916.

3 SHEETS—SHEET 3.

Fig. 9

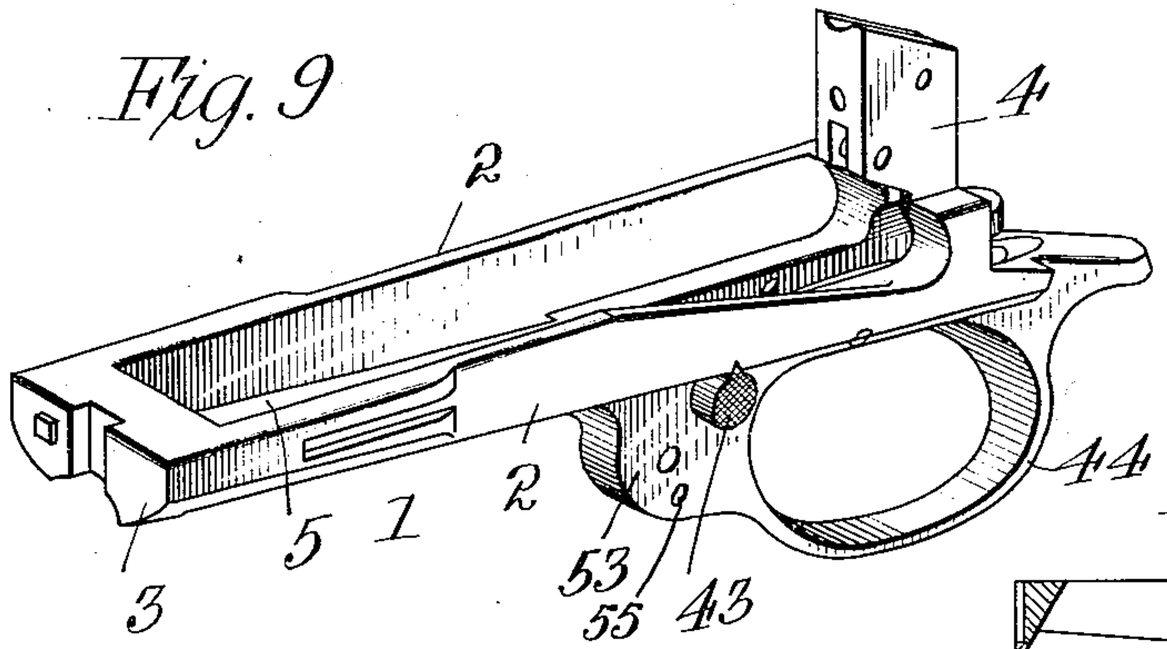


Fig. 12

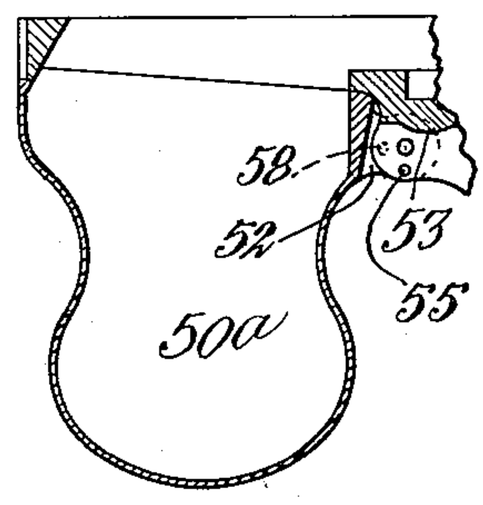


Fig. 11

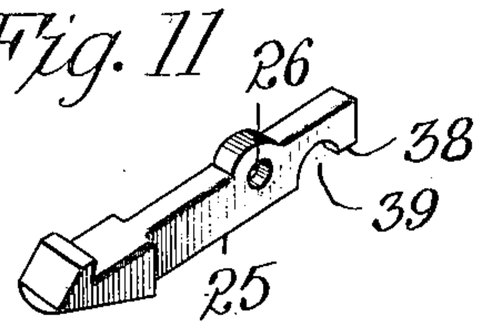


Fig. 10

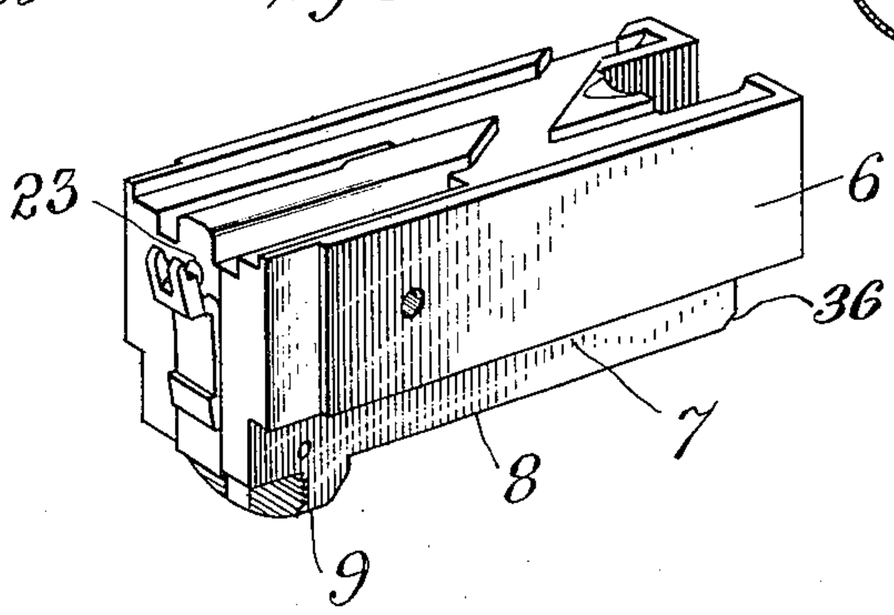


Fig. 13

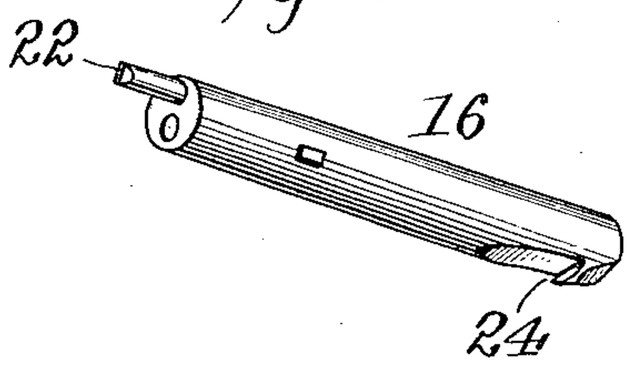


Fig. 14

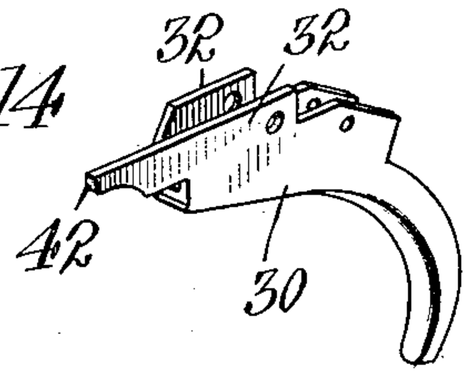
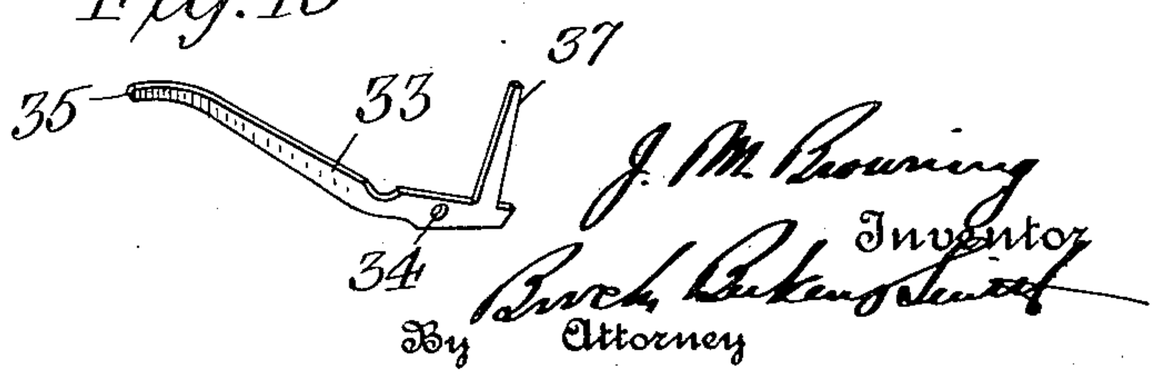


Fig. 15



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UNITED STATES PATENT OFFICE.

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FIREARM.

1,202,024. Specification of Letters Patent. **Patented Oct. 24, 1916.**

Application filed August 18, 1914. Serial No. 857,371.

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, a citizen of the United States, residing at Ogden, Utah, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

My invention relates to modifications and improvements in the type of automatic firearms shown in my Patent #1,083,384, dated January 6, 1914.

One of the principal objects is to adapt the mechanism there shown to the use of a more powerful cartridge, such, for instance, as a 22 caliber, long cartridge. The use of such a powerful cartridge requires the use of a heavier breech-block, and in providing a heavier breech-block it is necessary to modify and rearrange parts of the mechanism shown in said patent, especially the breech-block, trigger-plate, sear, connector, etc. In addition to this reorganization, I provide in the present invention certain improvements, as will appear.

The accompanying drawings show one exemplifying embodiment of the invention, but it is to be understood that the invention is capable of embodiment in many different forms and I do not limit myself to details, except as claimed hereinafter.

In the drawings: Figure 1 is a longitudinal section through the trigger-plate, breech-block, and related parts, showing the parts in cocked position. Fig. 2 is a similar section showing the parts in fired position. Fig. 3 is a similar section showing the breech-block brought away back in the cocking or recoil movement. Fig. 4 is a transverse enlarged section on the line *a*—*a*, Fig. 2. Fig. 5 is a transverse enlarged section on the line *b*—*b*, Fig. 3. Fig. 6 is a horizontal longitudinal section on the line *c*—*c*, Fig. 3. Fig. 7 is a fragmentary vertical section on the line *d*—*d*, Fig 2. Fig. 8 is a horizontal longitudinal section on the line *e*—*e*, Fig. 2. Fig. 9 is a front, left perspective view of the trigger-plate. Fig. 10 is a perspective view of a similar position of the breech-block. Fig. 11 is a perspective detail of the sear. Fig. 12 is a longitudinal vertical section through the forward part of the trigger-plate and one form of guard. Fig. 13 is a perspective view of the firing-pin. Fig. 14 is a perspective view of the trigger, and Fig. 15 is a perspective view of the connector.

All the parts of the arm, in a representative embodiment, may be the same as in my Patent #1,083,384, except the parts herein shown and described, which are modified for the use of a heavier cartridge, the basis of the modification being the downward extension of the breech-block to make it heavier and the provision in the trigger-plate of a passage for this downwardly extended part of the breech-block. The trigger, sear, connector, etc. are also moved downward or rearward, speaking in general terms, to accommodate the modified breech-block.

Reference character 1 designates the trigger-plate having sides 2, front end 3, and vertical lug 4, at the rear end. Between the side walls and the front and rear ends, the trigger-plate provides an opening 5 of ample depth, width and length to accommodate the breech-block 6, which has guides or runners 7 engaging the upper edges of the sides 2 of the trigger-plate upon which the breech-block reciprocates. The breech block also has an extension 8 at the bottom which is accommodated by the opening 5 of the trigger-plate. Carried by this extension, near the forward end of the breech-block, is a cocking lug 9, by means of which the arm may be manually cocked.

Toward one side, the breech-block is provided with a hole 10, within which is placed recoil spring 11 suitably guided by a rod 12, having its end 13 removably engaging pin or stud 14 carried by lug 4. The breech-block also has a central longitudinal bore 15, in which the firing pin 16 is mounted. The firing pin in turn has a longitudinal bore 17 containing the firing spring 18, and this is suitably supported and guided by a rod 19 terminating in a shoulder 20 bearing against lug 4 and a point 21 entering a socket in the lug to removably locate the rod in position. At its forward end, the firing pin carries firing point 22, protruding through the hole 23 in the breech-block. Near the rear end, at the bottom, the firing pin has a sear-notch or cock-notch 24, coöperating with sear 25 pivoted upon a pin 26 in a suitable aperture in trigger-plate lug 4. The lug also has a vertical hole 27 containing sear spring 28 urging the sear to active position. This spring is retained by pin 29.

The trigger 30 is pivoted on pin 31 in the trigger-plate below the line of movement of the breech-block. It has upper side walls 32 accommodating between them the connector 33, which is pivoted to the side walls of the

trigger at 34. The forward end 35 of the connector coöperates with a cam 36 at the rear lower edge of the breech-block extension 8. The rear end of the connector has a vertical member 37, the end of which is caused to coöperate with a part 38 of the sear, or with notch 39, depending upon the position of the breech-block. The sear and trigger are normally urged to the position shown in Fig. 1 by spring 40 placed about connector member 37 and abutting against shoulders 41 in the trigger-plate.

When the arm is cocked, as shown in Fig. 1, connector 33 is in normal position, with its member 37 underlying member 38 of the sear and its forward end 35 resting against cam 36 of the breech-block, and the sear is in engagement with the sear notch of the firing pin. To fire, the trigger is pulled and this elevates the connector and releases the sear in an obvious way. Firing reaction throws back the breech-block, and in the first part of its movement, cam 36, acting on the forward end 35 of the connector, moves the connector to the position shown in Fig. 3 with the upper end of connector member 37 opposite the notch 39 of the sear. This prevents automatic repeating before the trigger can be released. Also, any accidental pulling of the trigger during the cocking or return movement of the breech-block will now be ineffective to release the sear until the arm is in firing position again with the breech-block in its foremost position, as in Fig. 1, whereupon cam 36 will again permit the connector to move to active or firing position, and the arm may again be fired by pulling the trigger.

The trigger has a forward extension 42 to coöperate with safety-stop 43, located in a transverse bore in the trigger-plate, forward of trigger-guard 44. This safety-stop or pin, as best seen in Fig. 7, has a notch 45, which accommodates trigger extension 42 when the pin is in firing position; but when in safety position, or pushed to the left, as seen in Fig. 7, the rounded part 46 of the pin is opposite trigger extension 42 and the trigger cannot then be moved, and firing is impossible. The safety-pin is held in either safety or firing position with sufficient firmness by spring-pressed ball 47, located in a socket 48 in the trigger-plate and coöperating with two notches 49 in the safety-pin.

As explained in my above mentioned patent, in a rifle of this type, the shells are ejected through trigger-plate opening 5. To protect the hand of the user from cocking lug 9, and for other purposes, a hand-guard 50 is provided. In the embodiment shown in Figs. 1–3, this is open at the bottom and has sides 51 extending well below the cocking lug 9 and substantially in line with sides 2 of the trigger-plate. This guard has at the rear end, side pieces or ears 52 fitting at either side of a lug 53 on the trigger-plate, forward of the trigger-guard 44, and pivotally connected to the trigger-plate by pin 54 passing through lug 53 and ears 52. In this lug is also a transverse bore 55 containing spring 56, which urges two balls 57 into engagement with sockets 58 in ears 52 of the guard. This yielding engagement of the balls with their sockets holds the guard in active position, as shown in full lines in Figs. 1, 2 and 3, but to permit access to cocking lug 9 to cock the arm, or for other reasons, the guard may be easily swung down, as shown in dotted lines in Fig. 1. This guard may vary greatly in form and may have a bottom opening or side openings, or it may be, as exemplified in Fig. 12, made in the form of a cup 50ª, to receive and hold ejected cartridge shells until such time as they may be conveniently removed, or act as a palm rest in firing.

The above mentioned patent fully describes how the trigger-plate with its associated parts may be removably mounted in a receiver or frame having a solid top and side walls and a bottom ejecting opening.

I claim:—

1. In a firearm, the combination of a receiver having closed top and sides and a bottom ejecting opening, firing and ejecting mechanism in the receiver including a movable member projecting through the ejecting opening, and a guard connected to the receiver by a transverse pivot and having rigid walls surrounding the ejecting opening and projecting there-below to protect the user's hand from said movable member, and means for holding the guard in active position.

2. In a firearm, the combination of a trigger plate having guideways and a long, central opening, and also having an upwardly-extending lug at its rear end, a breech block slidably mounted upon the guideways and having a downward extension substantially the full length of said breech block accommodated by said opening, a firing pin in the breech block, a spring therefor abutting against said lug, a recoil spring engaging against the breech block and abutting against said lug, trigger mechanism carried by said plate below said opening and out of the path of said breech block extension, a sear carried by said lug and accommodated by an aperture in the breech block and a connector intermediate the trigger and the sear located within said lug to the rear of the breech block.

3. In a firearm, the combination of a trigger-plate having a central opening and side walls, a breech-block slidably mounted upon the trigger plate and having a bottom extension accommodated by said opening, an upwardly-extending lug at the rear end of the trigger-plate, a firing-pin within the breech-

block provided with a sear-notch, a firing-pin spring abutting against said lug, a sear pivoted in said lug, a trigger pivoted in the trigger-plate, a connector pivoted to the trigger to the rear of the trigger pivot and having an arm extending forward to engage the breech-block, and an arm extending upward to engage the sear.

4. In a firearm, the combination of a trigger-plate having a central opening and side walls, a breech-block slidably mounted upon the trigger-plate and having a bottom extension accommodated by said opening, an upwardly-extending lug at the rear end of the trigger-plate, a firing-pin within the breech-block provided with a sear-notch, a firing pin spring abutting against said lug, a sear pivoted in said lug, a trigger pivoted in the trigger-plate, a connector pivoted to the trigger to the rear of the trigger pivot and having an arm extending forward to engage the breech-block, an arm extending upward to engage the sear, and a spring acting upon the connector to return it and the trigger to normal position.

5. In a firearm, the combination of a trigger-plate, a breech-block slidably mounted thereon, a trigger pivoted in the trigger-plate below the line of movement of the breech-block, a connector pivoted to the trigger to the rear of the trigger pivot and having a forwardly-extending arm located to the rear of the breech-block, a lug extending up at the rear end of the trigger-plate, a sear pivoted in the lug above the trigger and having a notch to coöperate with the upwardly-extending arm of the connector, and a firing pin carried by the breech-block and having a sear-notch to coöperate with the sear.

6. In a firearm, the combination of a trigger plate, a slidable breech block thereon, a firing pin, a sear pivoted in the trigger plate and adapted to engage the firing pin, a trigger pivoted in the trigger plate, a connector pivoted to the trigger and having a member to coöperate with the sear, said connector also having a member to coöperate with the breech block to disconnect the trigger from the sear except when the breech block is in firing position.

7. In a firearm, the combination of a breech-block, a firing-pin, a trigger, a connector and a sear pivoted near its center and having a forward extension to engage the firing-pin and a rearward extension to engage the connector, said rearward extension being provided with a notch and means by which rearward movement of the breech-block locates the connector opposite said notch and prevents actuation of the sear by said connector.

8. In a firearm, the combination of a trigger-plate, a trigger pivoted therein, a connector pivoted upon the trigger and having an upwardly-extending arm and a forwardly-extending arm, a slidable breech-block coöperating with said forwardly-extending arm of the connector, a firing pin and a sear pivoted near its middle and having a member to be engaged by said upwardly-extending arm of the connector for firing and also having a notch to free the sear from said connector member and prevent firing when the connector is actuated by rearward movement of the breech-block.

9. In a firearm, the combination of a trigger-plate, a trigger pivoted therein, a connector pivoted upon the trigger and having an upwardly-extending arm and a forwardly-extending arm, a slidable breech-block coöperating with said forwardly-extending arm of the connector, a firing pin and a sear pivoted near its middle and having a member to be engaged by said upwardly-extending arm of the connector for firing and also having a notch to free the sear from said connector member and prevent firing when the connector is actuated by rearward movement of the breech-block, and a spring located on said upwardly-extending arm of the connector for returning the connector and trigger to normal position.

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