

Feb. 15, 1938.

V. A. BROWNING

2,108,648

REPEATING FIREARM

Filed July 27, 1936

2 Sheets-Sheet 1

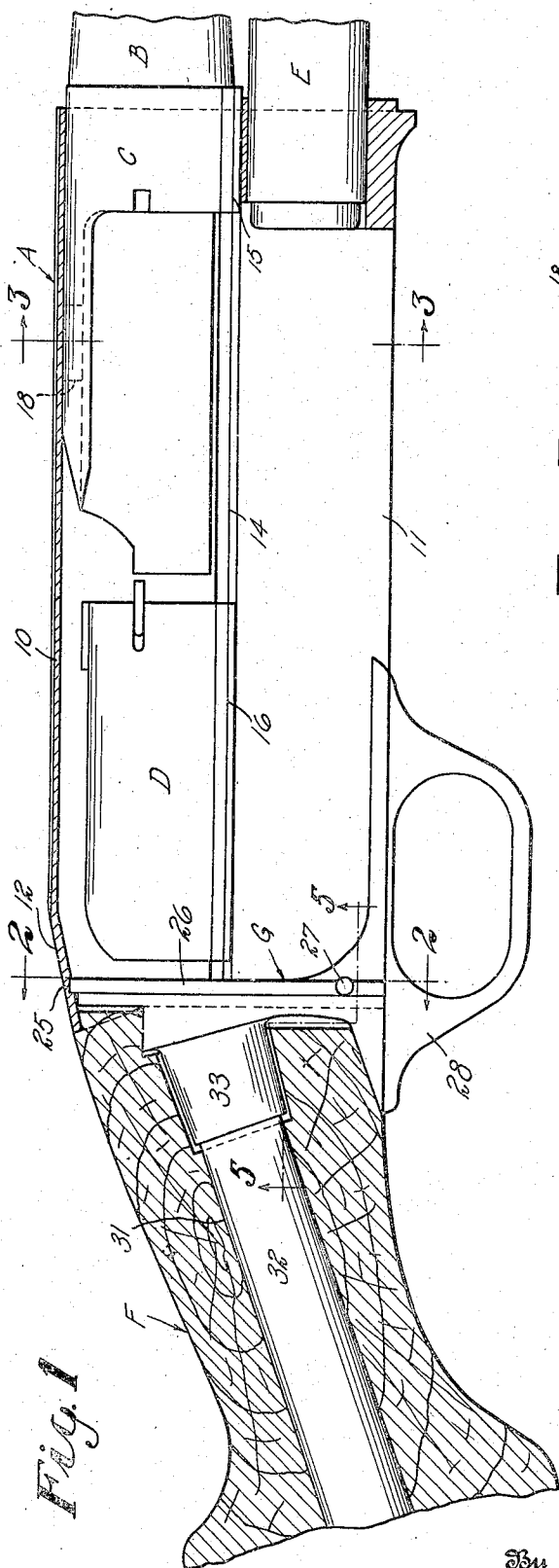


Fig. 1

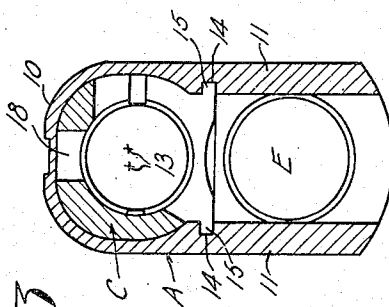


Fig. 3

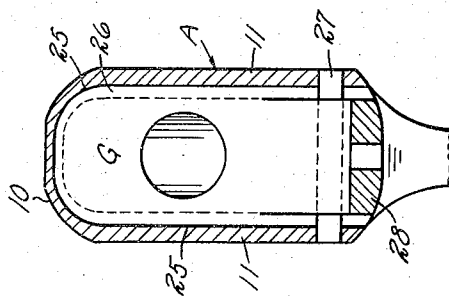


Fig. 2

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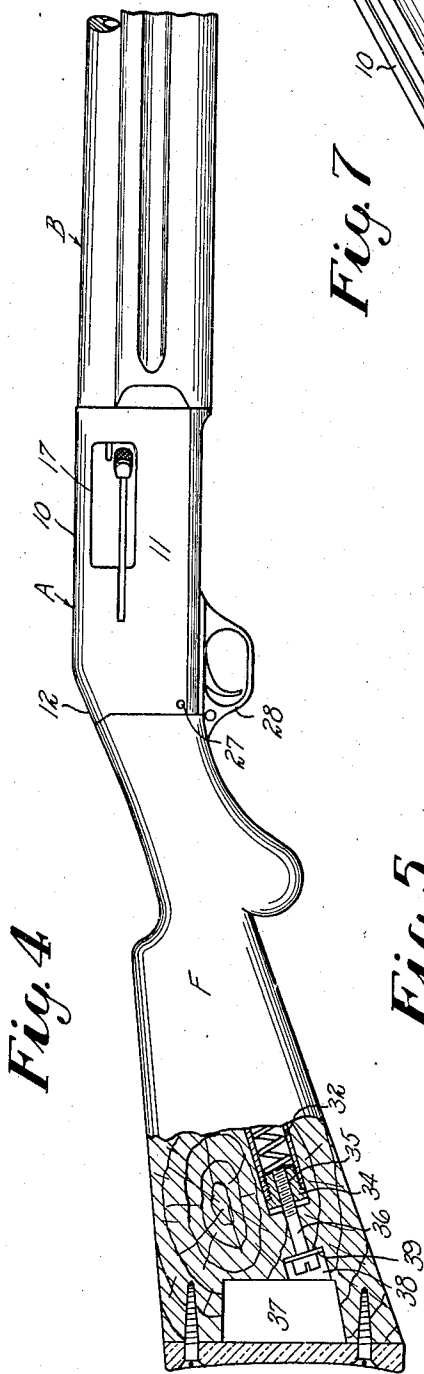
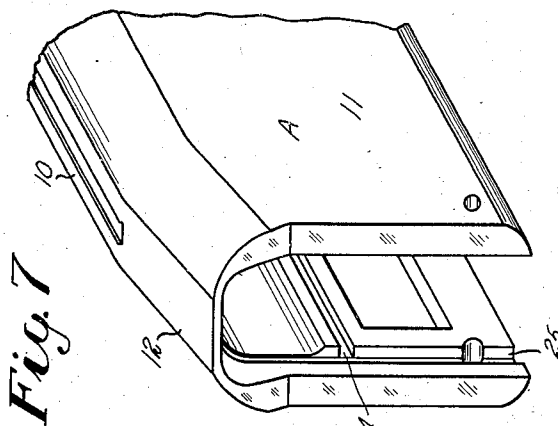
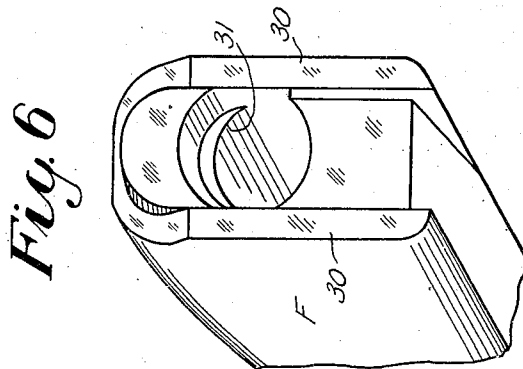
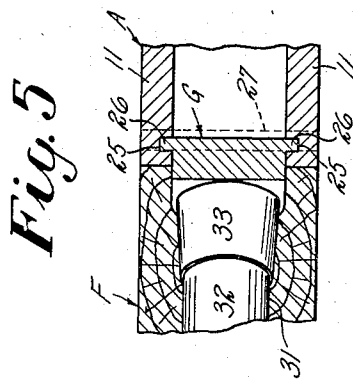
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REPEATING FIREARM

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,103,648

REPEATING FIREARM

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Application July 27, 1936, Serial No. 92,783

4 Claims. (Cl. 42-4)

This invention relates to firearms and the improvements thereof have particular adaptation in automatic shotguns of the type wherein the barrel and breech mechanism are locked together and recoil in unison upon the explosion of a shell; the fired shell is ejected through the side of the barrel extension and receiver, and the cartridge is automatically transferred from the magazine to the barrel extension by means located within the receiver.

The aim of the invention is to provide an improved arrangement wherein the receiver has a shape, construction, and outline which gives a pleasing appearance and a better and more comfortable "feel", and which permits of a relatively strong construction which may be manufactured with facility; and wherein the receiver and stock are rigidly secured together in a simple and effective manner.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein I have shown one embodiment which the present invention may take:

Figure 1 is a view showing so much of a firearm as is necessary to illustrate the improvements of the present invention, this view being taken generally longitudinally through the receiver and the forward end of the stock;

Fig. 2 is a transverse sectional view taken transversely through the rear portion of the receiver and substantially on line 2-2 of Fig. 1;

Fig. 3 is a similar view taken through the forward end of the receiver and substantially along line 3-3 of Fig. 1;

Fig. 4 is an elevational view of the right-hand side of the frame, the rear end of the stock being in section for purposes of illustration;

Fig. 5 is a fragmentary sectional view, the same being taken substantially on line 5-5 of Fig. 1;

Fig. 6 is a perspective view of the forward end of the stock; and

Fig. 7 is a perspective view of the rear end of the receiver.

In the present illustrative disclosure, I have shown the improvements of the present invention incorporated in a gun of the type illustrated in the patent to John M. Browning No. 659,507

granted October 9, 1900 and which type of gun is also disclosed in my copending application Serial No. 669,184 filed May 3, 1933 and entitled "Repeating firearms". In order to simplify the description of the structure shown in the accompanying drawings, reference may be frequently had to said patent and application.

In said John M. Browning Patent No. 659,507 is disclosed a receiver having a cylindrical bore in which the breech block and barrel extension are adapted to reciprocate, this bore being closed at its rear end by an integral portion of the receiver. With that arrangement, the top of the receiver is elevated above the top of the barrel to an appreciable extent. It is desirable, however, in order to facilitate sighting and to impart to the gun a pleasing and more or less streamline appearance, that the top of the receiver extend as little as possible above the plane which includes the top of the barrel. In my said application Serial No. 669,184, I have shown an improved arrangement wherein the above and other objections to the construction shown in the said John M. Browning patent are reduced or overcome. In said application, the receiver has a frame and a removable cover, and the upper portion of the cover and the barrel extension are so constructed and proportioned as to permit the top of the cover to be brought down substantially to the plane of the top of the barrel while, at the same time, making the barrel extension with sufficient strength to withstand the strains to which it is subjected during firing. In the construction forming the subject matter of the present application, certain of the improvements disclosed in my said pending application are incorporated or employed. In the present instance, the receiver is made of one integral piece, the same being so constructed that it may be machined with available equipment to the desired configuration for accommodating the breech block and barrel extension.

Referring more particularly to the accompanying drawings, A designates generally the receiver; B the barrel, the rear end of which is connected to a barrel extension C mounted for reciprocation in the upper portion of the receiver; D, the breech block; E, the tubular magazine located beneath the barrel and secured at its rear end to the front wall of the receiver; and F, the stock which is secured to a plate G which, in turn, is secured to, and closes the rear end of, the receiver. Certain of these parts are shown only in such detail as is necessary to fully understand the present invention, and other

parts, such as the trigger mechanism, the cartridge transfer means, etc., are omitted as they form no particular part of the present invention.

Referring now more particularly to the construction of the receiver, the same comprises an integral piece hollowed out so as to accommodate the breech block, the barrel extension, the firing mechanisms, and other parts not illustrated. The receiver has a top wall 10 generally curved transversely, and depending spaced side walls 11. The top wall 10 is transversely curved so that the center longitudinal portion thereof is closer to the axis of the barrel than are the portions to each side of the longitudinal center, and the rear upper end of the top wall is gradually inclined downwardly and rearwardly as at 12 and merges into the top surface of the butt so that abrupt shoulders are eliminated and a pleasing streamline appearance is given to the gun and aiming is facilitated. It will be observed, particularly from Figs. 2 and 3, that the space or bore in the upper portion of the receiver is not cylindrical but, on the other hand, the corners where the top wall merges into the side walls are curved about axes 13, and the portion between these curved surfaces is more or less flattened. In order to make a bore of this shape, it is necessary that the rear end of the receiver be open during its manufacture, particularly so because the rear end of the top wall of the receiver is inclined downwardly and rearwardly. With the arrangement described, it is possible, during the manufacture of the receiver, to form the major length of the bore by inserting tools through the forward end of the receiver and to shape the rear end of the bore by inserting the tools through the open rear end of the receiver. The opposed walls of the receiver are provided with the usual longitudinally extending grooves 14 for accommodating the ribs 15 and 16 extending laterally from the side walls of the barrel extension and the breech block, respectively.

The barrel extension is identical to the construction shown in my said application. It has a top wall and a left-hand side wall and is open at its right-hand side so as to permit ejection of fired shells through the ejection opening 17 in the receiver. The extension is open at its bottom so as to receive cartridges from the magazine. As shown in Fig. 3, the internal surface of the extension is truly cylindrical, and the top surface of the barrel extension corresponds in transverse curvature to that of the top wall of the receiver. With this arrangement, it will be observed that the top wall of the extension gradually increases in thickness from its central longitudinal portion towards its side portions. The rear portion of the top wall of the barrel extension is gradually curved downwardly and rearwardly so as to correspond generally to the inclined portion 12 of the top wall of the receiver. Formed in the top wall of the barrel extension is a locking opening 18 adapted to receive a locking lug of a locking block which is not shown in the present instance.

The rear end of the receiver is closed by the plate G, and this plate constitutes a stop or abutment against which the rear end of the breech block engages upon recoil of this block and the barrel. In the present illustrative disclosure, the receiver is provided, adjacent to, but spaced somewhat forwardly of, its rear end with a groove 25 which extends upwardly along the side walls and across the top wall. The plate is provided with a peripheral rib 26 adapted to slide into and

fit in this groove. The plate, if desired, may be pinned in place in the receiver, in the present case the pin 27 being provided for that purpose. If desired, the plate, as shown, extends upwardly from, and is formed integrally with, the trigger guard 28 which carries the usual trigger mechanism and which may be secured to the receiver between the lower rear portions of the side walls in the usual manner. It will be observed that the rear edges of the side walls of the receiver straddle and are not covered by said end plate G, thus permitting the forward end of the stock to abut against these edges. The forward end of the stock is formed so that it will bear against these edges and not against the plate. In the present instance, the forward end of the stock has a forwardly projecting rib 30 at its periphery engaging against the rear edges of the top and side walls of the receiver.

The stock has a longitudinally extending bore 31 for accommodating a tube 32 which, if desired, may house a recoil spring (not shown) for returning the breech block to its forward position, as shown in my said application. The forward end of this tube is connected to a boss 33 projecting rearwardly from the closure plate G. The rear end of this tube is closed by a screw plug 34 having a centrally located threaded opening 35 adapted to receive the forward end of a bolt 36 by means of which the stock is secured in place tightly against the rear edge of the receiver, and the closure plate is held tightly against movement with respect to the receiver as presently pointed out more in detail. The rear end of the stock is provided with a recess or chamber 37 as is usual, and leading from the front wall of this recess to the rear of the bore 31 is an opening 38 through which the bolt extends.

When the parts are assembled, the forward end of the bolt 36 is threaded into the opening in the screw plug 34, and when the bolt is turned home, the head of the bolt crowds a washer 39 against the inner wall of the chamber 37. It will be observed that, when this is done, the rib 30 on the forward end of the stock is crowded or forced tightly against the rear end of the receiver so there is no movement between those parts, and the bolt tends to draw the tube and closure plate rearwardly thereby crowding the rib 26 on the plate against the rear wall of the groove 25 in the receiver so that there is absolutely no movement between the closure plate and the receiver. Thus, the several parts are locked together against all play or movement. The plate G constitutes a stop against which the breech block engages upon recoil of the breech block and barrel and any play between the receiver and the closure plate would be highly objectionable, and should there be any such play, no matter how slight, the extent of relative movement would grow greater upon repeated firing of the gun due to the pounding action of the breech block against the plate. With my improved arrangement, it is clear that such play is prevented, and should the parts become somewhat loose after repeated use of the gun, any play may be taken up by screwing the bolt 36 home more tightly. It may be stated here that it would be practically impossible to make the groove 25 and the rib 26 to such close dimensions that the latter would fit so snugly in the former that there would be no movement between the receiver and closure plate.

As many changes could be made in the above

construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween. I claim as my invention:

1. In a firearm of the character described, a receiver, a breech block and a barrel extension mounted for reciprocation therein, a removable plate closing the rear end of said receiver and constituting an abutment against which the rear end of said breech block is adapted to engage when the gun is fired, means for securing said plate in the rear end of said receiver, a stock having its forward end engaging the rear end of said receiver, and means for forcing the forward end of said stock against the rear end of said receiver and holding said plate against play with respect to said receiver.

2. In a firearm of the character described, a receiver having a top wall, a side wall and an internal groove adjacent its rear end, a breech block and a barrel extension mounted for reciprocation in said receiver, a removable plate for closing the rear end of said receiver and constituting an abutment against which the rear end of said breech block is adapted to engage when the gun is fired, said plate having a peripheral rib engaging in said groove, a stock having its

forward end engaging the rear end of said receiver and spaced from said plate, and means for forcing the forward end of said stock against the rear end of said receiver and holding said plate against play in said groove with respect to said receiver.

3. In a firearm of the character described, a receiver, a breech block and a barrel extension mounted for reciprocation therein, a removable plate closing the rear end of said receiver and constituting an abutment against which the rear end of said breech block is adapted to engage when the gun is fired, a stock having its forward end engaging the rear end of said receiver, said stock having a longitudinal bore, a tube secured at its forward end to said plate and extending into said bore, and a bolt threaded onto the rear end of said tube and adapted to engage said stock for forcing the forward end of said stock against the rear end of said receiver and holding said plate against play with respect to said receiver.

4. In a firearm of the character described, a receiver, a breech block and a barrel extension mounted for reciprocation therein, a trigger guard, a removable plate formed integrally with said trigger guard for closing the rear end of said receiver and constituting an abutment against which the rear end of said breech block is adapted to engage when the gun is fired, means for securing said plate in the rear end of said receiver, a stock having its forward end engaging the rear end of said receiver, and means for forcing the forward end of said stock against the rear end of said receiver and holding said plate against play with respect to said receiver.

VAL A. BROWNING.