

(No Model.)

2 Sheets—Sheet 1.

J. M. BROWNING.  
GAS OPERATED BREECH LOADING GUN.

No. 502,549.

Patented Aug. 1, 1893.

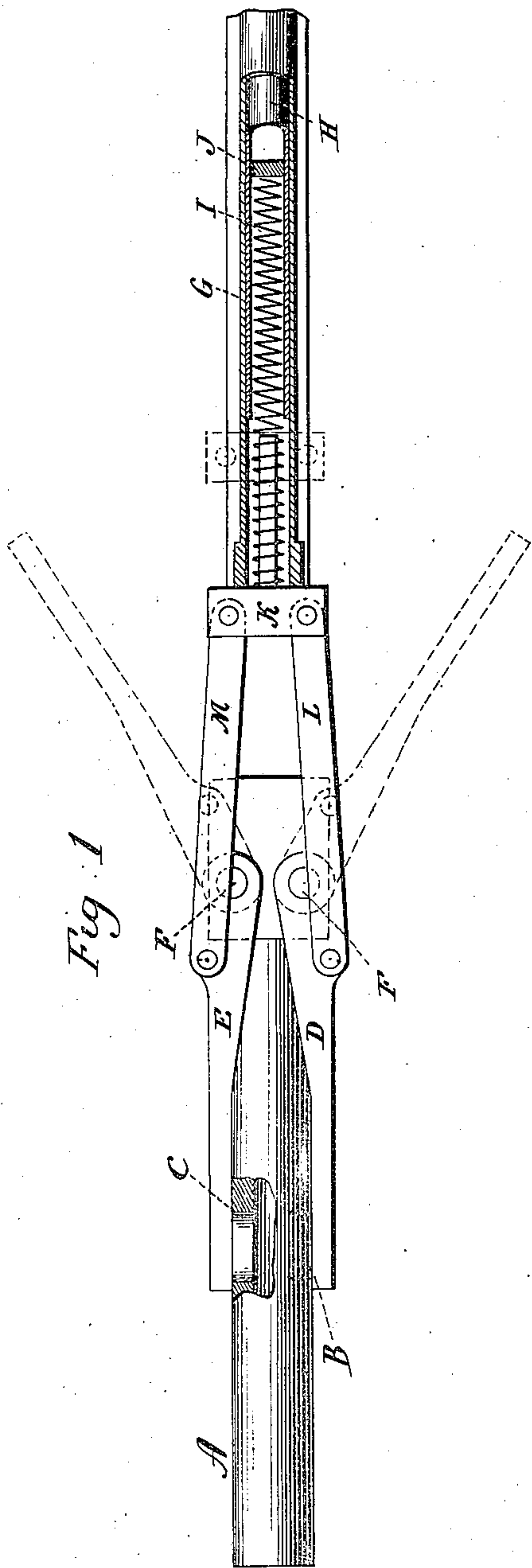


Fig. 1

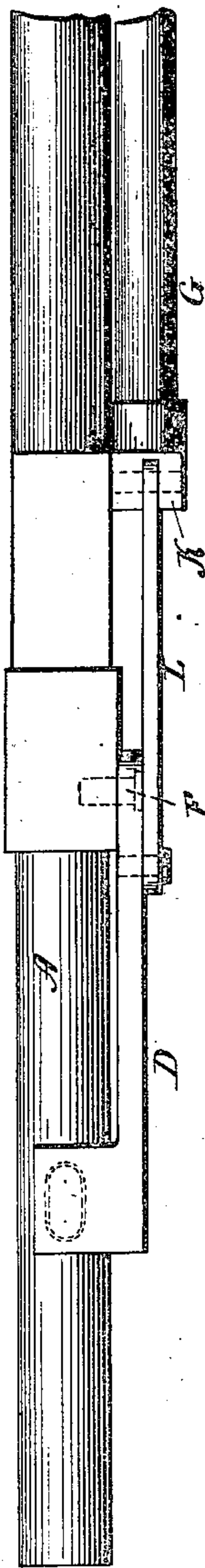


Fig. 2

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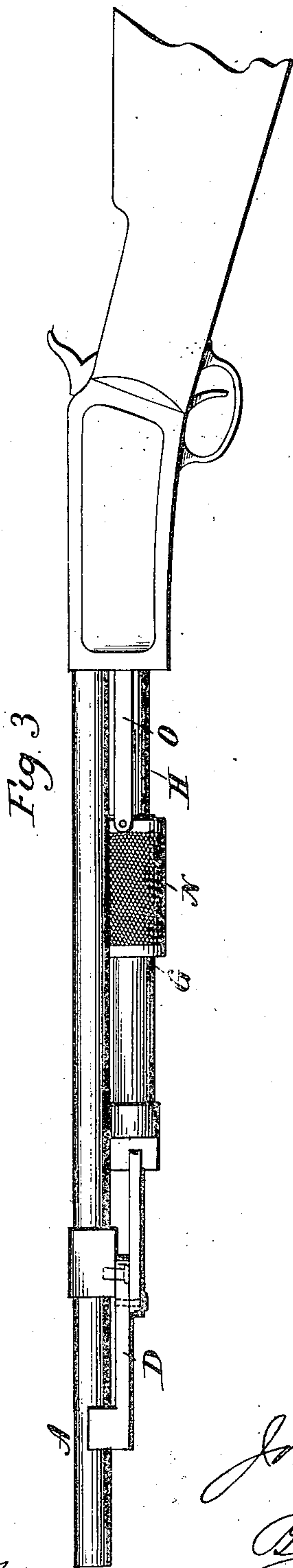
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GAS OPERATED BREECH LOADING GUN.

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Witnesses  
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Lillian D. Kellogg

John M. Browning.  
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# UNITED STATES PATENT OFFICE.

JOHN M. BROWNING, OF OGDEN, UTAH TERRITORY.

## GAS-OPERATED BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 502,549, dated August 1, 1893.

Application filed July 11, 1892. Serial No. 439,574. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. BROWNING, of Ogden, in the county of Weber and Territory of Utah, have invented a new Improvement in Machine-Guns; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an under side view of the barrel showing the magazine tube and slide thereon in longitudinal section; Fig. 2, a side view of the same; Fig. 3, a side view of a fire-arm complete, with the parts in their closed positions, showing the connection between the levers and the breech-mechanism.

This invention relates to an improvement in that class of breech-loading guns in which the mechanism is arranged to be automatically operated by means of the gases produced by explosion, and particularly to guns of this class in which the gas is brought to bear by an opening from the barrel outward at a point in rear of the muzzle. In such guns the opening is at one side only of the gun, that is to say, a single opening is made radially outward from the barrel, and so that after explosion, and as the ball passes the opening, the gas escapes through said opening to operate upon some mechanism at that side of the barrel which will produce the opening movement of the breech-piece, a spring being compressed in such opening movement, the reaction of which will return the mechanism to the closed position ready for the next explosion. Because of the opening being radially at one side only of the barrel, the resistance which permits the gas to operate upon the mechanism must be met by the barrel itself. The result of this is that such resistance of the barrel tends to throw the barrel in the opposite direction to that from which the gas escapes, that is to say, if the mechanism be arranged at one side, so that the gas operates directly upon that mechanism as it escapes through the opening in the barrel, the force to operate the mechanism is equal on the mechanism in one direction, and upon the barrel in the opposite direction. Hence there is a great liability to

throw the barrel out of line the instant that the gas is brought to bear upon the operative mechanism.

The object of this invention is to provide a counteracting operation upon the barrel so that the force upon one side will be resisted by a corresponding force upon the opposite side.

To this end the invention consists in constructing the barrel with gas escaping openings in opposite directions, combined with mechanism in communication with both of said openings, and whereby the escape of gas through both openings will be simultaneous, and the force of the gases being in opposite directions from the barrel, will produce a balance of such force upon said opposite side, and thereby prevent the operation of the mechanism from throwing the barrel out of line.

In illustrating the invention the mechanism represented is of that class which consists of a lever hung so as to swing in the longitudinal plane of the barrel, the free end of the lever adapted to cover an opening into the barrel, and so that the gases of explosion passing through said opening will strike the lever and produce its swinging movement in one direction, which swinging movement will operate the mechanism of the gun and compress the spring, and so that the reaction of the spring will return the lever to its normal position.

In the illustration A, represents the barrel, which is constructed with two openings B C, diametrically opposite each other and in rear of the muzzle end of the barrel. In rear of these openings respectively a pair of levers D E, are hung, upon pivots F, which pivots are stationary on the barrel, and so that the levers may swing thereon in the plane of the barrel, as indicated in broken lines. These levers extend forward to bring their free ends, or a projection therefrom, into or over the openings B C, as shown. The openings are preferably in the form of slots, and the free ends of the levers are constructed with projections which enter these slots, and so as to come substantially flush with the inner surface of the barrel. After explosion and after the bullet shall have passed the openings B C, the gases produced from explosion will be



instantly brought to bear upon the two levers, and so as to force them away from the openings in opposite directions, this operation being simultaneous upon both levers.

5 The force thus exerted upon the levers being in diametrically opposite directions, it follows that the force brought to bear upon one lever is counter-balanced by the force brought to bear upon the opposite lever, and so that  
10 such lateral force can in no way affect the movement of the barrel to turn it out of line.

The arrangement of a lever hung with relation to an aperture through the barrel for the gases to operate thereon, is a known device, and this device is adopted for illustration as being a convenient and practical arrangement.

The movement of the levers may be communicated to the mechanism of the gun by  
20 any of the known means employed for this purpose. As here represented it is through a tubular slide G, arranged on the magazine-tube H, and so as to connect with the handle N, which is also arranged on the magazine to  
25 slide backward and forward, the said handle being connected with the mechanism of the arm by the slide O, in the usual manner, and as shown in Fig. 3 so that the rearward movement of the sliding tube G, and the handle  
30 will produce the opening movement of the mechanism, and the forward movement of the tube G, and the handle will produce the closing movement, this being a common and well known mechanism.

35 Within the forward end of the magazine-tube a spiral spring I, is arranged, one end of which bears against a stationary support J, in the magazine. The spring extending forward, its other end bears against a cross-bar K, in  
40 the sliding tube G, and the bar K, is connected by a link L, to the lever D, and is also connected by a link M, to the other lever E, and so that in the opening movement of the levers E D, swinging to the position indicated in  
45 broken lines Fig. 1, the sliding tube G, will be forced rearward, the spring I, being compressed in such movement; and so that the reaction of the spring will cause the return of the levers D E. The sliding movement thus  
50 imparted by the opening movement of the levers is sufficient to produce the opening movement of the mechanism of the arm, and the reaction of the spring brings the levers and the mechanism of the arm back to the closed or  
55 normal position.

No breech mechanism is illustrated, as such is unnecessary to the full understanding of the invention. Any of the known breech clos-

ing and operating mechanisms may be employed, such mechanism having connection 60 with the devices by which the diametrically opposite openings in the barrel are closed.

The illustration which has thus been made of the invention as applied to two diametrically oppositely arranged levers will be suffi- 65 cient to enable others skilled in the art to apply the invention to other mechanisms whereby the counteracting force of the diametrically opposite openings in the barrel will be attained. The invention is therefore not to be 70 understood as limited to the specific mechanism described combined with diametrically opposite openings in the barrel, but

What is claimed, and desired to be secured by Letters Patent, is—

1. In a breech-loading gun, the barrel constructed with openings into it in rear of its muzzle end, the openings being substantially diametrically opposite each other, combined with devices substantially such as described 80 adapted to receive the action of the gases within the barrel through said openings, and in opposite directions, with mechanism between said devices and the breech-mechanism of the gun, and a spring substantially as described whereby in the opening movement of 85 said devices the breech mechanism will be opened and the spring compressed, the reaction of the spring operating to return the said devices and mechanism to their closed or normal position. 90

2. In a breech-loading gun, the barrel constructed with openings into it in rear of its muzzle end, the openings being substantially diametrically opposite each other, two levers 95 hung upon pivots stationary with the barrel, the free ends of the levers adapted to substantially close the said openings in the barrel, and whereby the force of the gases of explosion will be exerted upon said levers through 100 the said openings, but in opposite directions, combined with mechanism substantially such as described between said levers and the breech mechanism of the gun, whereby the outward swinging movement of the said levers 105 will produce the opening of the breech mechanism, and the return of said levers will produce the closing movement of said mechanism.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 110

JOHN M. BROWNING.

Witnesses:

T. S. BROWNING,  
JOHN E. RAMSDEN.