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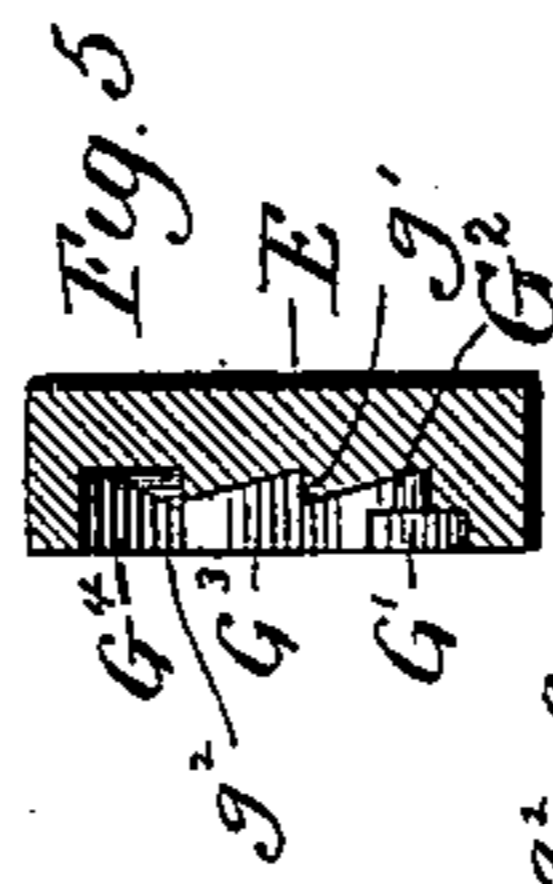
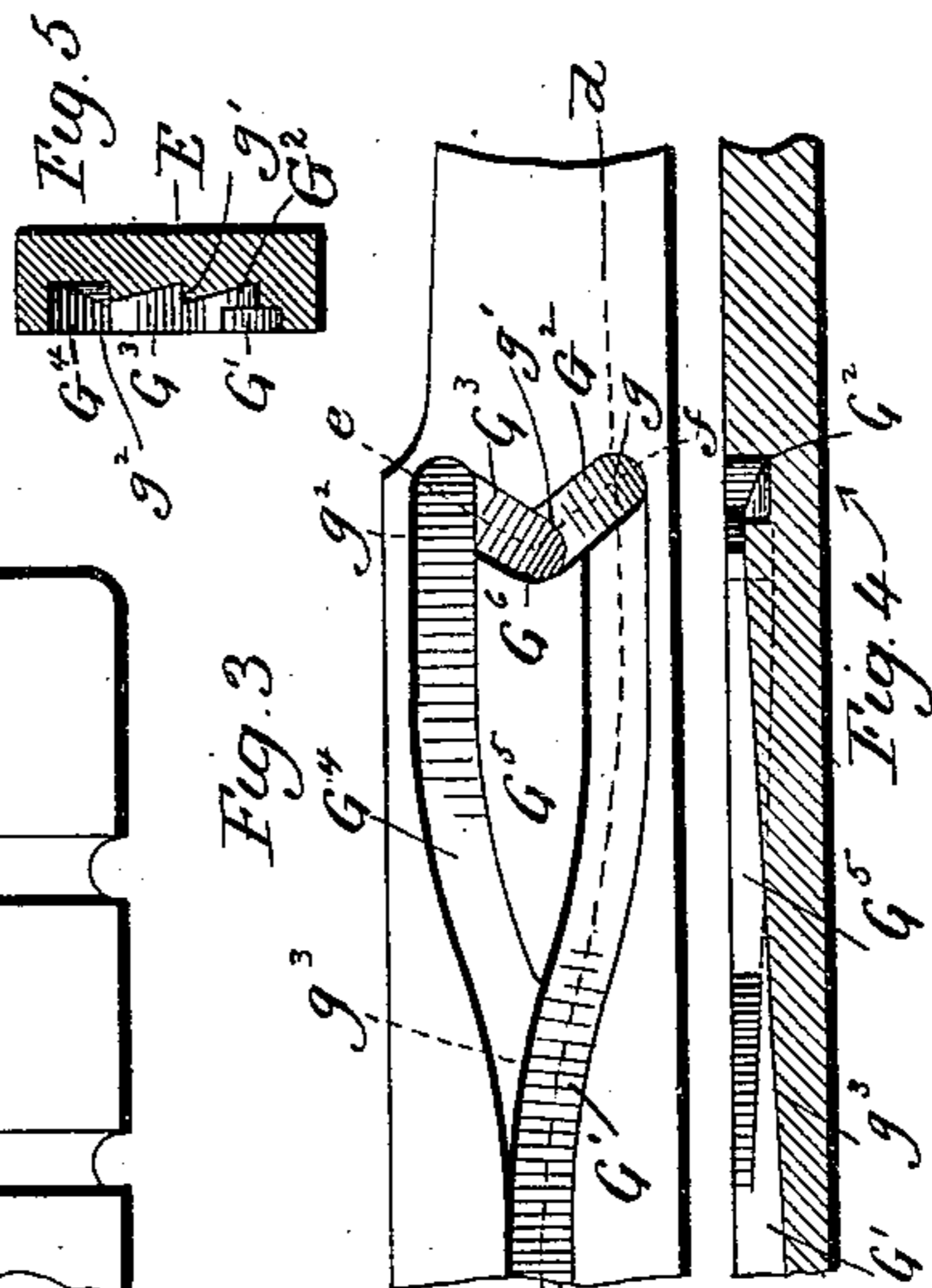
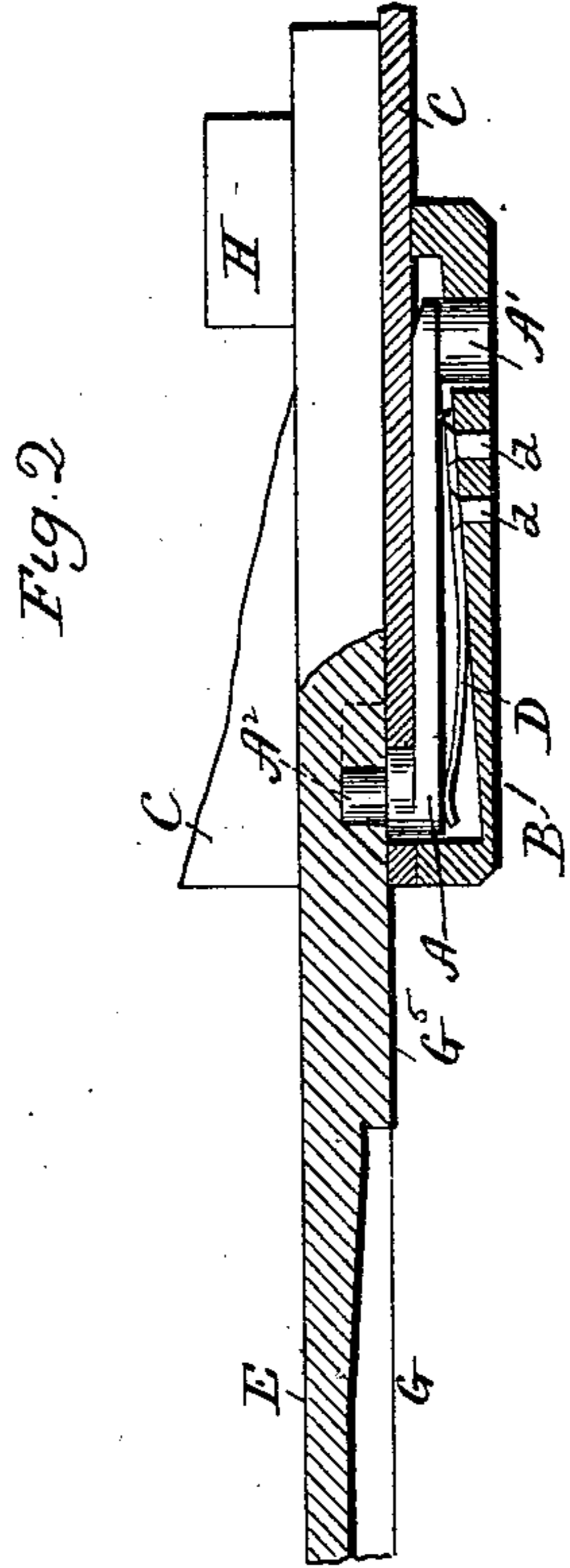
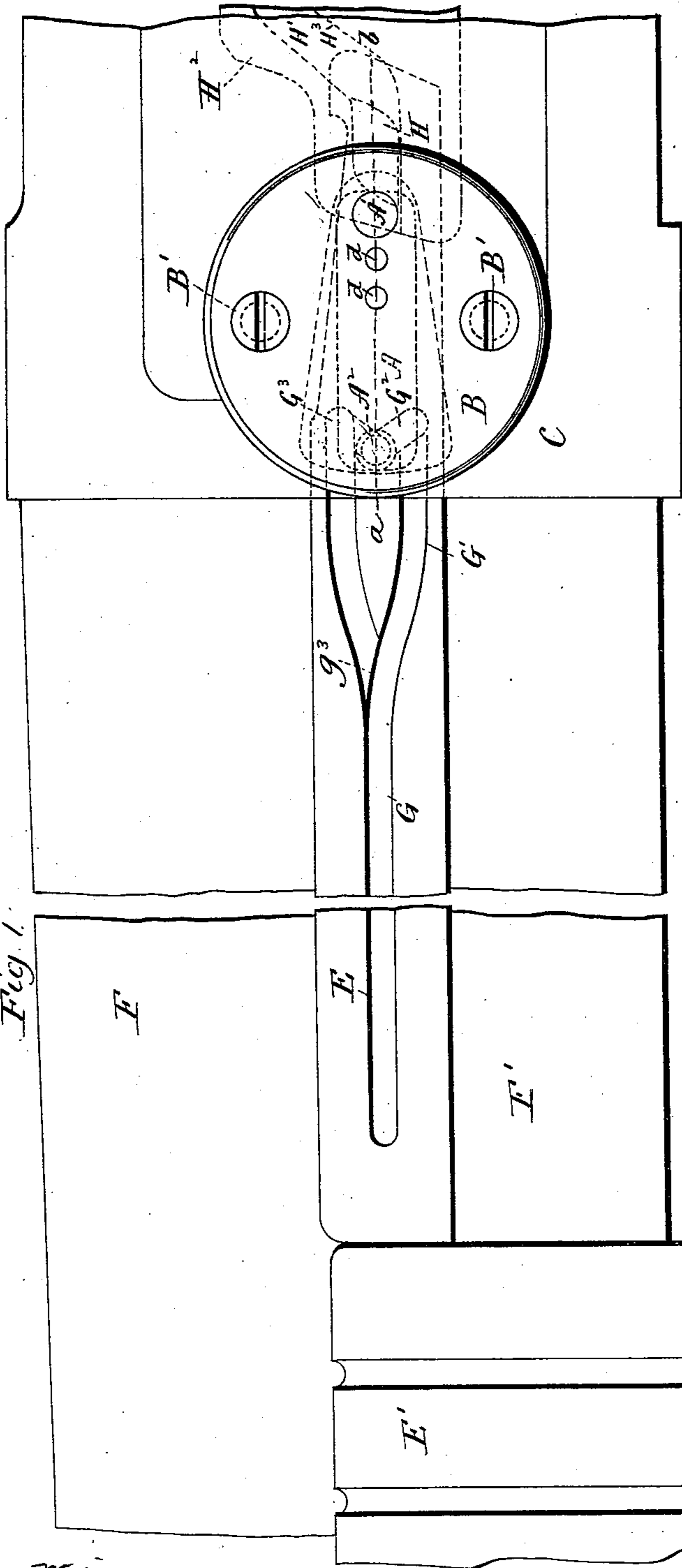
2 Sheets—Sheet 1.

W. MASON.

SAFETY STOP FOR OPERATING BARS OF BREECH LOADING FIREARMS.

No. 564,441.

Patented July 21, 1896.



Witnesses.  
J. H. Shumway.  
Lillian D. Kelley.

William Mason  
Inventor.  
By atty. Earle Seymour

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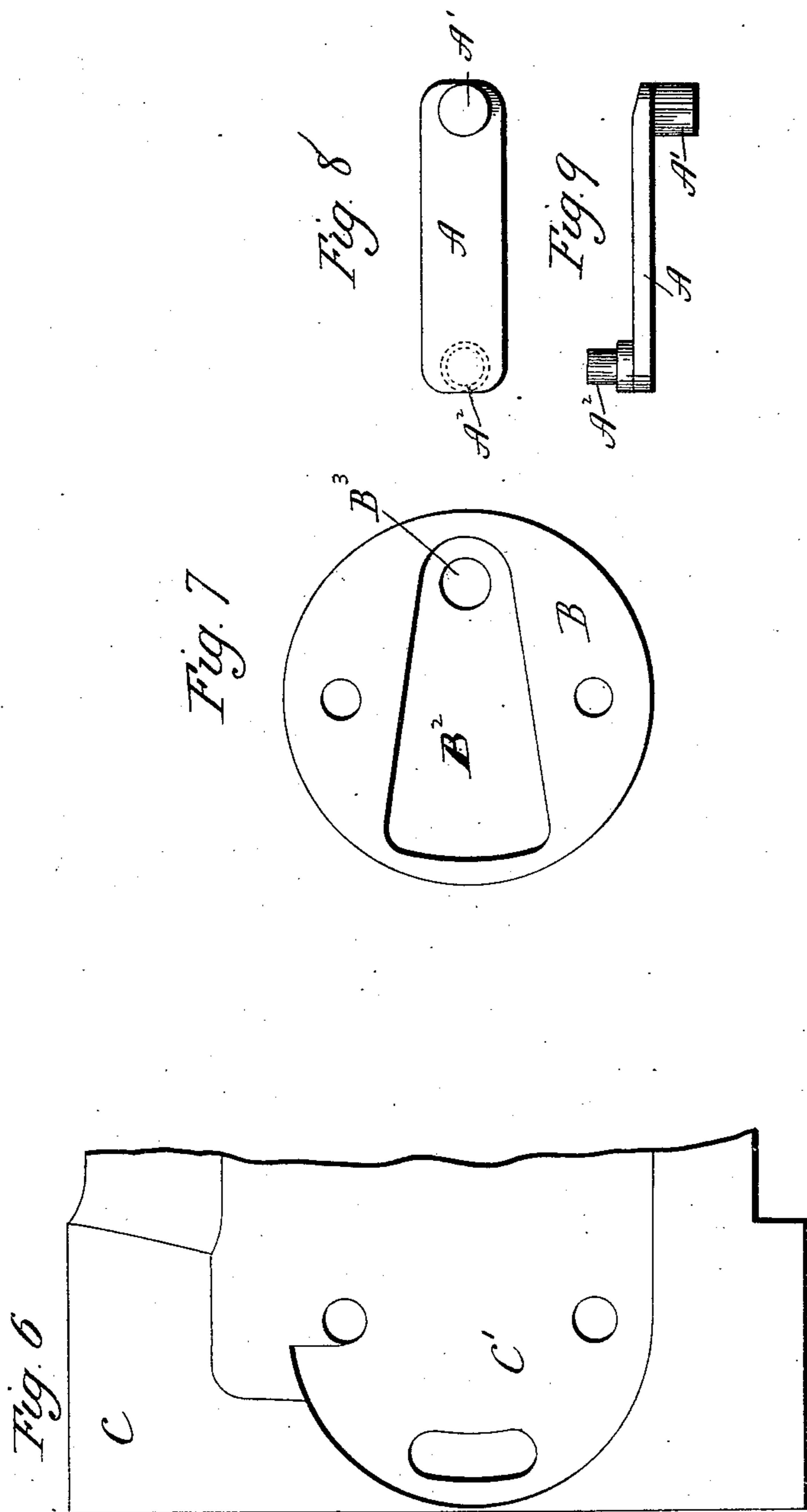
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W. MASON.

SAFETY STOP FOR OPERATING BARS OF BREECH LOADING FIREARMS.

No. 564,441.

Patented July 21, 1896.



Witnesses:  
*J. N. Thompson*  
*Lillian D. Kellogg*

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Inventor  
*By atty Earle Reynolds*

# UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE  
WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

## SAFETY-STOP FOR OPERATING-BARS OF BREECH-LOADING FIREARMS.

SPECIFICATION forming part of Letters Patent No. 564,441, dated July 21, 1896.

Application filed February 10, 1896. Serial No. 578,653. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MASON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Firearms; and I do hereby declare the following, when taken in connection with the 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 enlarged broken view, in side elevation, of a firearm containing my invention, showing the forward end of the frame, a portion of the handle, and the action-bar; Fig. 2, a view in horizontal section on the line *a b* of Fig. 1; Fig. 3, a broken view, in outside elevation, of the rear end of the action-bar; Fig. 4, a horizontal longitudinal section of the action-bar on the irregular line *c d* of Fig. 3; Fig. 5, a transverse view of the action-bar on the line *e f* of Fig. 3; Fig. 6, a detached broken view, in outside elevation, of the forward end of the frame of the arm to show the recess formed therein for the reception of the recessed plate in which the abutment-lever is mounted; Fig. 7, a view of the said plate in inside elevation; Fig. 8, a detached view, in outside elevation, of the abutment-lever; Fig. 9, a plan view thereof.

My invention relates to an improvement in that class of firearms in which the action mechanism is operated by means of a sliding handle located in front of it and arranged to be moved back and forth in a plane parallel or substantially parallel with the longitudinal axis of the gun-barrel, the object of my present invention being to provide simple and effective means for preventing the premature opening of the gun in the interval between the falling of the hammer and the explosion of the cartridge by the exertion of an untimely draft upon the sliding handle.

With these ends in view my invention consists in the combination, with an action-bar, of an abutment-lever pivotally connected with the gun-frame, one of the said parts containing a projection and the other constructed with an island-groove surrounding an island, the said projection, groove, and island coacting to prevent the handle from being drawn

back, as required for opening the gun, until it has first been given a preliminary forward unlocking movement.

My invention further consists in the combination, with an action-bar constructed at its rear end with an island-groove surrounding an island, of an abutment-lever pivotally connected with the gun-frame and containing a projection entering the said groove and coacting therewith and with the said island to prevent the handle from being drawn back, as required for opening the gun, until it has first been given a preliminary forward unlocking movement.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention, as herein shown, I employ a lever *A*, which, for want of a better term, I shall speak of as an "abutment-lever," as its function is thereby described. This lever is provided at its rear end with a short stud or journal *A'*, by means of which it is pivotally mounted at its rear end in a disk-shaped lever containing plate *B*, removably secured by screws *B' B'*, or in some other suitable manner, to the left-hand side of the frame *C* of the arm, at the forward end thereof, the said frame being formed with a recess *C'*, Fig. 6, for the reception of the said disk. The inner face of the disk is constructed with a wedge-shaped recess *B<sup>2</sup>*, receiving the abutment-lever, and wider at its forward than at its rear end to permit the same to oscillate vertically within the limits required. A circular opening *B<sup>3</sup>*, formed in the plate at the rear end of the recess *B<sup>2</sup>*, receives the journal *A'*, and is sufficiently larger in diameter than the diameter of the same to permit the lever to have a slight lateral movement in addition to its proper oscillating movement.

A flat spring *D*, secured at its rear end to the disk-shaped plate *B* in the bottom of the recess *B<sup>2</sup>* thereof by studs *d d'*, engages at its forward end with the forward end of the lever. If desired, however, a coiled spring may be used in place of the flat spring *D*, nor am I limited to forming a flat spring in the form thereof, nor to securing it in place as shown. The said spring *D* exerts a constant

effort to move the same laterally inward, and so keep the end of the abutment-stud  $A^2$ , projecting inwardly from the forward end of the lever, in engagement with the bottom of the island-groove formed in the outer face of the rear end of the action-bar E, which at its forward end is secured to the sliding handle  $E'$ , which moves back and forth in a line parallel or substantially parallel with the longitudinal axis of the gun-barrel F. As herein shown, the handle is mounted upon a tubular magazine  $F'$ , but this is not imperative. The "island-groove" before mentioned is formed in the outer face of the rear end of the action-bar, and is so called because it is a feature of a mechanical movement known to mechanists as an "island movement." The groove not being strictly continuous, but differentiated in its parts, will be described by referring to its several arms. It comprises a long, forwardly-extending, straight clearance-arm G, a lower bowed arm  $G'$ , merging at its forward end into the rear end of the arm G and at its rear end into a short, inwardly and forwardly inclined arm  $G^2$ , from which it is separated by means of a shoulder  $g$ . The bottom wall of the said arm  $G'$  rises gradually to the said shoulder  $g$ , and the bottom wall of the arm  $G^2$  rises from the outer end thereof to a shoulder  $g'$ , which separates it from the inner end of a corresponding inwardly-inclined short arm  $G^3$ , the bottom wall of which rises from the inner end thereof to a shoulder  $g^2$ , which separates the said arm  $G^3$  from the rear end of an upper bowed arm  $G^4$ , the forward end of which merges into the forward end of the arm  $G'$  and is separated therefrom by a shoulder  $g^3$  toward which the bottom wall of the said arm gradually rises. The said shoulders, it will be understood, are relied upon to cause the abutment-stud  $A^2$  to invariably make the circuit of the groove in the right direction. The arms  $G'$ ,  $G^2$ ,  $G^3$ , and  $G^4$  inclose an arrow or spear shaped island  $G^5$ , pointed at its forward end, and having its rear end concaved to form a seat  $G^6$ , the function of which will be set forth later on.

The rear end of the action-bar is provided with an inwardly-projecting operating-lug H, which extends into a path cam-slot  $H'$ , formed in the carrier  $H^2$ , which, as shown, also has the function of a "locking-block" and may be so termed. When the gun is fully closed, the lug H has the position in which it is shown in broken lines in Fig. 1, and is sufficiently separated from the inclined forward portion  $H^3$  of the lower wall of the path cam-slot to permit the handle and action-bar to be moved back and forth within narrow limits without disturbing the carrier. The object of this arrangement will be set forth later on. When the gun is being closed, the abutment-stud  $A^2$  rides in the clearance-arm G of the island-groove and thence into the arm  $G'$  thereof, being prevented from entering the arm  $G^4$  by the shoulder  $g^3$ , which separates the said arm  $G^4$  from the arm  $G'$ . Then, just before the

gun is fully closed, the stud drops off the shoulder  $g$  at the rear end of the arm  $G'$  into the outer end of the arm  $G^2$ , where it remains until after the gun is fired and is opened, unless the user prior to this time draws rearward upon the sliding handle E. If he does this, the shoulder  $g$ , before mentioned, engages with the stud, causing the same to ride up the inclined bottom wall of the arm  $G^2$  and drop over the shoulder  $g'$ , whereby the stud is brought into line with the seat  $G^6$  at the rear end of the island  $G^5$ . It will be understood, of course, that when the stud is lifted, as described, the abutment-lever A is lifted and brought into line with the action-bar, which it blocks against rearward movement, for it is to be remembered that the lever is connected with the frame of the arm. Any rearward draft upon the sliding handle after the gun has been closed immediately operates to cause the abutment-lever to be moved into position for blocking the rearward movement of the handle-bar, whereby the gun is locked in its closed adjustment through the medium of the handle-bar. To open the gun, the handle-bar must first be given a preliminary forward unlocking movement sufficient in extent to cause the abutment-stud  $A^2$  to ride outward in the arm  $G^3$  and drop off the shoulder  $g^2$  into the rear end of the arm  $G^4$ , whereby the stud is cleared from the rear end of the island. The gun may now be opened by drawing back upon the sliding handle, causing the stud to ride outward in the arm  $G^4$  and drop off the shoulder  $g^3$  into the long straight clearance-arm G.

I have spoken of the abutment-stud  $A^2$  as riding back and forth in the arms of the groove; but it will be understood, of course, that in reality the groove moves while the stud remains stationary, except for the slight movement which it has with the lever in which it is mounted.

The reason for arranging the operating-lug H, as before described, so that when the gun is closed it will be separated from the inclined forward portion  $H^3$  of the lower wall of the path cam-slot  $H'$  in the carrier, will now be apparent, namely, to allow the handle to be moved back and forth, without disturbing the carrier, for a sufficient distance to permit the handle to be moved back enough to lift the lever and stud into line with the action-bar for locking the latter, and forward enough to permit the stud to be lifted enough more to clear it from the island on release of the action-bar. In other words, the distance between the rear end of the operating-lug and the inclined portion  $H^3$  of the lower wall of the path cam-slot will be proportional to the pitch of the arms  $G^2$  and  $G^3$  of the island-groove.

In the foregoing description of the operation of my improved arm I have spoken chiefly of the safety function of my invention; but it will be understood, of course, that the device always operates, whether it performs

the safety function or not, the only difference being that when it performs a safety function it operates just about the time the gun is fired, while when it does not perform that function it operates after the gun has been fired and preparatory to opening it in the ordinary way, for it is always necessary, in order to open the gun, to give the sliding handle a preliminary forward unlocking movement before it can be drawn backward to the extent required for opening the gun. This follows because the construction of the island-groove, island, and projection makes it necessary for the projection to make the circuit of the groove once for every opening and closing movement of the gun.

It is apparent that in carrying out my invention I do not limit myself to the exact constructions herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention. Thus, although the locking-block herein shown is in the form of a carrier for transferring the cartridges from the tubular magazine to the gun-barrel, I would have it understood that I may embody my invention in guns in which the locking-block is of different form and does not have the function of carrying the cartridges as described. I do not intend, therefore, by my use of the word "carrier" to limit myself to a locking-block which is also a carrier.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a firearm, the combination with an action-bar, of a pivotal abutment-lever, one of the said parts containing a projection and the other constructed with an island-groove surrounding an island forming an abutment for the said projection, substantially as described.

2. In a firearm, the combination with an action-bar constructed at its rear end with an island-groove surrounding an island, of an abutment-lever pivotally connected with the frame of the arm, and containing a projection entering the said groove and coacting with the same and with the island, substantially as described.

3. In a firearm, the combination with an

action-bar, of a pivotal abutment-lever for coaction therewith, and a plate adapted to receive the said lever and secured to the exterior of one of the sides of the frame of the arm, substantially as described.

4. In a firearm, the combination with an action-bar, of a vertically-oscillating abutment-lever adapted to coact therewith, and loosely mounted upon a horizontal pivot-pin so as to have lateral in addition to vertical movement thereupon.

5. In a firearm, the combination with an action-bar, of a vertically-oscillating and laterally-moving abutment-lever to coact therewith, a plate secured to the gun-frame and formed with a recess to receive the said lever, and a spring interposed between the lever and plate for moving the lever laterally, substantially as described.

6. In a firearm the combination with an action-bar of an abutment-lever for coaction therewith, and a locking-block also coacting with the action-bar, the said bar and block being constructed to permit the bar to be moved back and forth when the gun is closed as required for its coaction with the abutment-lever without disturbing the block, substantially as described.

7. In a firearm the combination with an action-bar of a pivotal abutment-lever, one of the said parts containing a projection and the other constructed with an island-groove surrounding an island forming an abutment for the said projection when the gun is closed and rearward draft is exerted upon its sliding handle, and a locking-block which is also a carrier, the said block containing a path cam-slot receiving a lug located upon the action-bar and providing for lost motion between the bar and block when the gun is closed to permit the motion between the action-bar and lever required for the operation of the latter, substantially as described.

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

WILLIAM MASON.

Witnesses:

DANIEL H. VEADER,  
A. T. WARD.