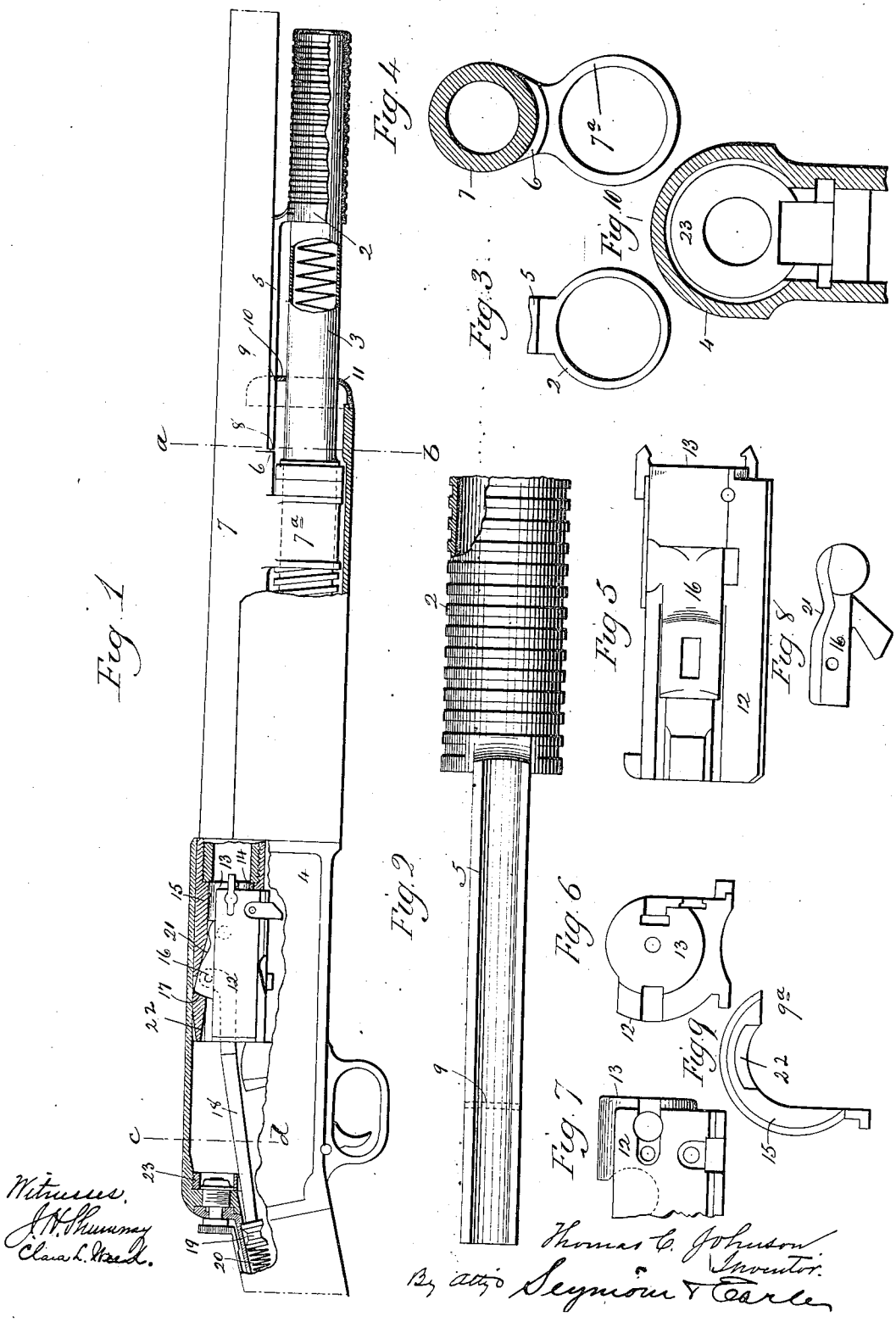
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T. C. JOHNSON.

AUTOMATIC FIREARM.

APPLICATION FILED NOV. 13, 1903.

NO MODEL.



Witnesses.
J. W. Shumway
Clara L. Heald.

Thomas C. Johnson
Inventor.
By attys Seymour & Earle

No. 758,318. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

THOMAS C. JOHNSON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO WINCHESTER REPEATING ARMS CO., OF NEW HAVEN, CONNECTICUT, A CORPORATION.

AUTOMATIC FIREARM.

SPECIFICATION forming part of Letters Patent No. 758,318, dated April 26, 1904.

Application filed November 13, 1903. Serial No. 181,033. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. JOHNSON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Automatic 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, a broken view, partly in side elevation and partly in vertical longitudinal section, of a gun embodying my invention; Fig. 2, a detached reverse broken plan view of the barrel-operating handle for the manual operation of the barrel; Fig. 3, a view thereof in front elevation; Fig. 4, a detached view of the barrel in transverse section looking rearwardly, taken on the line *a b* of Fig. 1 and showing the shoulder formed beneath the barrel proper for coöperation with the bar of the barrel-operating handle; Fig. 5, a detached view of the breech-block, showing the locking-block; Fig. 6, a view of the breech-block in front elevation; Fig. 7, a broken view showing the forward end of the breech-block in right-hand side elevation, showing the centering and supporting projection at its forward end; Fig. 8, a detached view in right-hand side elevation of the locking-block; Fig. 9, a view in rear elevation of the barrel extension, showing the cam-surface formed therein for coaction with the locking-block; Fig. 10, a view in transverse section of the gun-frame on the line *c d* of Fig. 1 and looking rearwardly to show the vulcanized fiber located within its rear end to form a buffer for the barrel extension and breech-block.

My invention relates to an improvement in that class of automatic firearms having recoiling barrels, the object being to produce a light, compact, and reliable arm in which the number of parts is reduced to the minimum and which is constructed with particular reference to convenience in manually operating the recoiling barrel in order to feed the first cartridge into the firing-chamber, to supporting the forward end of the breech-block solidly in the barrel extension at the time of firing the arm, to dispensing with a locking device for holding the locking-block in its depressed position, and to relieving the gun-frame from the shock of the impact of the barrel extension and breech-block at the time of recoil.

With these ends in view my invention consists in an automatic firearm having a recoiling barrel and provided with a sliding operating-handle for manually moving the barrel rearward, and hence opening the gun.

My invention further consists in the combination, with a gun having a recoiling barrel and barrel extension, of a breech-block formed at its forward end with a centering and supporting projection entering the barrel extension for supporting the forward end of the block at the time of firing.

My invention further consists in the combination, with a gun having a recoiling barrel, of a barrel extension formed at its rear end with a cam-surface, a breech-block located within the barrel extension, a locking-block pivotally mounted in the breech-block and having its upper face formed with a cam-surface to coact with the said cam-surface of the barrel extension, a breech-block-operating rod pivotally connected with the locking-block and extending rearwardly therefrom, and a breech-block-closing spring coacting with the said rod, the said cam-surface of the locking-block and barrel extension coacting to depress the locking-block against the tension of the said spring, so as to permit the breech-block to enter the barrel extension when the gun is closing.

My invention further consists in the combination, with a gun-frame, of a recoiling barrel, barrel extension and breech-block, and an inelastic or substantially inelastic buffer located within the rear end of the gun-frame to receive the impact of the barrel extension and breech-block when the gun is automatically opened.

My invention further consists in ceratin details of construction and combinations of parts,

as will be hereinafter described, and pointed out in the claims.

I may now state that the gun of my present invention is closely related to that shown and described in my pending application, filed June 29, 1903, and serially numbered 163,630. The gun was so fully described in that application that it is unnecessary to describe its detailed construction herein further than may be necessary to the understanding of the present features of novelty.

In carrying out my invention as herein shown I employ a tubular sliding barrel-operating handle 2, in this case formed with annular grooves, so that it may be firmly gripped by the hand of the user. This sliding handle is mounted so as to move freely back and forth upon the forward end of the tubular magazine 3, the rear end of which is entered into the gun-frame 4. The said sliding handle is formed at its rear end with a rearwardly-extending operating-bar 5, adapted at its rear end to engage with an operating-shoulder 6, formed upon the under face of the recoiling gun-barrel 7, as shown in Figs. 1 and 4, a short distance in front of the heavy guide-ring 7^a, depending from the barrel and receiving the tubular magazine 3. When the handle is in its normal position, a clearance-space 8 separates the rear end of the bar 5 from the shoulder 6, so that in the automatic operation of the gun the shoulder will not impinge against the bar when the recoiling barrel is returned in the usual manner to its closed position. The said handle is held in its normal or retired position by the provision of the under face of its bar 5 with a shallow transverse locking or retaining groove 9, which engages with the upper edge of the front wall 10 of the fore-stock tip 11, the upper portion of which embraces the barrel. By grasping the handle 2 and pulling rearwardly upon it the bar 5 will spring sufficiently to readily disengage itself from the fore-stock tip 11, permitting the handle to be moved rearward. Almost immediately after the handle has been started on its rearward movement the rear end of its bar 5 engages with the shoulder 6 of the barrel 7, which is then started in its rearward movement. The handle and barrel are thus moved rearward manually until the gun has been opened. During this manual opening of the gun the breech-block-closing spring 20 has been placed under tension, so that when the user of the arm lets up, so to speak, on his rearward pull upon the handle the gun will be automatically closed, the barrel pushing the handle before it, whereby the handle is returned to its normal or retired position, in which it is retained by the reëngagement of its bar 5 with the fore-stock tip 11, over which the bar rides. In riding over the fore-stock tip the bar is placed under sufficient tension to prevent the handle from being jarred free. The handle is chiefly used for manually operating the gun so as to feed the first cartridge from the tubular magazine 3 into the firing-chamber of the gun-barrel; but of course the handle may be used for manually opening the gun for any other purpose.

The breech-block 12 is furnished at its forward end with a circular centering and supporting projection or extension 13, which enters a recess 14, formed for its reception in the forward end of the barrel extension 15, which has the rear end of the barrel 7 screwed into it. The part 13 not only helps to center the breech-block as the same moves into its closed position, but very solidly supports the forward end of the block under downward thrust at the time of firing, due to the fact that the locking-block 16, mounted in the breech-block, is located when the gun is fired in an inclined position with its rear end entered into a locking-recess 17 in the top and near the rear end of the barrel extension 15, the locking-block being pivotally connected at its forward end with the breech-block and having its rear or recoil-taking end struck on a curve, to which the rear or recoil-taking wall of the locking-recess 17 corresponds in curvature. Under this arrangement the shock of recoil, which is in large part borne by the locking-block 16, exerts a downward thrust upon the forward end of the breech-block. This thrust, however, is resisted by the centering and supporting projection 13, already described. It is particularly desirable to support the breech-block in this supplemental way, because the right-hand wall of the barrel extension is partially cut away in forming the lateral ejection-opening 9^a.

The locking-block 16 is operated by a breech-block-operating rod 18, having its rear end entered into a timing-follower 19, recessed at its ends and receiving the forward end of the breech-block-closing spring 20. No further description will be given at this time of the timing-follower, which is fully described in my prior application referred to. It will be understood that the spring 20 acts, through the follower 19 and the rod 18, to move the breech-block into its closed position; but inasmuch as the rod 18 is connected with the breech-block 12 through the locking-block 16 the spring 20 and rod 18 operate to lift the locking-block into its elevated position the moment the forward movement of the breech-block 12 is begun unless a locking-dog or some equivalent means are employed for locking the locking-block in its unlocked position against the lifting action of the spring; but one of the objects of my present invention is to dispense with a locking-dog for the locking-block. It may be explained in this connection that the barrel 7, breech-block 12, and barrel extension 15 recoil together; that the breech-block is temporarily held at the limit of its rearward movement while the bar-

rel and barrel extension are returned to their normal positions, and that in the absence of locking means the locking-block is lifted into its elevated position by the spring just as soon as the barrel extension moves forward off the breech-block in the return movement of the recoiling barrel and barrel extension. Now in order that the locking-block may readily enter the rear end of the barrel extension 15 despite the fact that the said locking-block is elevated at the time the same is formed upon its upper face with a cam-surface 21 to coact with a cam-surface 22, formed in the rear end of the barrel extension. These cam-surfaces coact, so that the locking-block is depressed against the power of the said spring and allowed to freely enter the barrel extension and be moved forward therein without appreciably retarding the forward movement of the breech-block 12 under the power of the spring, which as soon as the rear end of the locking-block is brought into registration with the opening 17 in the barrel extension reasserts itself and lifts the block 16, which then locks the breech-block in its closed position.

In order to deaden the shock of the opening movement of the gun, I locate an inelastic or substantially inelastic buffer 23 in the rear end of the gun-frame 4 in position to be impinged upon by the rear ends of the barrel extension 15 and breech-block 12 at the time of recoil, whereby the shock is in part absorbed and racking of the gun, and particularly the breakage of the gun-frame, is prevented. For the buffer I may employ vulcanized fiber or some such material. This buffer deadens the shock, but does not act as a spring would act. A spring in this situation would by being compressed store up power and expend it in throwing the barrel extension and breech-block forward, so that the shock accompanying their return to their forward positions would be intensified. However, a fibrous buffer will not operate in this way, but deadens the shock of recoil by absorption.

It is apparent that in carring out my invention some changes from the construction herein shown and described may be made. I would therefore have it understood that I do not limit myself thereto, but hold myself at liberty to make such departures therefrom as fairly fall within the spirit and scope of my invention.

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

1. In an automatic firearm, the combination with a recoiling barrel, of a sliding barrel-operating handle forming a part of the gun structure for manually moving the barrel rearward, the barrel being automatically movable back and forth independent of the handle.

2. In an automatic gun, the combination with a recoiling barrel, of a sliding handle forming a part of the gun structure and having a rearwardly-extending operating-bar for engaging with the barrel for manually moving the same rearwardly, the barrel being automatically movable back and forth independent of the handle.

3. In an automatic firearm, the combination with a recoiling barrel, of a tubular magazine, and a sliding barrel-operating handle mounted on the magazine for manually moving the barrel rearward, the automatic movement of the barrel being independent of the handle.

4. In an automatic firearm, the combination with a recoiling barrel, of a sliding handle forming a part of the gun structure for manually moving the barrel rearward, and means for holding the handle in its retired or normal position the barrel being automatically movable independent of the handle.

5. In an automatic firearm, the combination with a recoiling barrel, of a sliding handle forming a part of the gun structure for manually moving the barrel rearward, and a fore-stock tip which coacts with the sliding handle to normally hold it in its retired position.

6. In an automatic firearm, the combination with a recoiling barrel having an operating-shoulder formed on its under face, of a sliding handle forming a part of the gun structure and having a rearwardly-extending operating-bar for engaging with the said shoulder for moving the barrel rearward and opening the gun, the barrel being automatically movable rearward independent of the handle.

7. In an automatic firearm, the combination with a recoiling barrel formed with an operating-shoulder, of a tubular magazine, and a sliding barrel-operating handle mounted on the magazine and having a rearwardly-extending operating-bar for engagement with the said shoulder to move the barrel rearward and open the gun, the automatic movement of the barrel being independent of the handle.

8. In an automatic firearm, the combination with a recoiling barrel, of a tubular magazine, a fore-stock tip, and a sliding barrel-operating handle mounted on the magazine and having a rearwardly-extending operating-bar engaging the barrel for moving the same rearward and engaging with the tip for holding the handle in its retired position, the automatic movement of the barrel being independent of the handle.

9. In an automatic gun, the combination with a recoiling barrel, of a barrel extension laterally cut away on its right-hand side to form an ejection-opening and formed in its top with a locking-recess located near its rear end, a breech-block located in the said extension, a locking-block having its forward end pivotally connected with the breech-block and its rear end adapted to be lifted into the locking-recess in the barrel extension, means for operating the said locking-block, and a centering and supporting projection located upon

the forward end of the breech-block and entering the barrel extension for centering the block and supporting the same at the time of firing against the downward thrust of the locking-block.

10. In an automatic gun, the combination with a recoiling barrel, of a barrel extension formed at its rear end with a cam-surface, a breech-block, a locking-block pivotally mounted therein and having its upper face formed with a cam-surface to coact with the said cam-surface of the barrel extension, a breech-block-operating rod pivotally connected with the locking-block, and a breech-block-closing spring coacting with the said rod, whereby the said cam-surfaces coact to depress the locking-block to permit the same to enter the barrel extension when the gun is being closed.

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

THOMAS C. JOHNSON.

Witnesses:
FREDERIC C. EARLE,
CLARA L. WEED.