No. 632,094. Patented Aug. 29, 1899.

J. M. BROWNING.

BOLT GUN.

(Application filed Feb. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

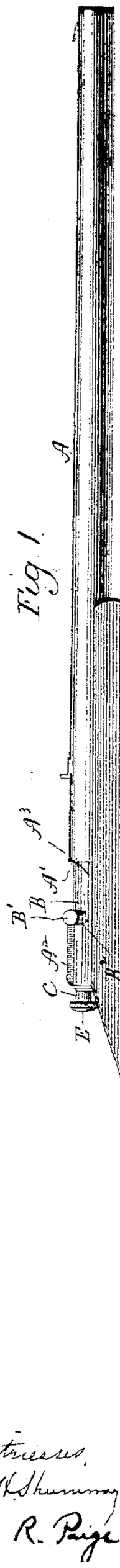


Fig. 2

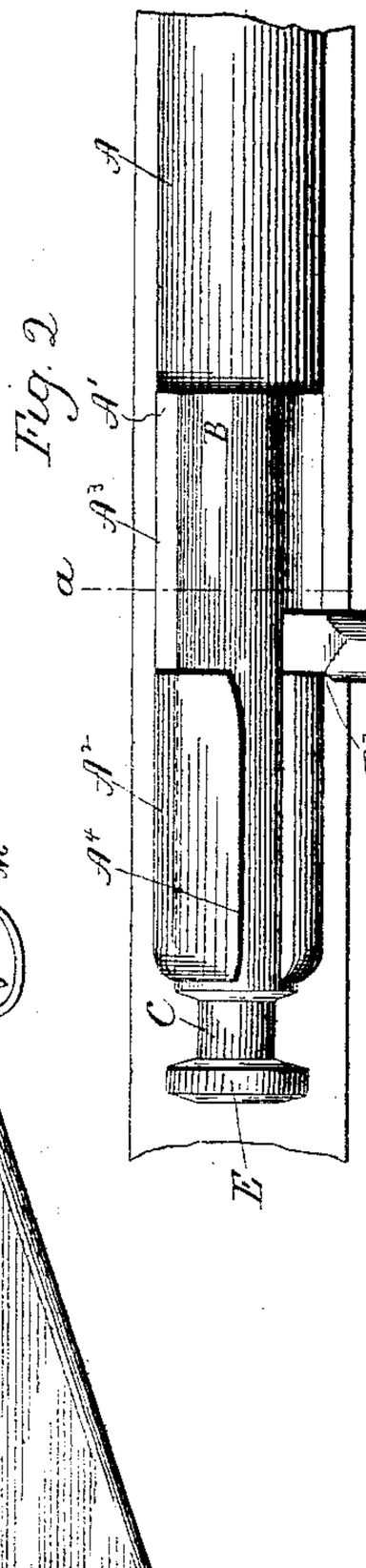


Fig. 4

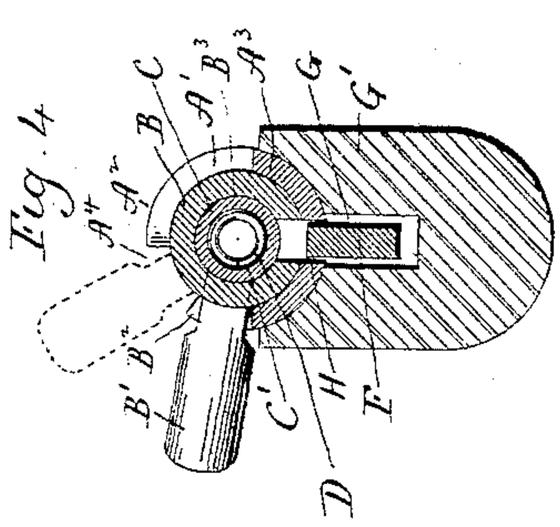


Fig. 5

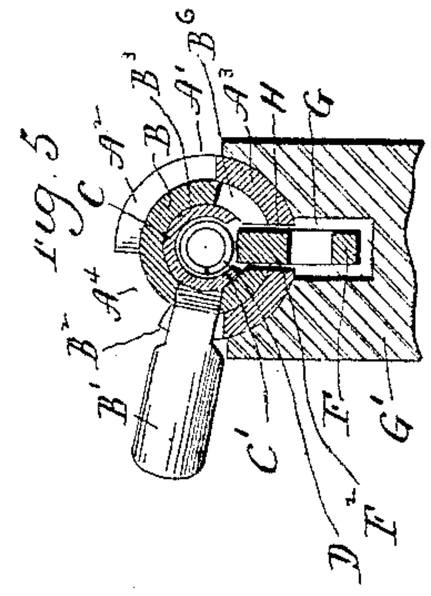
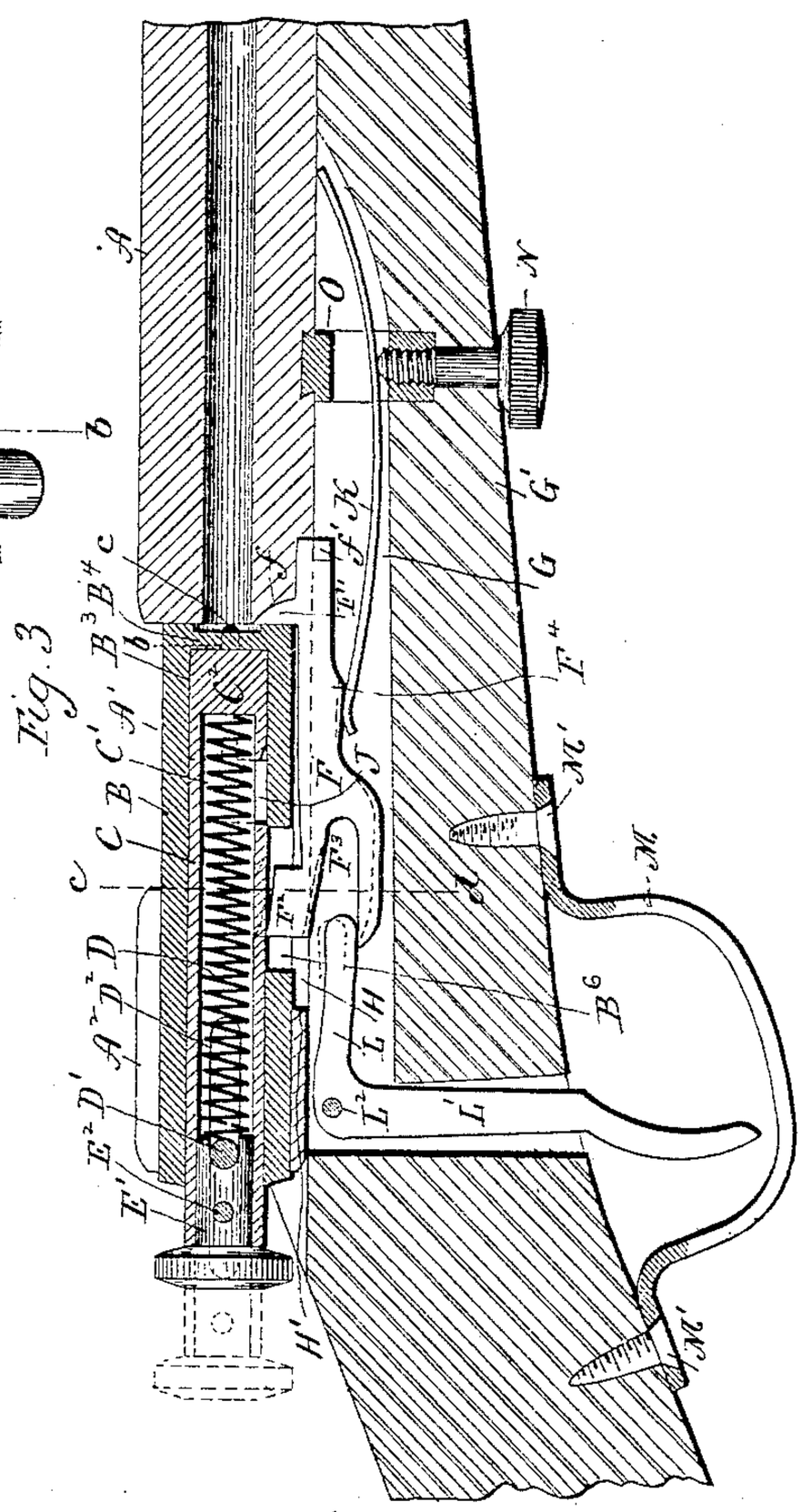


Fig. 3



Witnesses,
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(No Model.) 2 Sheets—Sheet 2.

Fig. 8

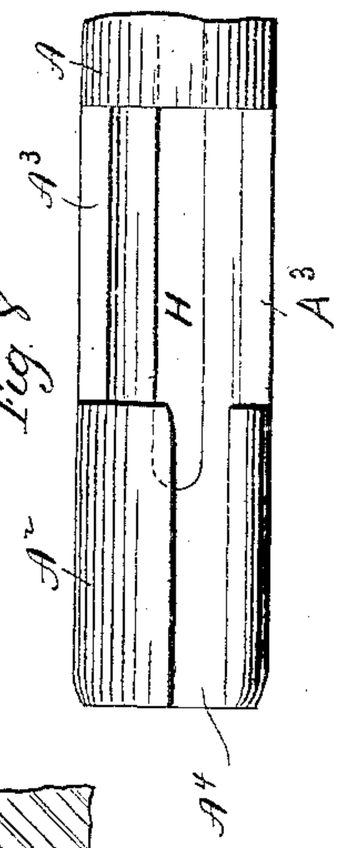

Fig. 9

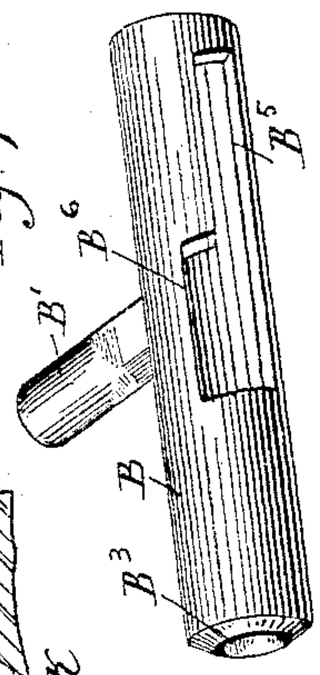

Fig. 6

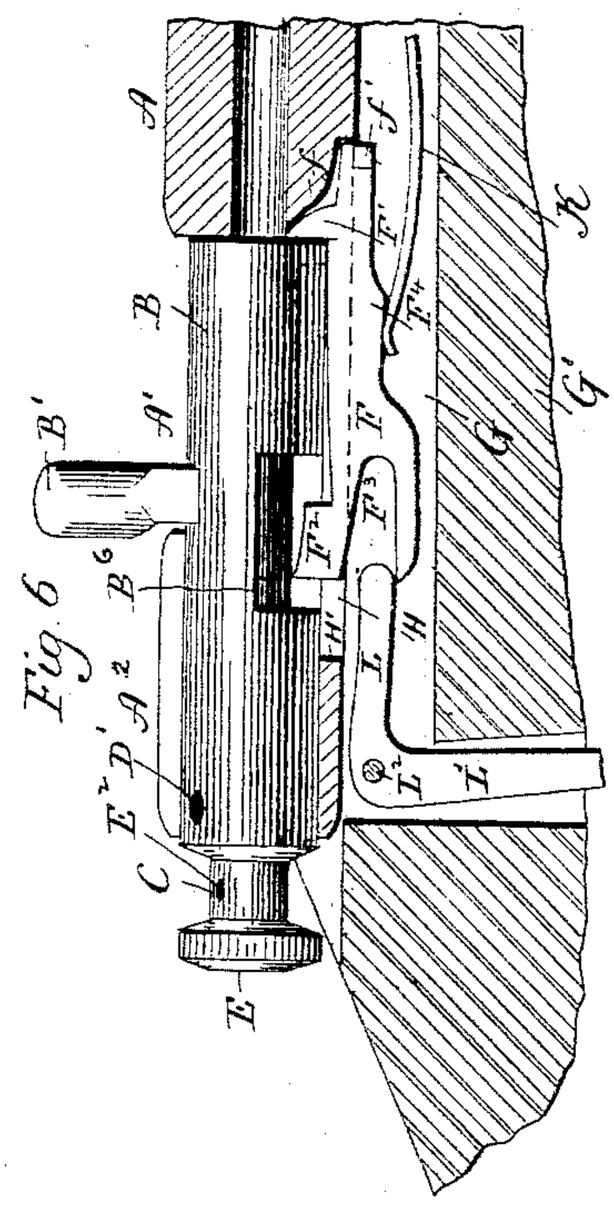

Fig. 7

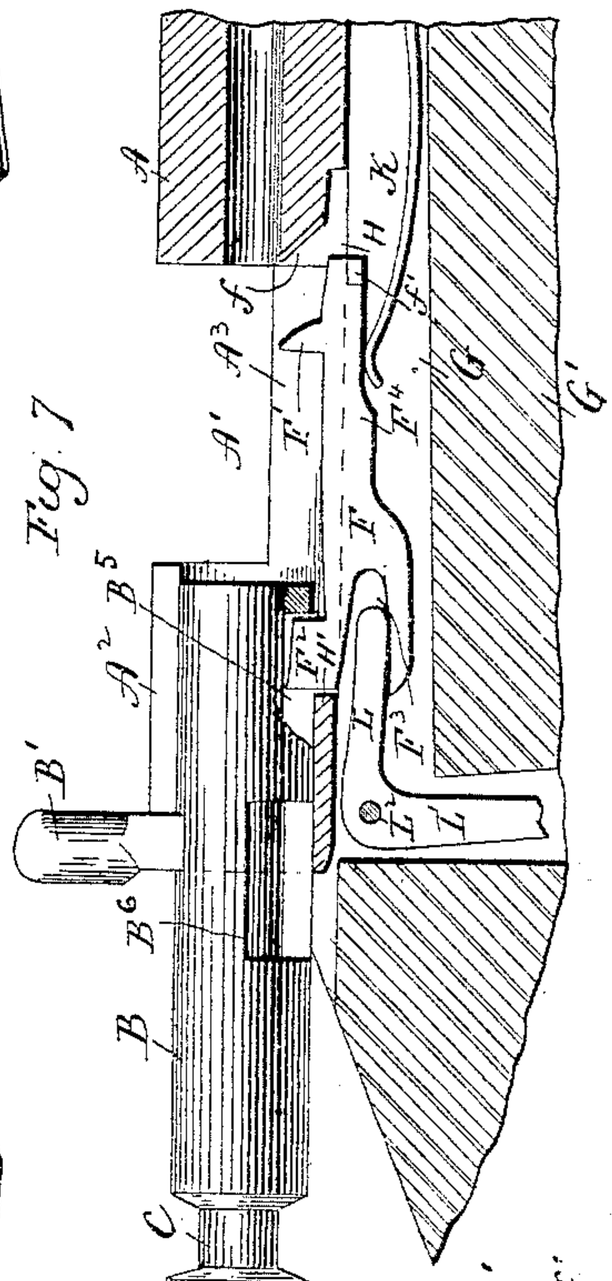

Fig. 10

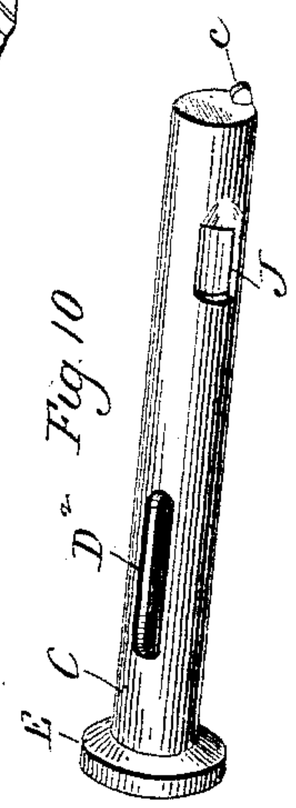

Fig. 11.

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UNITED STATES PATENT OFFICE.

JOHN M. BROWNING, OF OGDEN, UTAH, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF NEW HAVEN, CONNECTICUT.

BOLT-GUN.

SPECIFICATION forming part of Letters Patent No. 632,094, dated August 29, 1899.

Application filed February 17, 1899. Serial No. 705,793. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, of Ogden, in the county of Weber and State of Utah, have invented a new Improvement in Bolt-Guns; 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 view in side elevation of a gun constructed in accordance with my invention; Fig. 2, a broken plan view thereof on an enlarged scale, showing the integral receiver extension of the gun-barrel and the bolt; Fig. 3, a broken view of the gun in vertical longitudinal section; Fig. 4, a view of the gun in vertical transverse section on the line *a b* of Fig. 2, looking rearward in the direction of the arrow *c*; Fig. 5, a less comprehensive view of the gun in vertical transverse section on the line *c d* of Fig. 3; Fig. 6, a broken view of the gun, partly in elevation and partly in vertical section, showing the bolt in its closed but unlocked position; Fig. 7, a similar view showing the bolt in its open position; Fig. 8, a broken plan view of the gun-barrel, showing its receiver extension stripped of all the parts mounted therein; Fig. 9, a perspective view of the bolt; Fig. 10, a perspective view of the hammer; Fig. 11, a detached plan view of the combined extractor and sear.

My invention relates to an improvement in that class of bolt-guns in which the bolt is located in a bolt-housing formed in a rearward extension of the gun-barrel itself, the object being to produce at a low cost for manufacture a simple, safe, and effective gun composed of few parts and not liable to derangement.

A further object of my invention is to produce a gun in which the barrel may be readily removed from the stock without the use of tools to permit the gun to be more compactly packed for transportation.

With these ends in view my invention consists in a gun having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention I provide the barrel A at its butt-end with an integral receiver extension, which is "separated," so to speak, from the barrel proper by means of a transversely-arranged loading-opening A′, which extends downward below the axial center of the barrel. The said receiver extension may be said to consist of a tubular bolt-housing A^2 and a grooved reach or tie A^3, which connects the same with the barrel. The bolt B, which is cylindrical in cross-section, is located within the said bolt-housing A^2 and at its forward end has bearing in the said reach or tie, which is concaved to conform to it in curvature. The said bolt is furnished with a radially-arranged handle B′, movable back and forth in a longitudinal clearance passage or slot A^4, extending throughout the length of the housing and constituting the means for locking the bolt in its closed position, for when the handle emerges from the forward end of the slot A^4 into the transverse opening A′ it is free to be swung to the right in position to be engaged with the right-hand portion of the forward end of the housing at the point B^2, (seen in Fig. 2,) whereby the bolt is not only turned on its longitudinal axis, but also locked in its closed position. The bolt is itself formed with a longitudinal hammer-chamber B^3, open at its rear end and extending nearly to its forward end, where it terminates in a wall B^4. This hammer-chamber receives the reciprocating hammer C, which is entered into it from its rear end and which is provided at its forward end with a firing pin or nose *c*, which passes through a small opening *b*, formed in the wall B^4 just mentioned. When the said firing-pin is projected through the said opening, it engages with the head of the cartridge in the cartridge-chamber of the gun-barrel, into which the cartridges are entered through the transverse loading-opening A′ aforesaid. The said hammer is also formed with a longitudinal spring-chamber C′, entering it at its rear end and extending forward nearly to its forward end, where it terminates in a solid wall C^2. A spiral hammer-spring D is inserted into this spring-chamber C′ through the rear end thereof and is impinged at its forward end against the wall C^2,

its rear end being engaged with a transversely-arranged pin D′, mounted in the rear end of the bolt B and passing through an elongated slot D^2, formed in the hammer. The said pin D′ not only constitutes an abutment for the rear end of the spring D, but prevents the hammer from rotation within the bolt and limits its reciprocation therein. The rear end of the spring-chamber C′, formed in the hammer, is closed by an operating-button or finger-piece E, having a stem E′, which is secured within the hammer by means of a pin E^2. It will be understood, of course, that the operating-button E, with its stem E′, is removed for the introduction and removal of the hammer-spring. A very simple and economical construction and one easily accessible for attention and repair is thus provided. Moreover, the hammer-spring is located entirely within the hammer and the firing-pin made integral with the forward end thereof. These are obvious advantages. With this bolt and hammer I employ a longitudinally and vertically movable combined extractor and sear F, which is made in one piece and which is mainly located in a narrow recess G, formed in the gun-stock G′. The upper edge of this combined part extends upward through a long slot H, formed in the reach or tie A^3 of the receiver extension, the said recess G and slot H being long enough to permit the said part to be moved back and forth, as will be hereinafter explained, the rear wall H′ of the slot H limiting the rearward movement of the said part, while the forward movement thereof is limited by the engagement of the extractor-hook F′ with the forward wall of the notch *f*, formed in the rear end of the gun-barrel for the reception of the said hook. I may here remark that the said notch *f* and the forward end of the slot H are adapted in form and size to provide enough clearance for the forward end of the said combined part to permit the play required for the rocking movement thereof upon its lugs *f′ f′*, as will be more fully described later on. The recess G is also made deep enough to permit the required vertical movement of the rear end of the said combined part. The sear-lug F^2, which is located upon the upper edge of the rear end of the said combined part, extends upward into a clearance-opening B^5, formed in the lower face of the bolt, the rear end of the said opening being laterally enlarged, as at B^6, Fig. 9. The said sear-lug also enters a cocking-notch J, formed in the lower face of the reciprocating hammer C, which the sear-lug enters under the influence of a spring K, located within the recess G. The rear end of the combined part is formed with a deep horizontally-arranged notch F^3, which receives a finger L, extending forward from the upper end of the trigger L′, which is hung on a pin L^2 and the lower end of which extends downward into a trigger-guard M, secured by screws M′ M′ to the lower face of the stock G′. For the purpose of giving a slight impulse to the rearward or extracting movement of the said combined part and also for preventing the extractor from moving forward until after a cartridge has been entered into the cartridge-chamber of the gun-barrel the lower edge of the said combined extractor and sear is formed with a doubly-beveled operating-nose F^4, over which the rear end of the spring K snaps, as will be described later on. The extreme forward end of the said combined part is formed with two laterally-arranged lugs f^2 f^2, which engage with the lower face of the barrel and reach A^3 on opposite sides of the slot H, the main portion of which is located in the reach, but which extends forward into the gun-barrel and rearward into the bolt-housing, these lugs preventing the forward end of the combined part from undue upward movement and acting as pivot-pins, upon which the part virtually swings, while its rear end moves upward and downward for cocking the hammer and releasing the same.

The gun-barrel and its connected parts are secured in place by means of a removable or take-down screw N, which passes upward through the gun-stock into a heavy lug O, which may be dovetailed into the gun-barrel, as shown, or made integral therewith. By removing the said take-down screw N the barrel and all of its connected parts may be readily removed from the gun-stock and readily replaced therein, at which time care should be taken to cause the finger L of the trigger to enter the notch F^3 in the said combined extractor and sear.

In order to load the gun, the handle is lifted from its locked position of engagement with that portion of the forward edge of the tubular bolt-housing lying just below the lower or right-hand wall of the longitudinal clearance-slot formed therein. When the handle has been brought into registration with the said slot, during which time the bolt has been rotated, the bolt may be retracted into its open position, when its forward end is withdrawn into the forward end of the tubular bolt-housing, so as to leave the transverse loading-opening entirely unobstructed to permit a cartridge to be readily entered into the cartridge-chamber of the gun-barrel. Shortly before the bolt reaches its open position the forward edge of the sear-lug F^2 is brought into engagement with the extreme forward end of the clearance-slot B^5, formed in the lower face of the bolt. After this engagement takes place the combined extractor and sear is drawn back until the extreme rear end of the said combined part is brought into engagement with the extreme rear end of the slot H, formed in the reach or tie of the receiver extension, whereby the rearward movement of the bolt is arrested and the bolt prevented from disengagement from the gun. A cartridge is now entered into the cartridge-chamber of the gun-barrel, after which the bolt is

moved forward, but without disturbing the combined extractor and sear, which is held at the limit of its rearward excursion by means of the engagement of the spring K with the forward bevel of the nose F^4, formed upon the lower face of the said part. When, however, the forward end of the bolt engages with the rear edge of the extractor-hook, the bolt "picks up" the combined part, so to speak, and pushes it forward into its home position, during which time the combined extractor-and-sear spring K rides over the nose F^4 and then engages with the beveled rear face thereof. The bolt is now locked in its closed position by turning its handle down into engagement with the forward edge of the bolt-housing, as already described, at which time the bolt is rotated on its longitudinal axis. The operating-button is now seized and the hammer drawn back against the tension of its spring to bring the cocking-opening formed in its lower face into engagement with the sear-lug, which is then immediately lifted into the said notch for cocking the hammer by the lifting action of the combined extractor-and-sear spring K. It may be here mentioned that the said cocking-notch is only brought into registration with the sear-lug when the bolt and hence the hammer are in their locked or closed positions, for at other times the sear-lug simply rides upon the exterior surface of the lower portion of the hammer. The hammer having been cocked the gun is fired by pulling the trigger, which pulls the sear-lug down out of the cocking-notch and permits the hammer-spring to project the hammer forward with sufficient force to cause the firing-pin to explode the cartridge. I should here explain that the cocking of the hammer by the entrance of the sear-lug into the cocking-notch thereof locks the bolt in its closed position, for the bolt cannot be rotated unless the hammer rotates and the hammer cannot be rotated as long as the sear-lug is entered into its cocking-notch. The pulling of the trigger, however, unlocks the bolt and permits it to be turned back to bring the handle into line with the clearance-passage of the bolt-housing, after which the bolt is retracted, without, however, disturbing the combined extractor and sear, until in the rearward movement of the bolt the forward end wall of the clearance-opening formed therein engages with the forward edge of the sear-lug, at which time the combined extractor and sear is "picked up," so to speak, by the bolt and drawn rearward against the tension of the combined extractor and sear-spring, which, when it snaps over the nose of the said combined part, pushes the same rearward with a sudden movement, assisting more or less in the extraction and ejection of the spent shell.

It is obvious that in carrying out my invention I may make some changes in the construction herein shown and described, and I therefore wish it to be understood that I do not limit myself thereto, but hold myself at liberty to make such changes and alterations 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 a bolt-gun, the combination with a gun-barrel formed at its butt-end with an integral receiver extension comprising a tubular bolt-housing formed with a longitudinal slot, and a reach formed with a downwardly-opening longitudinal slot; of a longitudinally-movable and rotatable bolt mounted in the said receiver extension and provided with a radially-arranged operating-handle which is movable back and forth in the longitudinal slot of the bolt-housing, a reciprocating hammer located within the bolt, and a combined extractor and sear located below the said reach, but extending upward into the longitudinal slot therein, and adapted at its forward end to be directly engaged by the bolt for being pushed forward thereby and at its rear end to be directly engaged by the bolt for being drawn rearward thereby, the forward end of the said part acting as an extractor, and the rear end of the said part acting as a sear by engaging with the hammer.

2. In a bolt-gun, the combination with a bolt having a hammer-chamber open at its rear end, of a reciprocating hammer located within the said hammer-chamber, projecting rearward beyond the rear end of the said bolt, and formed with a hammer-spring chamber open at its rear end, a hammer-spring which is introduced into and removed from the said hammer-spring chamber through the open rear end thereof, an operating-button or finger-piece formed independently of the hammer and adapted to be secured thereto so as to close the rear end of the said hammer-spring chamber and a combined part located below the said bolt, adapted at its forward end to act as an extractor and at its rear end as a sear, and to be engaged by the bolt which slides it forward and back.

3. In a bolt-gun, the combination with a bolt formed with a hammer-chamber open at its rear end, and closed at its forward end by a wall provided with a firing-pin opening, of a reciprocating hammer located within the said chamber, provided at its forward end with a firing-pin arranged to pass through the said firing-pin opening, and the said hammer being formed with a hammer-spring chamber open at its rear end which projects beyond the rear end of the bolt, a hammer-spring which is introduced into and removed from the said hammer-spring chamber through the open rear end thereof, a removable operating-button or finger-piece adapted to be attached to the projecting rear end of the hammer, and to close the rear end of the hammer-spring chamber and a combined part located below the said bolt which coacts with

it to move it forward and back, and adapted at its forward end to act as an extractor and at its rear end to act as a sear.

4. In a bolt-gun, the combination with a gun-barrel formed at its butt-end with an integral receiver extension comprising a tubular bolt-housing and a reach having a longitudinal slot, the said reach being located entirely below a transversely-arranged loading-opening separating the cartridge-chamber of the gun-barrel from the said housing; of a longitudinally-movable and rotatable bolt mounted in the said receiver extension, provided with an operating-handle, and formed with a hammer-chamber, a hammer located in the said hammer-chamber from the rear end of which it projects, and provided with a hammer-spring chamber, a pin passing through the said bolt and extending through a slot formed in the rear end of the hammer for securing the same to the bolt, a hammer-spring introduced into and removed from the said hammer-spring chamber through the open rear end thereof, and abutting at its rear end against the said pin, an operating-button or finger-piece secured to the projecting rear end of the hammer, and removed for the insertion and introduction of the hammer-spring, and a combined extractor and sear extending into the longitudinal slot of the reach in which it is moved back and forth by the bolt, and adapted at its forward end to act as an extractor, and at its rear end to act as a sear.

5. In a bolt-gun, the combination with a longitudinally-chambered bolt provided in its lower face with a clearance-opening, of a reciprocating hammer located within the said bolt and formed with a cocking-notch registering with the said clearance-opening, and a sear passing upward through the said clearance-opening in the bolt and entering the said cocking-notch in the hammer, the said sear being formed at its forward end so as to constitute an extractor and adapted to be engaged by the bolt which slides it rearward for the performance of its extracting function and which slides it forward into its home position.

6. In a bolt-gun, the combination with a gun-barrel formed at its butt-end with an integral receiver extension comprising a tubular bolt-housing and a reach, which latter lies below a transversely-arranged loading-opening located between the cartridge-chamber of the barrel and the said housing, of a longitudinally-movable and rotatable bolt mounted in the said housing, and a longitudinally-movable combined extractor and sear provided at its forward end with an extractor-hook and at its rear end with a sear-lug which enters a cocking-notch formed in the hammer through a clearance-opening formed in the bolt.

7. In a bolt-gun, the combination with the barrel thereof, of a longitudinally-movable and rotatable bolt, a longitudinally-movable hammer located within the said bolt, and formed with a cocking-notch, and a combined extractor and sear located below the pathway of the bolt, and provided at its forward end with an extractor-hook, and at its rear end with a sear-lug which enters the cocking-notch of the hammer through a clearance-opening formed in the bolt and locks the bolt against rotation as well as reciprocation, when the hammer is cocked.

8. In a bolt-gun, the combination with the barrel thereof, of a longitudinally-movable and rotatable bolt, a longitudinally-movable hammer located within the bolt and formed with a cocking-notch, a combined extractor and sear located below the path of the bolt, and formed at its forward end with an extractor-hook and at its rear end with a sear-lug which enters the cocking-notch of the hammer through a clearance-opening formed in the bolt, a nose located upon the lower face of the combined extractor and sear, and a spring engaging with the lower edge of the said combined part, and coacting with the nose to give the part a rearward impulse in the ejection of spent cartridges, and coacting with the said nose to retard the forward movement of the part in the closing of the gun.

9. In a bolt-gun, the combination with the bolt thereof, of a reciprocating hammer mounted therein, a trigger, and a longitudinally-movable combined extractor and sear located below the bolt which moves back and forth over it, and which as well as the hammer has reciprocating movement independent of it and by which it is directly engaged at its forward end for being pushed forward, and by which it is directly engaged at its rear end for being drawn rearward, its forward end acting as an extractor and its rear end coacting with the hammer as a sear and adapted to be engaged by the trigger.

10. In a bolt-gun, the combination with the bolt thereof, of a longitudinally and vertically movable combined extractor and sear located below the bolt which moves back and forth over it, and adapted at its forward end to act as an extractor and at its rear end to act as a sear, and also adapted to be engaged by a trigger, and provided at its forward end with lateral extensions upon which it swings as upon a pivot, but which do not prevent its sliding movement back and forth under the action of the bolt, which also has reciprocating movement independent of it.

11. In a bolt-gun, the combination with a gun-barrel formed at its butt-end with an integral receiver extension comprising a tubular bolt-housing and a reach which latter is formed in its bottom portion with a long slot, of a longitudinally-movable and rotatable bolt, mounted in the said housing, a longitudinally-movable hammer located within the said bolt and formed with a cocking-notch, a combined extractor and sear, having longitudinal and

vertical movement in the slot formed in the reach, adapted at its forward end to act as an extractor, and at its rear end to act as a sear by entering a cocking-notch formed in the hammer through a clearance-opening formed in the bolt, a spring engaging with the lower edge of the said combined part for operating and controlling it, and a trigger engaging with the said combined part for drawing its rear end downward out of the cocking-notch of the hammer in firing the gun.

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

JOHN M. BROWNING.

Witnesses:
WM. F. CRITCHLOW,
M. J. HALL.