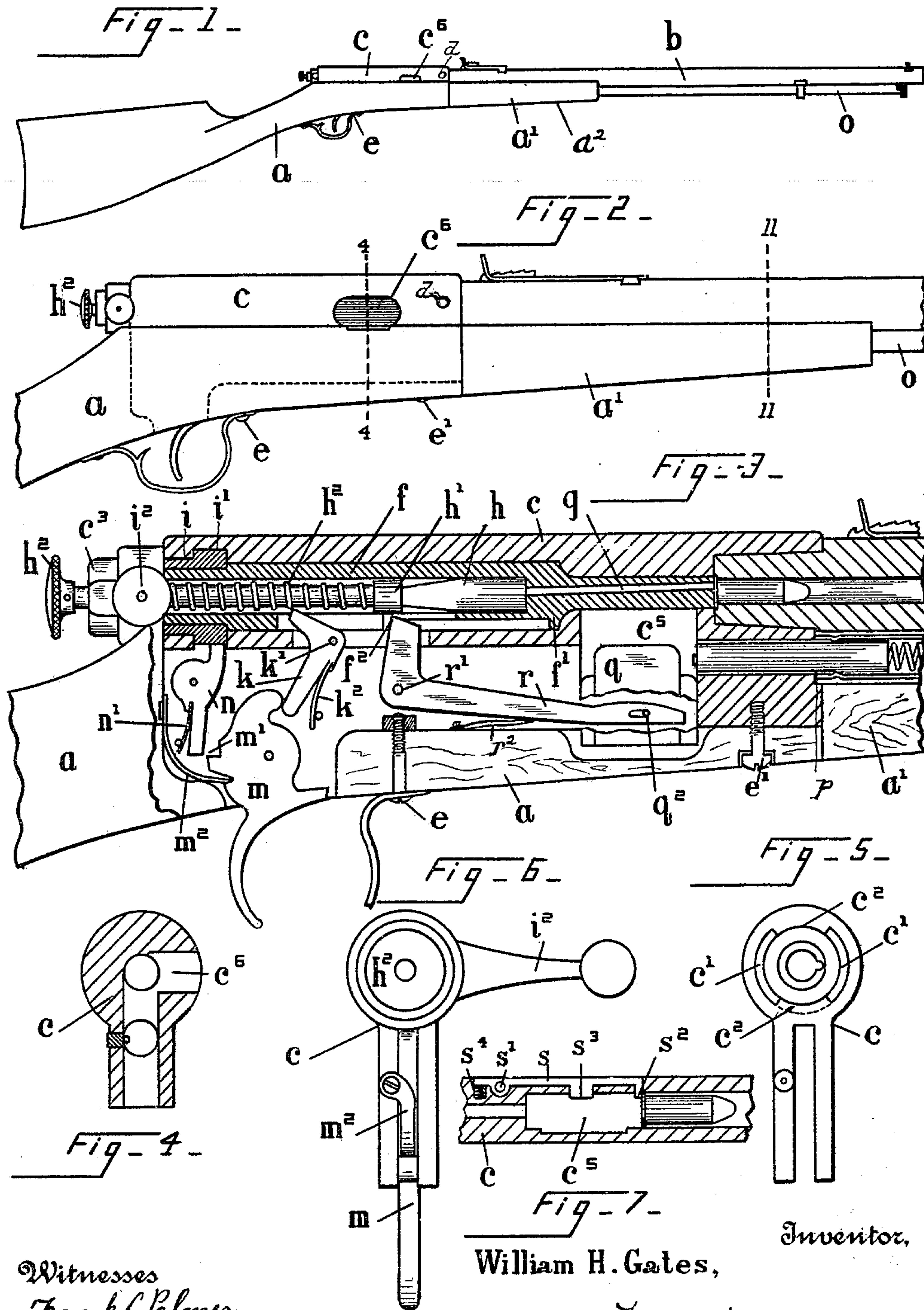


No. 840,309.

PATENTED JAN. 1, 1907.

W. H. GATES.
MAGAZINE GUN.
APPLICATION FILED JAN. 26, 1906.

2 SHEETS—SHEET 1.



Witnesses
Frank C. Palmer.
May F. Ritchie

William H. Gates,
Inventor,
by Frank H. Allen
Attorney

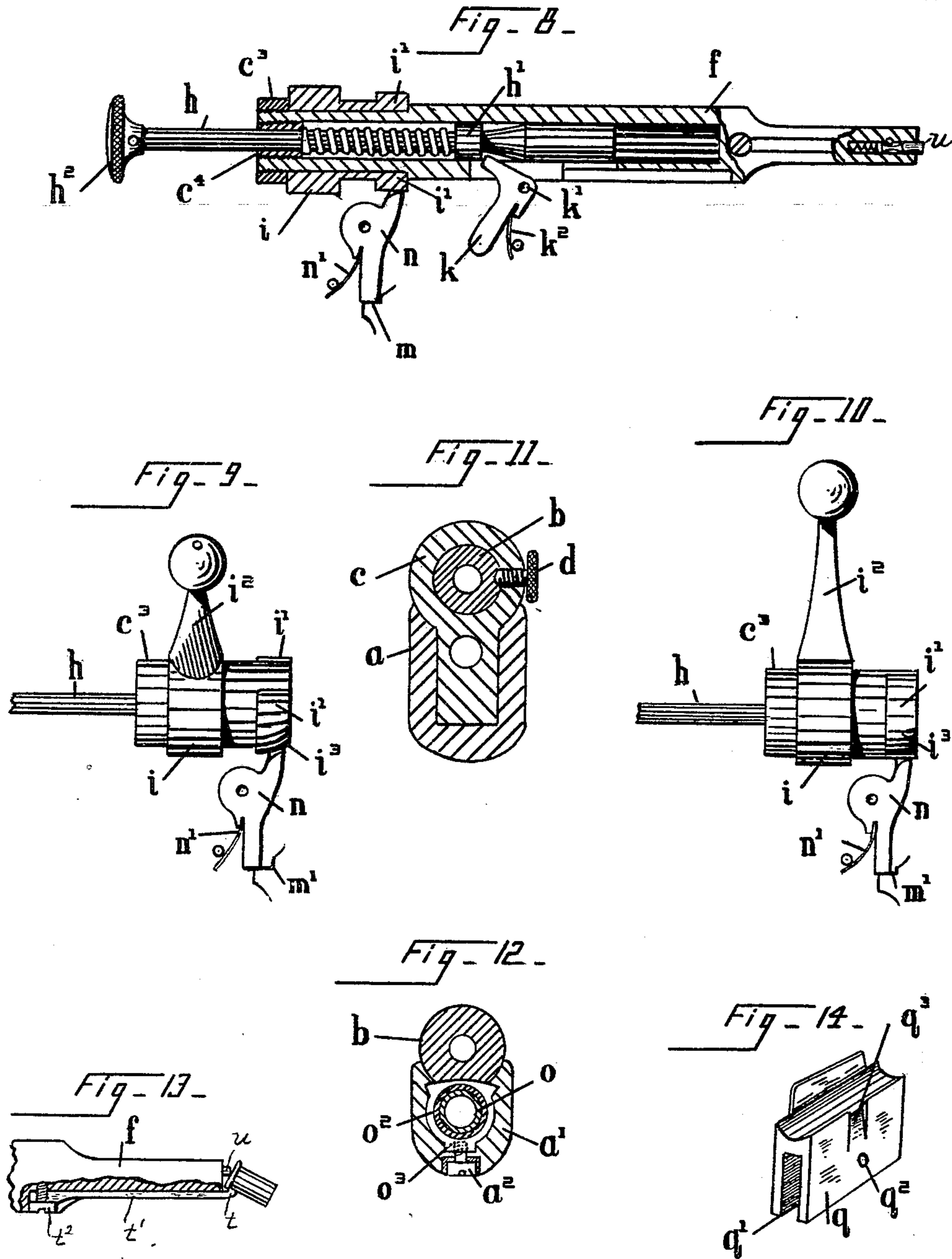
No. 840,309.

PATENTED JAN. 1, 1907.

W. H. GATES.
MAGAZINE GUN.

APPLICATION FILED JAN. 26, 1906.

2 SHEETS—SHEET 2.



Witnesses
Frank C. Palmer.
May F. Ritchie

William H. Gates, Inventor.

by Frank H. Allen
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM H. GATES, OF NORWICH, CONNECTICUT.

MAGAZINE-GUN.

No. 840,309.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed January 26, 1906. Serial No. 298,041.

To all whom it may concern:

Be it known that I, WILLIAM H. GATES, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Magazine-Guns, of which the following is a specification.

The object of this invention is to provide a simple, strong, and reasonably cheap magazine-gun; and with that purpose in view I have improved particularly the cartridge-feeding mechanism, as well as the safety mechanism for preventing accidental discharge of the arm during the operation of reloading, and I have also provided a cheap and novel support for the magazine-tube.

My improvements are here shown applied to that class of magazine-guns in which the magazine consists of a tube lying underneath the barrel, a spring-pressed follower being provided in said tube for forcing the cartridges rearward one at a time into or onto a suitable carrier, which latter then lifts said cartridges into proper position to be moved forward into the barrel. The lock mechanism of my said improved gun is of the so-called "bolt-and-needle" action.

In the drawings annexed hereto, Figure 1 is a side view of a complete gun embodying my said improvements; and Fig. 2 is a relatively enlarged side view of that portion of the arm which includes the lockwork and cartridge-handling mechanism, the outline of the metal frame, which serves as a housing for said lockwork and cartridge-handling mechanism, being indicated by dotted lines. Fig. 3 is a still further enlargement of the said metal housing or frame, the same being shown largely in longitudinal central section in order to expose certain of the operative elements. Fig. 4 is a transverse sectional view of the gun frame or housing, taken on the line 4 of Fig. 2 looking forward. Fig. 5 is a rear end elevation of said gun-frame; and Fig. 6 is a similar view with the trigger, trigger-spring, and bolt mounted therein. Figs. 3, 4, 5, and 6 are about full size. Fig. 7 shows a horizontal section of the gun-frame, taken at the point where the vertically-movable cartridge-carrier is located, and said view shows particularly a novel form of cut-off or gate by means of which the cartridges in the magazine are checked and kept from entering

said carrier until such time as it is desired to reload the arm. Fig. 8 is a longitudinal central vertical sectional view of the action-bolt. Figs. 9 and 10 are side elevations of the bolt-operating handle, and they show also a cam by means of which the safety-lever, *h*, is moved out of its operative position. Fig. 11 is a cross-sectional view of the frame, barrel, and wood stock and includes also a thumb-screw by means of which the barrel is removably secured to the frame. Fig. 12 is a transverse sectional view taken on line 11 of Fig. 2 and illustrates particularly the manner of securing together the barrel, magazine, and fore-end. Fig. 13 is a plan view of the front end portion of the bolt *f*, the same being partly in section in order to expose the extractor-hook. Fig. 14 is a perspective view of the carrier-block *g*.

Referring to the drawings, the letter *a* indicates the wood-stock portion of my improved arm, said stock being of such length that it extends forward to the point where the barrel *b* abuts the front end of the metallic housing *c*, in which the lockwork and cartridge-handling devices are mounted. I also provide a wood fore-end *a'*, which is secured to the barrel, as I shall explain later, and which forms a continuation of the main stock portion *a*. (See Fig. 1.)

The rear end portion of the barrel is turned down to fit into the chambered front end of the housing *c*, as is clearly shown in Fig. 3 of the drawings, and in order to secure the barrel and housing together I provide a thumb-screw *d*, that is tapped into the housing, the screw being of such length that its end may enter a depression in the barrel, (see Fig. 11,) and thus prevent the accidental or unintentional separation of the barrel and housing. When, however, it is desired to disconnect said parts for "take-down" or other purposes, it is only necessary to partially unscrew the thumb-screw *d*, when the barrel and parts connected thereto—to wit, the magazine and fore-end—may be readily separated from the stock.

The stock portion *a* is mortised from the top downward to receive the major portion of the housing, (see Figs. 3 and 10,) and said parts are clamped together by a screw *e*, which may also serve to secure one end of the trigger-guard to the said stock and by a similar screw *e'*, near the front end of the stock.

The upper portion of the metal housing *c* is bored longitudinally to receive the bolt *f*, in which is slidably mounted the firing-pin *g* and the hammer *h*, the latter being held normally forward by a spiral mainspring *h*², the arrangement of these parts being substantially the same as in bolt-guns of this general type, as commonly constructed. The rear end portion of the bolt *f* is shouldered down to receive a collar *i*, whose front end portion is formed with two oppositely-located ribs *i*¹, that are provided by first turning an annulus on said collar and then cutting away portions of the same. The collar *i* is also provided with a laterally-extending operating-handle *i*². The rear end portion of the housing *c* is cut away, as at *c*¹, to receive the annular ribs *i*¹, which I have just described, the location of the said ribs and recesses *c*¹ being relatively such that when the operating-handle *i*² is turned down to a horizontal position the said ribs will interlock with the uncut portions *c*² between the recesses *c*¹, and will thus prevent the bolt *f* from recoiling when the arm is discharged. When, however, the operating-handle is raised to a vertical position, the ribs *i*¹ are unlocked from the solid portions *c*², and the bolt may then be drawn rearward to cock the hammer and to discharge the empty cartridge-shell, as well as to carry a fresh cartridge into position to be forced into the barrel by the said bolt as the latter returns to its normal (closed) position.

The hammer *h* has an enlargement *h*¹, that serves as one abutment for the mainspring and which also coöperates with a sear *k*, that is pivoted at *k*¹ in a slot in the housing *c*. The upper end of said sear lies in the path traveled by the hammer enlargement *h*¹ during the rearward excursion of the hammer, (see Fig. 8,) and the lower end of said sear engages the trigger *m* in such manner that when the trigger is pulled rearward the upper end of the sear will be rocked out of engagement with the hammer, and the hammer will be snapped forward by the mainspring.

*k*² indicates a sear-spring, and *m*² indicates a trigger-spring.

The collar *i* is held upon the bolt by a nut *c*³, that is screwed upon said bolt, as is best seen in Fig. 8 of the drawings, and the mainspring is confined within the bolt by a hollow nut *c*⁴, that is screwed into the rear end of the bolt.

The hammer *h* is extended rearward and is provided with an enlarged head *h*², by means of which the hammer may be cocked by hand, if desired.

I will now proceed to describe a novel feature of my newly-improved gun—to wit, the safety device—which is provided to prevent the discharge of the arm before the several elements of the lockwork are in their opera-

tive positions. The trigger is notched at its rear side, as at *m*¹, to receive the lower end of a safety-lever *n*, that is pivoted in the housing *c* immediately under the collar *i* and so that the upper end of said safety-lever will be engaged by a cam *i*³ on one of the ribs *i*¹ when the collar *i* is being rotated back to its normal position after the hammer has been cocked. When the operating-handle *i*² is raised slightly in the operation of unlocking the collar *i* from the housing, the cam *i*³ passes away from the upper end of the safety-lever *n*, and the lower end of said lever is then forced by its spring *n*¹ into the trigger-notch *m*¹, (see Figs. 8 and 10,) thus rendering it impossible to pull off the trigger and cause a premature discharge of the arm. The safety-lever remains in locking engagement with the trigger until the operating-handle has been completely returned to its normal position, when the said safety-lever is moved out of engagement with the trigger, as in Fig. 3, when the arm may be discharged. In Fig. 9 the operating-handle is shown as having been partly returned to its normal position, the safety-lever having then been only partially withdrawn from the trigger-notch *m*¹.

I will now describe the mechanism by means of which the cartridges are transferred, one at a time, from the magazine to the barrel. The magazine consists of a tube *o*, located under the barrel *b* and parallel therewith, said tube being supported, as here shown, by a ring or collar *o*¹, that is secured to the barrel near the front end of the magazine and also by a similar collar *o*², near the rear end of said magazine. The magazine-tube incloses a spring-pressed follower *p*, that operates to force the cartridges rearward in the magazine-tube, the tube, follower, and spring being of any approved construction. The rearmost collar *o*² is formed with a boss *o*³, that is adapted to receive a screw *a*², by means of which the fore-end *a*¹ may be securely clamped to the gun-barrel. Thus the collar *o*² is utilized to support not only the magazine-tube, but the fore-end as well. When the cartridges are forced rearward in the magazine-tube, they are discharged upon the upper grooved edge of a carrier-block *q*, that is arranged to slide vertically in a chamber *c*⁵ in the housing *c*. This carrier is moved in its ways by a lever *r*, that is pivoted in the housing at *r*¹, the front end of said lever lying in a slot *q*¹ in the carrier and being connected with the carrier by a pivot-pin *q*². The rear end of lever *r* projects upwardly through a slot in the housing and into the path of a shoulder *f*¹ on the bolt *f*, the relation of the lever and shoulder being such that when the bolt is drawn rearward to cock the hammer the shoulder *f*¹ will engage the lever *r* and rock its front end

upward, thus moving the carrier-block q upward in the chamber c^5 until the cartridge carried by the said block is in longitudinal alinement with the bore of the barrel.

5 When the bolt again travels forward to its normal position, it then forces the said cartridge forward into the barrel, the carrier-block being meanwhile retained in its elevated position by a spring r^2 , engaging the lever r , until the rear end of the lever is engaged and pushed forward by a shoulder f^2 on the bolt f , when the carrier is moved downward into position to receive another cartridge from the magazine.

15 In order to positively control the passage of the cartridges one at a time from the magazine to the described carrier and to make it practicable to use cartridges of any length, I have provided a cut-off consisting of a lever-arm s , that is fulcrumed on a pivot-pin s' and is located in parallel relation to the axial center of the magazine-tube. This cut-off lever is formed at its front end with an angular projection s^2 , that extends inwardly into the path described by the cartridge-heads as the cartridges move rearward into the chamber c^5 . The said cut-off lever is also formed with a projection s^3 , that extends into said chamber and is adapted to be engaged and forced outward by a cam q^3 , cut in the side of the carrier-block q (see Fig. 14) in such manner that when the carrier moves upward in the chamber c^5 the said cam will force lever s outward and withdraw the projection s^2 from the path of the cartridge-head, thus allowing a cartridge to pass from the magazine-tube into chamber c^5 and upon the grooved upper edge of the carrier.

40 The action of the cut-off lever is as follows: Assuming that a cartridge has moved rearward upon the carrier and is ready to be moved upward into line with the barrel, at this time the cut-off projection s^2 is at the rear of the cartridge-head, as seen in Fig. 7 of the drawings. As the carrier moves upward the cam q^3 forces the cut-off lever outward, and thus releases the next cartridge in the magazine; but by this time the carrier will have moved upward sufficiently so that its front face will then serve as a cut-off to prevent the passage of the next cartridge from the magazine into the carrier-chamber, the next cartridge being permitted to move rearward only a distance equal to about the thickness of the cartridge-head, so that when the carrier moves downward again and the cam q^3 releases the lever projection s^3 the projection s^2 will then lie in front of said new cartridge. When the carrier has moved downwardly to a point below the magazine, the new cartridge will then be forced (by the magazine-spring) into the carrier-chamber and the cut-off s^2 will stop the next cartridge

and hold it, as seen in Fig. 7. A spring s^4 , acting upon the rear end portion of the cut-off lever, acts with a constant tendency to force the projection s^2 into the path of the cartridge-heads. The empty cartridge-shells are discharged through an opening c^6 in the side of the housing c , and they are withdrawn from the barrel by a hook-shaped extractor t , formed at the free end of a spring t' , that is secured to the bolt by a screw t^2 . Coöperating with this extractor is an ejector consisting of a spring-pressed plug u , that is located in the same horizontal plane as the extractor-hook, but at the side opposite the opening c^6 . When the cartridge-shell is being withdrawn from the barrel by the extractor t , the ejector-spring is compressed and the outer end of the ejector-plug is flush with the end of the bolt f ; but so soon as the shell leaves the barrel the plug u shoots forward forcibly and throws the shell toward and through the opening c^6 . (See Fig. 13.)

All of the operative elements of the lock-work and cartridge-handling mechanism of my described arm are mounted in the housing c and may therefore be fitted and assembled therein before the housing is placed in the mortised stock, and the said elements are so few in number and of such simple form that they may be very cheaply produced. I am therefore able to provide at small cost a serviceable and attractive arm.

Having thus described my invention, I claim—

1. In a bolt-action magazine-firearm, a frame, a bolt slidably mounted therein, a cam-collar rotatably mounted on said bolt and having oppositely-located ribs and an operating-handle, a housing for said bolt having its rear end formed with recesses and uncut portions to receive said ribs, said ribs and recesses being relatively disposed so that when said handle is turned into horizontal position said ribs interlock with the uncut portions between said recesses, a notched trigger and a safety-lever having one end constructed to enter the trigger-notch, and having its other end located in the path of said cam-collar.

2. In combination, in a bolt-action magazine-firearm, a cam-collar rotatably mounted upon the bolt, a notched trigger, and a safety-lever having one end adapted to enter the trigger-notch and having its other end located in the path of said cam.

3. In combination, in a magazine-gun, a receiver, and a bolt slidably mounted in said receiver; said bolt consisting essentially of a non-rotatable body-section, a firing-pin slidable in said bolt, and a cam-collar rotatably mounted on said bolt and adapted to interlock with the receiver when the bolt is in its firing position, a notched trigger, and a safety-lever having one end adapted to enter

the notch of the trigger and its other end located in the path of said cam.

4. In combination, in a bolt-action firearm, a longitudinally-slidable bolt, a trigger,
5 a locking-lever and means rotatably mounted on said bolt for locking said trigger against accidental discharge until the bolt is in its firing position.

In testimony whereof I have signed my name to this specification in the presence of 10 two subscribing witnesses.

WILLIAM H. GATES.

Witnesses:

EDWARD E. PERRY,

FRANK H. ALLEN.