



(No Model.)

3 Sheets—Sheet 2.

A. BURGESS.

MAGAZINE FIRE ARM.

No. 366,558.

Patented July 12, 1887.

Fig. 3.

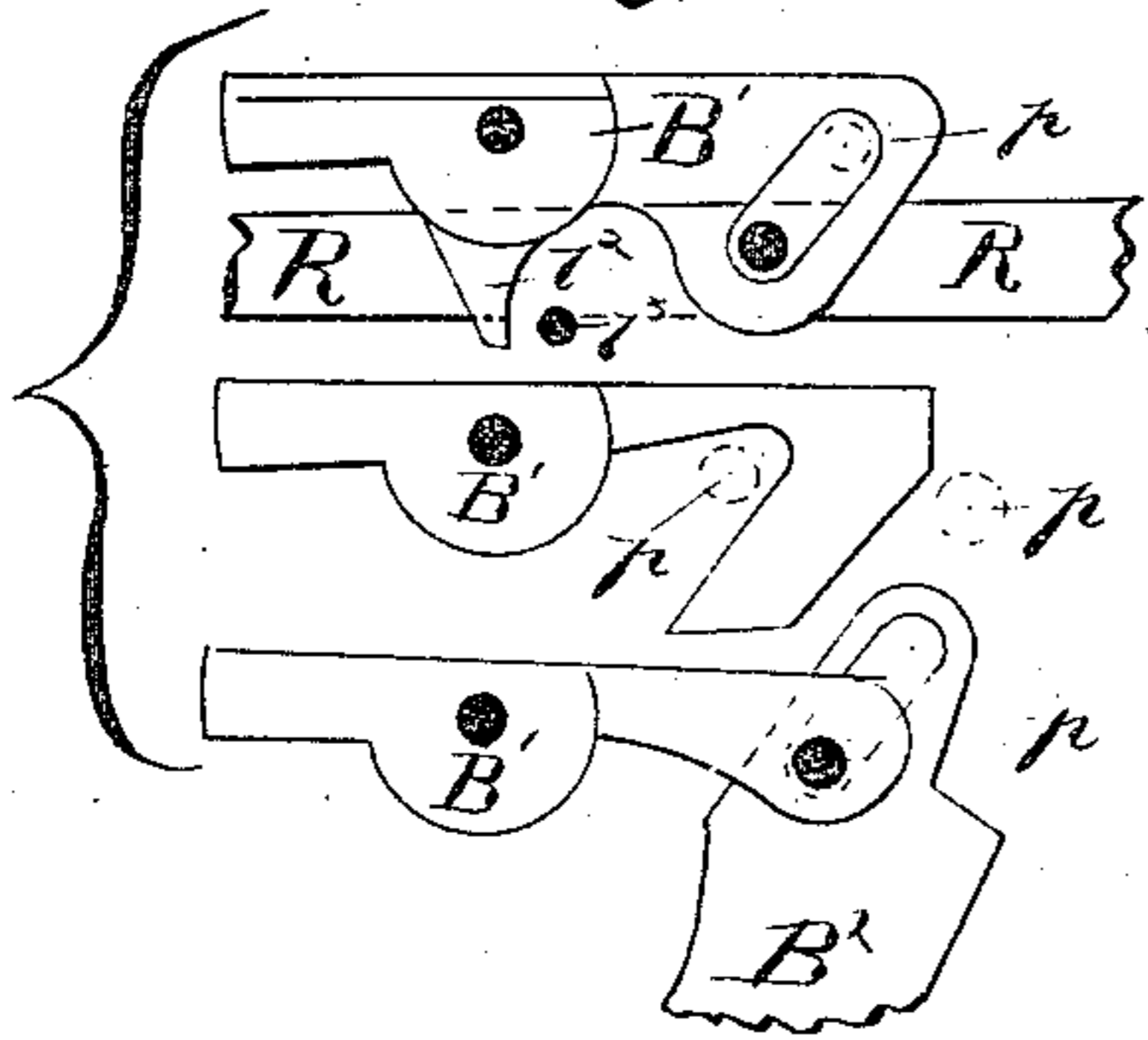


Fig. 4.

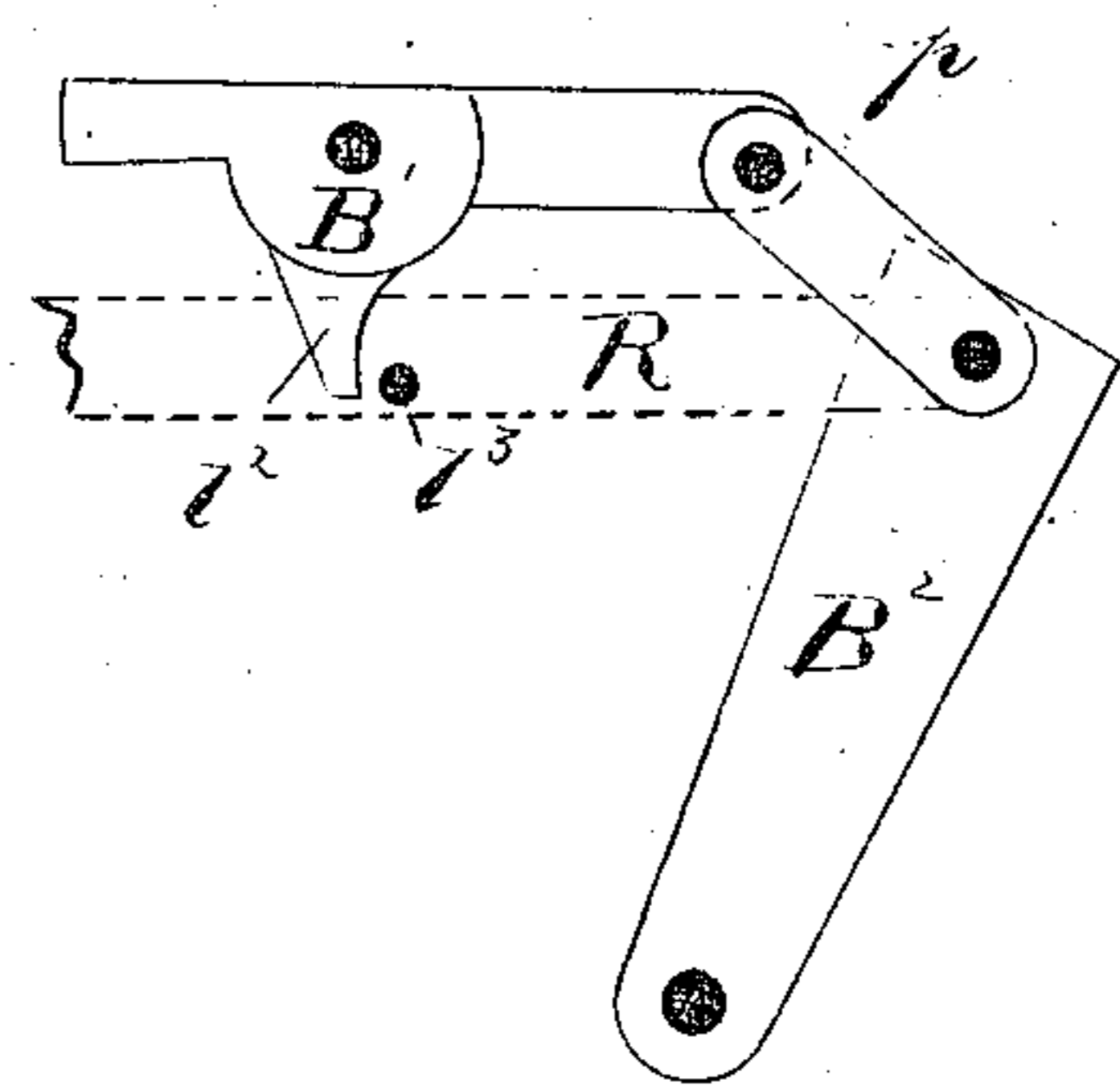


Fig. 5.

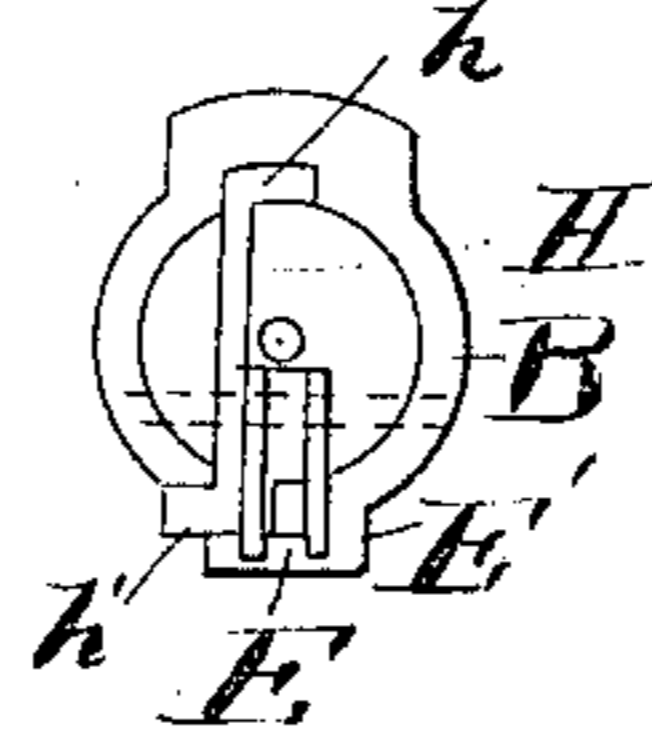


Fig. 7.

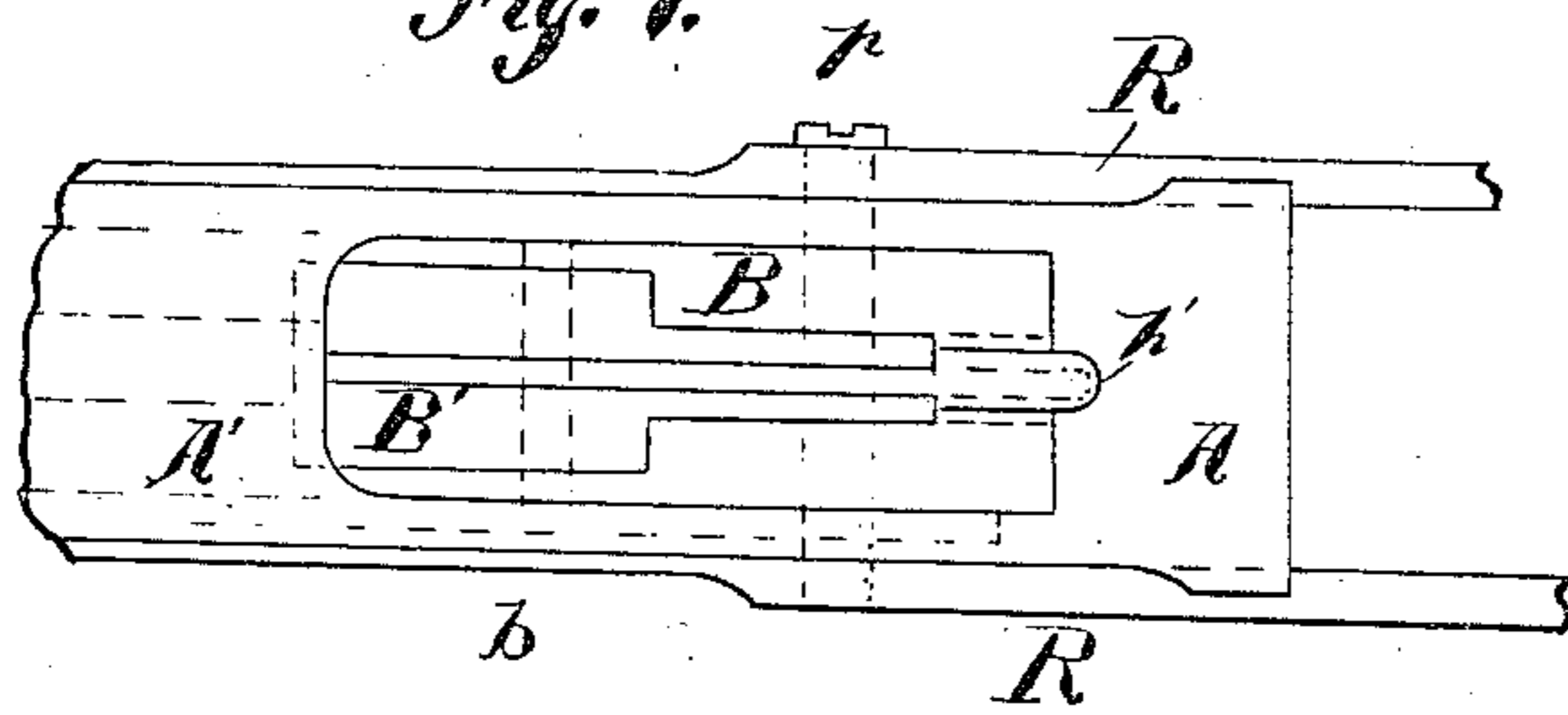


Fig. 8.

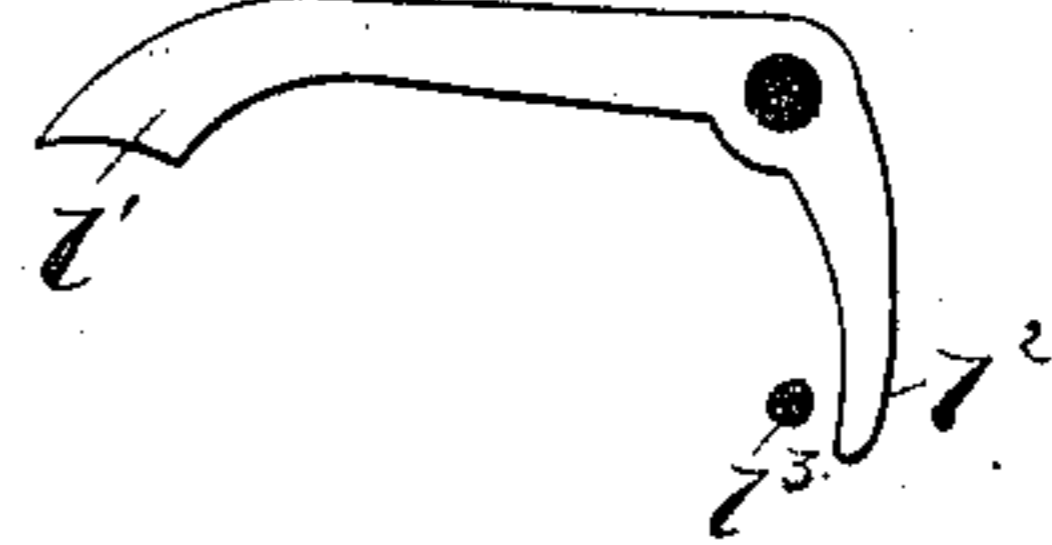
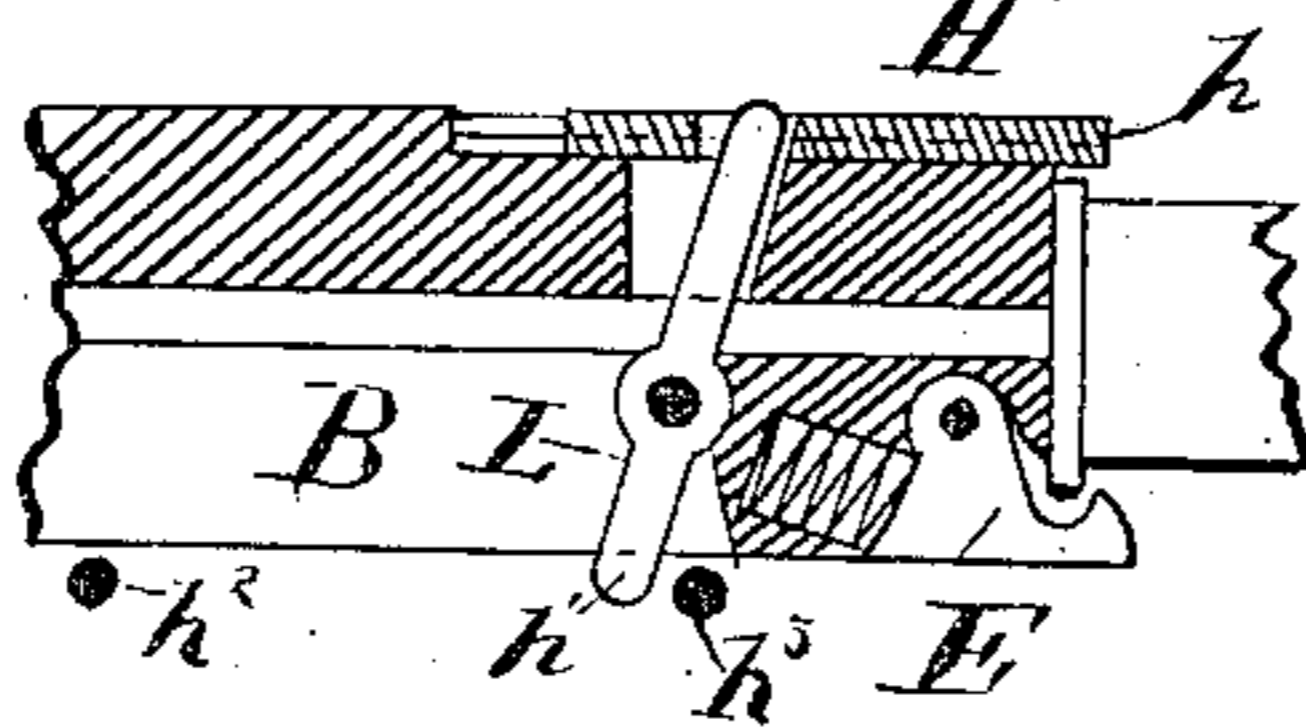


Fig. 6.



Witnesses.

G. H. T. Brown,  
M. L. Williams.

Inventor.

Andrew Burgess



# UNITED STATES PATENT OFFICE.

ANDREW BURGESS, OF OWEGO, NEW YORK.

## MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 366,558, dated July 12, 1887.

Application filed May 16, 1884. Serial No. 131,725. (No model.)

To all whom it may concern:

Be it known that I, ANDREW BURGESS, a citizen of the United States, residing at Owego, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Magazine-Guns, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to construct a magazine-gun of great strength and easy manipulation; and said invention consists in locking and starting devices and modes of operating the slide, lock, and extracting devices, together with various combinations and arrangements of parts hereinafter more fully described.

Figure 1 is a longitudinal sectional side elevation showing the bolt locked by braces  $B^1$  and  $B^2$ , which are arranged to be moved, and the bolt also, by a direct-acting sliding rod. Fig. 2 is a view similar to Fig. 1, but in which the bolt is locked by two braces and moved by a slide, which is provided with gearing to reverse its movement and increase its power. Figs. 3 and 4 show modifications in unlocked position of the upper brace of Figs. 1 and 2 and modes of operating it. Fig. 5 shows the face of the bolt with extractors. Fig. 6 is a sectional side view of a bolt, showing a modification of the extractors. Fig. 7 is a top view of bolt with locking-brace  $B^1$  hung therein. Fig. 8 is a detached view of a modification of the starting-lever of Figs. 1 and 2. Fig. 9 is a longitudinal section, partly in elevation, showing the operative mechanism with breech open.

Similar letters of reference indicate corresponding parts.

A is the frame of the gun; B, the bolt; S, the operating-slide; R, the operating-rod;  $B^1$ , the brace carried by the bolt;  $B^2$ , the brace pivoted in the frame;  $p$ , the pin or connection of the two braces, and H' is the grip to hold the cartridge-head against the extractor.

The operating-slide S beneath the gun moves the rod R, which engages the bolt or the brace  $B^2$ , by means of the rolls or projections  $r$   $r'$ , to move the bolt to unlock, open, close, and lock it. When the rod R moves back in Fig. 1, the roller  $r$  first engages the brace  $B^2$ , which is pivoted in the frame to move it back so far

from against its locking-shoulder in the bolt that the roller  $r'$  (after first moving back the firing-pin by engaging its projection  $f$ ) may move the bolt back by engaging the shoulder  $r^2$  of the bolt, and in the last part of its backward movement the roll  $r'$  strikes the hammer to cock it. 55

The ordinary mainspring,  $s$ , has a projection,  $s'$ , which extends forward of the hammer-pivot to there engage the pin  $s^2$  and rebound the hammer, so that its face shall retire as on the line  $x$  below the line of movement of the firing-pin, so that the bolt or firing-pin may not have to expend the power heretofore used when the bolt first starts back to compress the mainspring. I show another spring,  $y$ , attached to the carrier, which may serve alone as a mainspring or in conjunction with the other. 60 65

The carrier has a raised top or ear extending from its front backward, as in Fig. 1,  $c$ , which has a still higher portion,  $c'$ . When the bolt is closed and the rod R in its forward position, the projection or roll  $r$  of rod R presses the carrier down to its lowermost position to allow a cartridge to pass from the magazine partly onto the carrier, as shown in broken lines, Fig 1; but when the roll  $r$  is drawn back of  $c'$  the carrier is raised a little by spring  $y$ , so that the top of ear  $c$  rests against the roll  $r$  while the bolt is yet locked, and the carrier is high enough to obstruct the magazine by its face, after having risen a little, as described, at the time the breech or rod R is back, so the cartridge can only enter upon the carrier when the breech is fully closed, and the next cartridge in the magazine cannot enter on the carrier when the breech is partly open. 70 75 80 85

The fly  $f'$  is arranged in the carrier at rear of its raised ear  $c$ , so that when the roll  $r$  or face of the bolt opens back to the rear of  $c$  they engage the fly to hold the carrier down while the breech is opened to near its extent, when the fly turns back, as shown in dotted lines, so that when the breech is fully opened the carrier can rise quickly (the fly then turning forward) to expel the extracted shell by striking it with the spring  $y^2$ , or the cartridge raised upon the carrier. The spring  $y^2$  also serves to 90 95 100

raise the rear of the cartridge above the floor of the carrier when it rises to present it nearer in alignment with the bore of the gun, the tooth  $p'$  of the bolt serving to pull a cartridge back onto the carrier and compress spring,  $y^2$ , as the breech is opened.

By using spring  $y$  as a mainspring, as constructed in Fig. 1, it presses the hardest on the hammer when the carrier is down, so that when the carrier raises it its tension is lessened and the hammer may be easily cocked, as before described, and when the breech is being closed and is forcing down the carrier by the bolt or roll by the impingement of said bolt or roll against the rear of fly  $f'$  and ear  $c$  of carrier it tightens the tension on and gives more force to the mainspring. The spring  $y$  is stopped by a fixed pin,  $y'$ , when the hammer falls, to permit said hammer to rebound for the purpose before described.

I hang the extractor in one side of the face of the bolt and arrange a lever or grip,  $H'$ , in the bolt having a part,  $h$ , which is projected forward of the bolt opposite the extractor by a fixed point in the frame, as seen in Figs. 1, 2, and 6, when the breech is closed, so it shall grip the head of the cartridge opposite the extractor to prevent the said cartridge-head from rising; but when the breech is opened the lower part of the lever  $H'$  (reaching another point or stop, as  $h^2$ , fixed in the frame) is turned to retire the grip-point  $h$  back even with the face of the bolt, so the cartridge is free to rise or be expelled upward or out of the frame by the extractor (which may serve then as an ejector) or the rising carrier. In the modification, Fig. 6, a similar lever operates the sliding dovetail grip  $H'$ . To increase the power of the slide  $S$  in starting open and the last part of the motion of closing the breech, I pivot a lever,  $T$ , to said slide  $S$ , Figs. 1 and 2, so that said lever shall have a ring or handle projecting below its pivot, and above said pivot a point of engagement or fulcrum, as  $t$ , so that when the handle of said lever is pressed in the direction of movement of the slide (which may be in the act of moving said slide) the rear arm,  $t^b$ , of the lever engages the fulcrum  $t$  to force the slide backward, and the forward arm,  $t^a$ , operates in a similar manner to force the slide forward.

I arrange a spring-dog,  $t^2$ , in the slide  $S$  to engage a notch,  $t^3$ , in lever  $T$ , when said lever turns to open the breech, so that the said lever may not return when the breech is being closed until the dog  $t^2$  reaches a stop, as  $t^4$ , to stop said dog and release the lever  $T$ , so it may act on its fulcrum  $t$  to force the last part of the movement of the slide  $S$  in closing the breech.

In Fig. 2 I show the slide  $S$  provided with a gearing or ratchet-bar to engage and turn a gear-wheel,  $W$ , which hangs on a pivot fixed to the body of the arm. The gear-wheel  $W$  has fixed to its side a smaller gear-wheel,  $w$ , which in turn engages a ratchet-bar,  $R'$ , which is a continuation of operating-rod  $R$ .

By this arrangement I reverse the movement of the slide  $S$  and greatly increase its power in opening and closing the breech.

In Figs. 1, 2, and 7 I show a locking-brace,  $B'$ , hung on a pivot,  $b$ , in the bolt, with its rear end turned upward to lock forward of the shoulder  $A'$  in the top of the frame. The forward end of brace  $B'$  is connected by an oblique slot and pin to the operating-rod  $R$ , so that said connecting-pin, as  $p$ , when guided in a backward line of movement (straight or curved) operates obliquely in the slot of the forward arm to raise or lower it, and thereby unlock or lock the rear arm of brace  $B'$  forward of the shoulder  $A'$ . In unlocking the brace  $B'$  its rear end engages and cams back the firing-pin.

I form a projection,  $t^2$ , on brace  $B'$ , to turn forward as the brace is unlocked against a pin,  $t^3$ , which thus serves as a fulcrum, and the brace  $B'$  as a lever to start back the bolt. I show an independent lever in Fig. 8, which operates in a similar manner.

Figs. 3 and 4 show modifications of brace  $B'$  and of the mode of connecting it to the rod  $R$  or supplementary brace  $B^2$ . The brace  $B^2$ , Fig. 2, is hung in the frame to lock the bolt obliquely, in a well-known manner; but I here combine it with the brace  $B'$  to insure very great locking strength. The rod  $R$  vibrates the brace  $B^2$  back and forward to unlock and lock the breech by engaging said brace with the projections  $r r'$  of said rod, and the pin  $p$  of brace  $B^2$  engages in the oblique slot of brace  $B'$  to operate it, as before described, and the bolt is also moved back after being unlocked by the engagement of pin  $p$  in the slot of brace  $B'$ .

The brace  $B^2$  when turned back also engages the hammer by dog or link  $o$ , which is attached to the brace  $B^2$  nearer its pivot than the point of its engagement with the hammer is to the pivot of said hammer, so that the free end of brace  $B^2$  has greater movement in cocking than the distance traveled by the striking part of the hammer, thus making the operation of cocking the hammer more constant and easy.

I show the link  $o$  attached to the hammer by a slot and pin, to allow the hammer to move independent of the brace, but do not confine myself to that construction, as a dog may engage a simple notch, or various other connections serve to produce the same result.

The tooth  $p'$  of the bolt is shown as a rounded projection under the extractor at the bottom of the bolt, Fig. 1.

It is not essential in this invention that the hammer be rebounded by any kind of spring, as a simple stopping of the force of its propelling device, so that the hammer may be free to turn back on the line  $xx$  to below the path of the firing pin or bolt, and thereby avoid the force hitherto found necessary to start back the hammer by the first part of the backward movement of the bolt when great power

may be needed to start the shell thereby, and the grip to hold the cartridge laterally against the extractor, may be reciprocated either way by a spring or other known means.

5 I do not herein claim, broadly, the brace B', without its forward extension, operated by a reciprocating rod to lock the bolt against the top of the frame, as I make such broad claim in my application No. 132,094, filed May 19, 10 1884.

I do not herein claim the striking up of the pivoted ejector by the carrier, the same being part of the subject-matter of my application No. 216,814, of October 21, 1886.

15 In my application No. 224,139, filed January 12, 1887, I show a mainspring connected to the cartridge-carrier. I intend to claim such combination, broadly, in the present application, and not in the application of January 12, 1887.

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

1. In a breech-loading fire arm, a reciprocating bolt, a locking-brace pivoted in the bottom of the frame and extending obliquely forward to lock the bolt, in combination with a reciprocating rod having a projection in front and a projection in rear of said brace, in position to engage the front and rear faces of the brace and move said brace and the bolt by the vibration of the brace, substantially as described.

2. In a breech-loading fire-arm, a reciprocating bolt, a locking-brace pivoted in the bottom of the frame and extending obliquely forward to lock the bolt, in combination with a reciprocating rod having projections  $r$   $r'$ , to engage the brace, and the shoulder  $r''$  in the bolt, adapted to be engaged by a projection, as  $r'$ , of the rod R, substantially as and for the purpose specified.

3. In a breech-loading gun, a reciprocating bolt carrying a firing-pin, in combination with a hammer and mechanism for automatically rebounding the same, the hammer being pivoted in the frame in position, substantially as described, so that it reaches the firing-pin in its striking position, but rebounds below the pin, so that the pin and bolt may ride over without striking the hammer, substantially as set forth.

4. In a magazine-gun, the combination of a pivoted hammer, a vibrating cartridge-carrier, and a mainspring mounted on the carrier and engaging the hammer, substantially as described.

5. A pivoted hammer, a vibrating carrier, and a mainspring forward of the hammer and attached to the carrier, and breech-operating mechanism, substantially as described, the carrier being moved in one direction by the breech-operating mechanism and in the other by the mainspring, all in combination, substantially as described.

6. A vibrating carrier constructed with the

raised ear  $c$ , with its projections  $c'$ , said carrier being provided with a spring to raise it, said spring being connected to the hammer, in combination with a longitudinally-moving part of the breech mechanism to force down the carrier and release a cartridge from the magazine, substantially as specified.

7. A vibrating carrier provided with a spring to raise it, and the raised ear  $c$ , in combination with a reciprocating bolt or rod, which holds down the carrier by engaging the ear  $c$  when the breech is closed, and a fly which serves as a continuation of the ear  $c$  on opening the breech, substantially as described.

8. In a magazine fire-arm, a vibrating carrier having a spring to raise the head of the feeding-cartridge above the floor of the carrier, in combination with a reciprocating bolt carrying a tooth to pull the cartridge onto the carrier when the breech is being opened, substantially as set forth.

9. In a breech-loading fire-arm, a reciprocating breech-piece, an extractor located on one side of the breech-piece, and a grip on the side of the breech-piece opposite the extractor and movable relatively to said breech-piece, all in combination, to hold the shell between said grip and extractor in withdrawing it from the barrel, and means to retire the grip backward to release the shell when the breech is open, substantially as set forth.

10. In a breech-loading fire-arm, a reciprocating bolt which closes against the cartridge-head when in firing position, a movable grip carried by said bolt, and means to move the grip forward in the bolt into engagement with the flange of the cartridge when the bolt closes, and a stop in the frame to retire the grip out of such engagement as the breech is opened, substantially as described.

11. In a breech-loading fire-arm, a reciprocating bolt, an extractor hung in one side of the bolt, and a grip having movement forward of the face of the bolt, arranged in the bolt opposite the extractor, in combination with a stop in the frame to move the grip forward of the face of the bolt by the closing movement of the breech mechanism, and a stop to retire said grip rearward of the face of the bolt by the opening movement of the breech mechanism, substantially as specified.

12. A sliding hand-piece arranged to move the breech, a lever pivoted to said hand-piece, having a handle projecting therefrom, in combination with a fulcrum fixed to the body of the gun and adapted to be engaged by said lever to start the breech open, substantially as described.

13. A sliding hand-piece arranged to move the breech, a lever pivoted to said hand-piece having a handle projecting therefrom, in combination with a fulcrum fixed to the body of the gun and adapted to be engaged by said lever to force the breech closed, substantially as set forth.

14. In a breech-loading gun, an operating

hand-piece, a lever pivoted in said hand-piece, a fulcrum for said lever on the body of the gun, and a catch to hold said lever with respect to the hand-piece, all in combination, substantially as described.

15 15. In a breech-loading gun, a breech-operating rod having a rack, a pinion pivoted in the frame engaging said rack, a second pinion pivoted in the frame and driving the first-mentioned pinion, and a reciprocating handle  
10 having a rack engaging the teeth of the second pinion but not the first, all in combination, substantially as stated.

16. A reciprocating hand-piece provided  
15 with cogs which engage the cogs of a large gear-wheel whose pivot is fixed in the body of the gun, in combination with a smaller gear-wheel which is fixed to the larger, and has cogs which engage and move the breech-operating  
20 rod, whereby a different rate of movement is imparted to the breech from that of the handle, substantially as described.

17. The reciprocating bolt, a locking-brace pivoted therein and adapted to lock against  
25 an abutment in the frame above the bolt, and to unlock by closing into the bolt, so as to ride under said abutment, said brace having an extension forward of its pivot, and an operating-rod having a movable connection to said  
30 forward extension, all in combination, substantially as specified.

18. The reciprocating bolt, a locking-brace pivoted therein and adapted to lock against  
35 an abutment in the frame above the bolt, and to unlock by closing into the bolt, so as to

ride under said abutment, in combination with a supplementary brace which is pivoted in the frame, and rises obliquely forward to lock the bolt in connection with the before-mentioned brace, substantially as described.

19. A brace pivoted in a reciprocating bolt and locking against a shoulder in the frame above the bolt, in combination with the brace B<sup>2</sup>, which is pivoted in the frame to lock the bolt from below, and the rod R, which moves  
45 to operate said brace and bolt by means substantially as described.

20. A reciprocating bolt, a locking-brace pivoted therein and adapted to lock against an abutment in the frame above the bolt and  
50 to unlock by closing into the bolt so as to ride under said abutment, said brace having an extension forward of its pivot by which it is operated, and a projection adapted to engage a fixed point in the frame (when said brace is  
55 operated) to start open the breech, substantially as set forth.

21. A reciprocating bolt, a starting-lever pivoted therein, and a fixed abutment in the frame to serve as a fulcrum for said lever, in  
60 combination with a locking-brace which is pivoted in the bottom of the frame, and operates said lever to start back the bolt in its movement of unlocking the breech.

In testimony whereof I hereby affix my signature in presence of two witnesses.

ANDREW BURGESS.

Witnesses:

F. O. McCLEARY,  
Wm. P. SMITH.