

(No Model.)

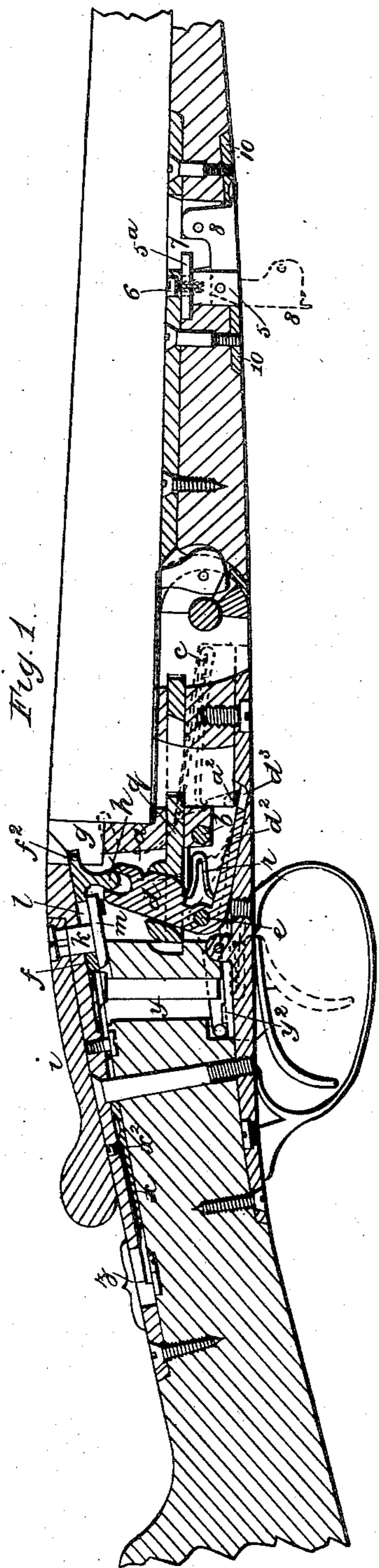
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C. G. BONEHILL & W. J. MATTHEWS. 3 Shee  
BREECH LOADING FIRE ARM.  
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BREECH LOADING FIRE ARM.

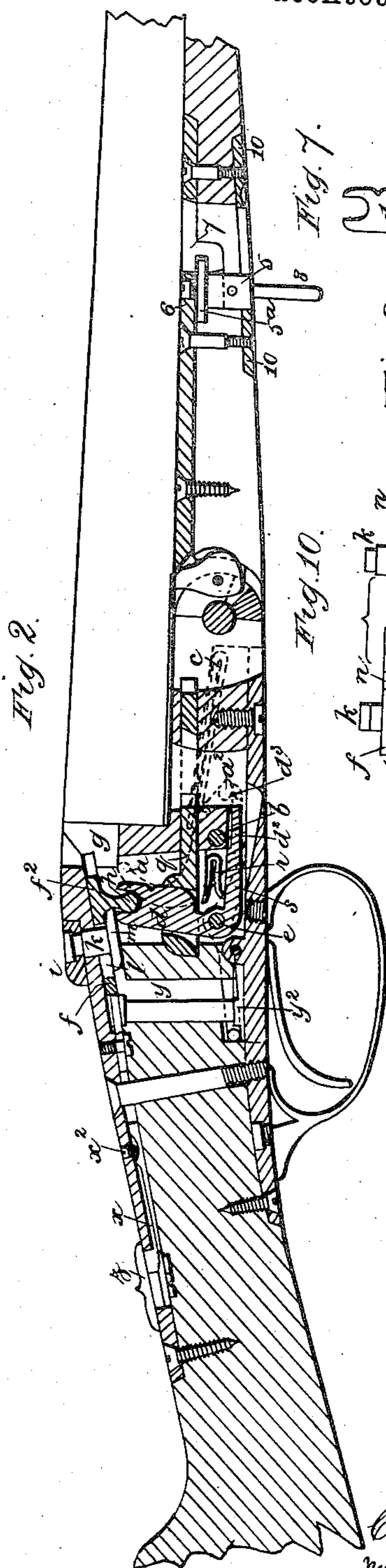
No. 246,365.

Patented Aug. 30, 1881.



*Witnesses*

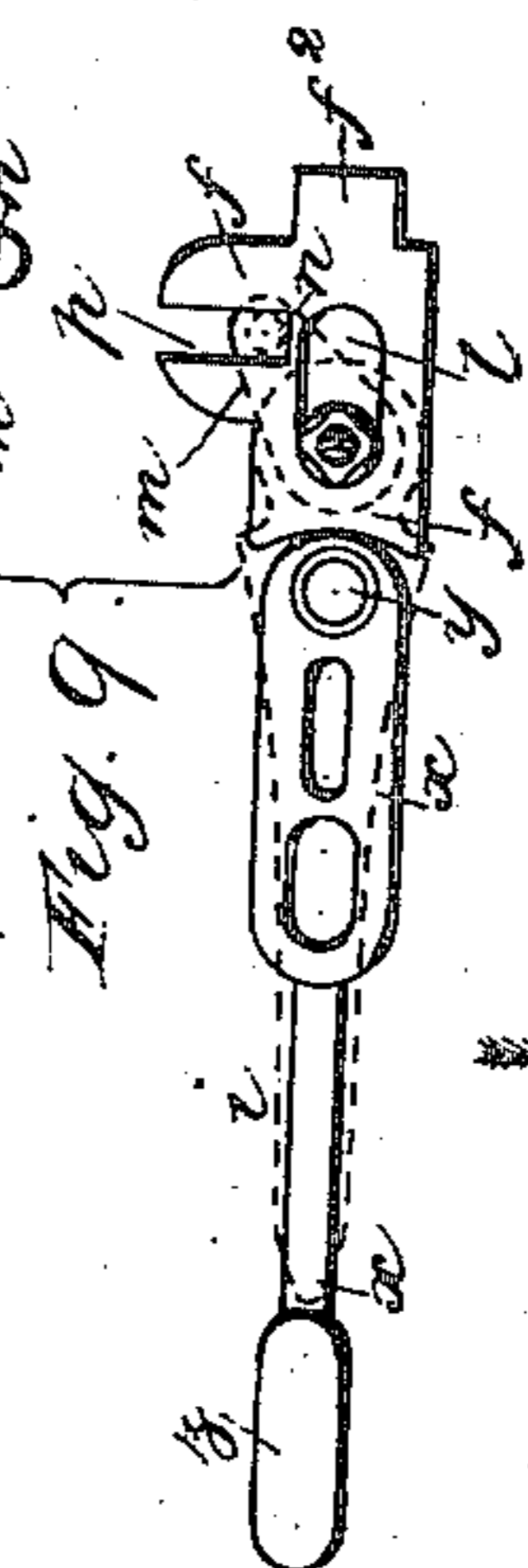
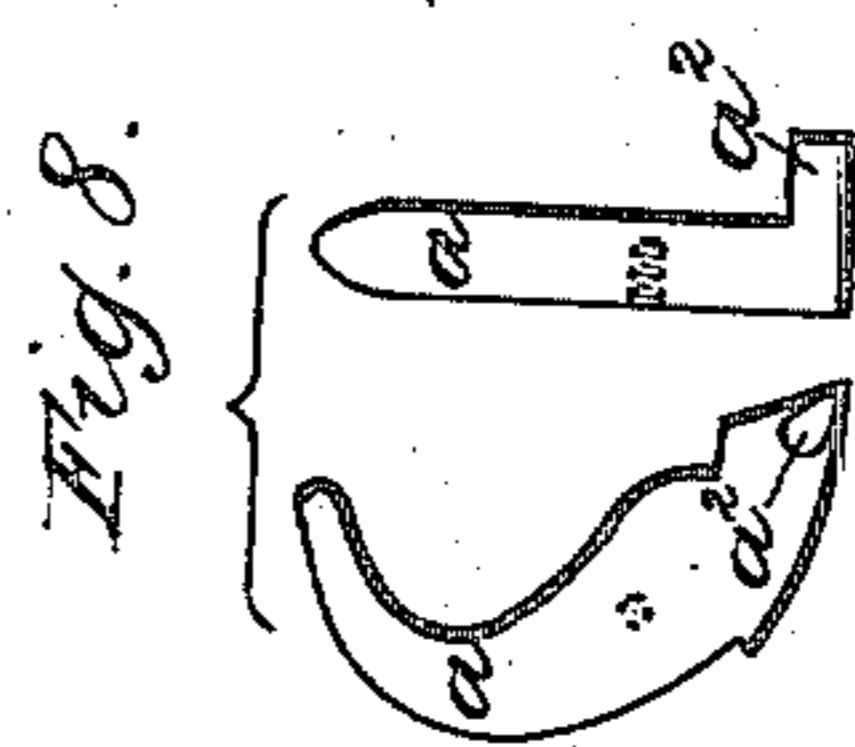
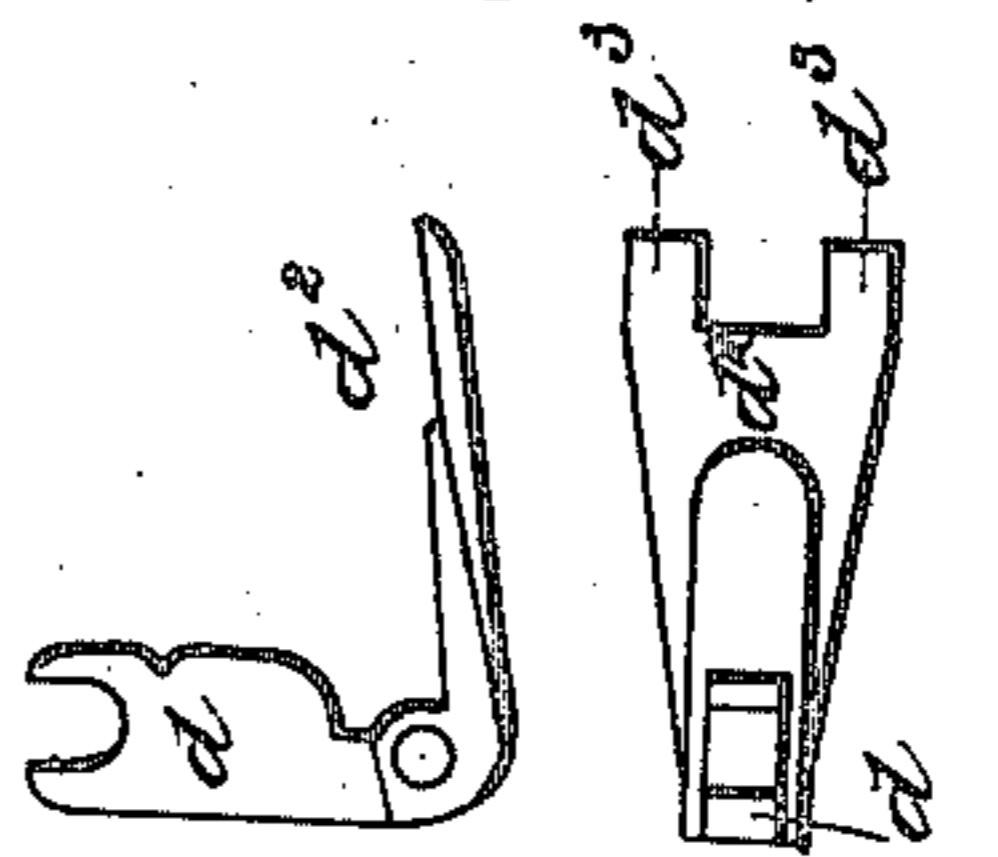
James Compton  
T. Bacon



Christopher George Bonehill

William James Matthews  
Inventors.

By John J. Halsted, <sup>Inventors.</sup> Their Attys.



(No Model.)

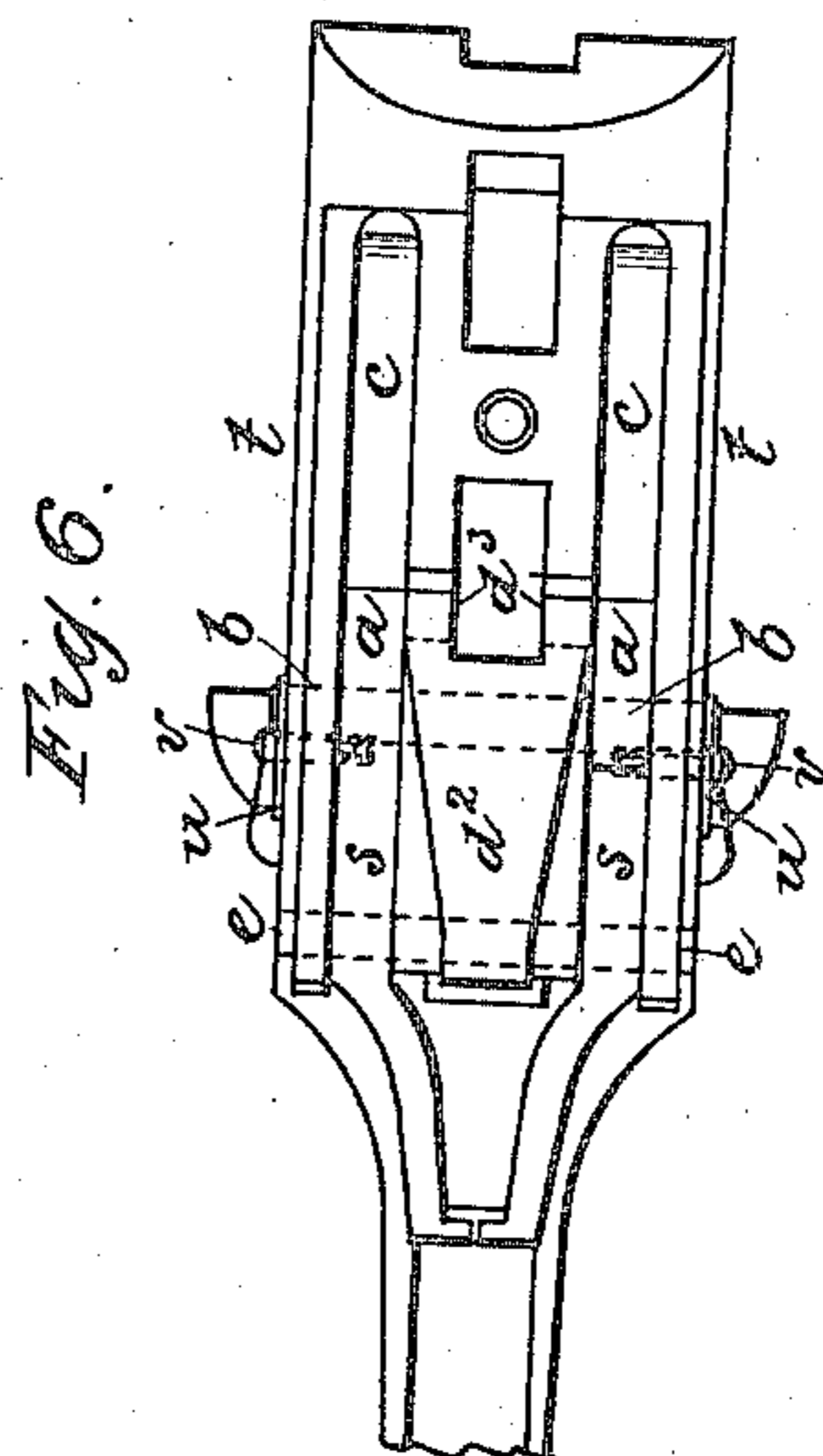
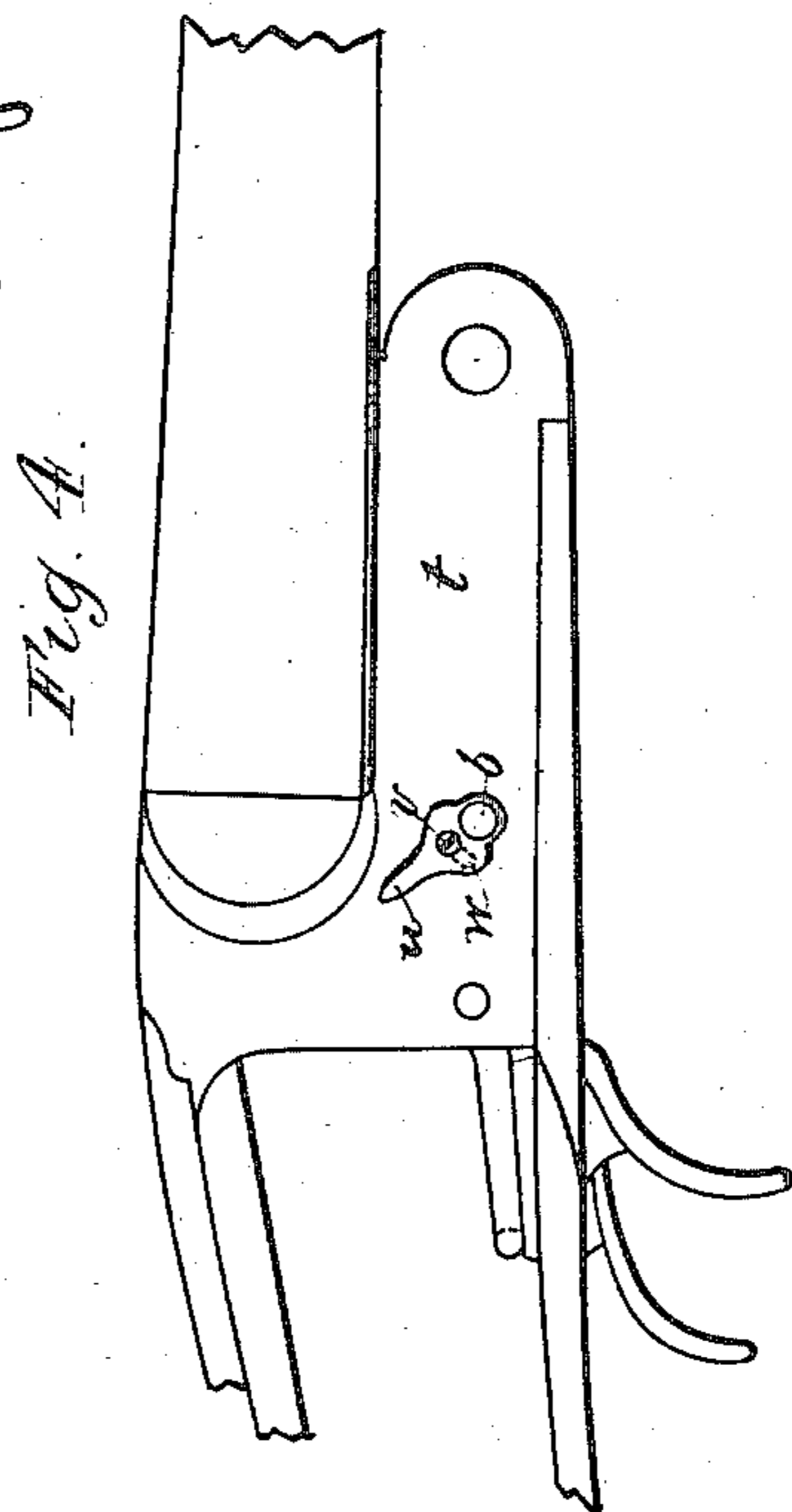
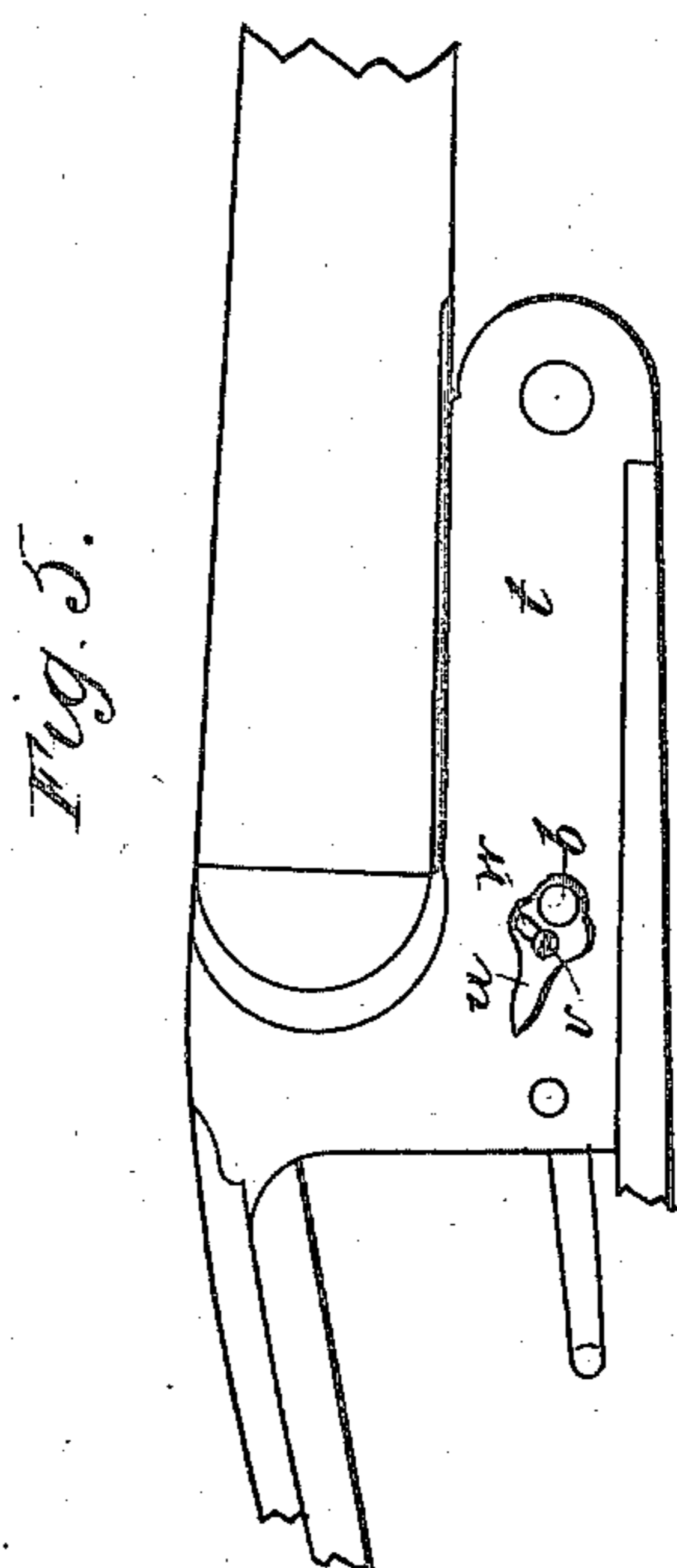
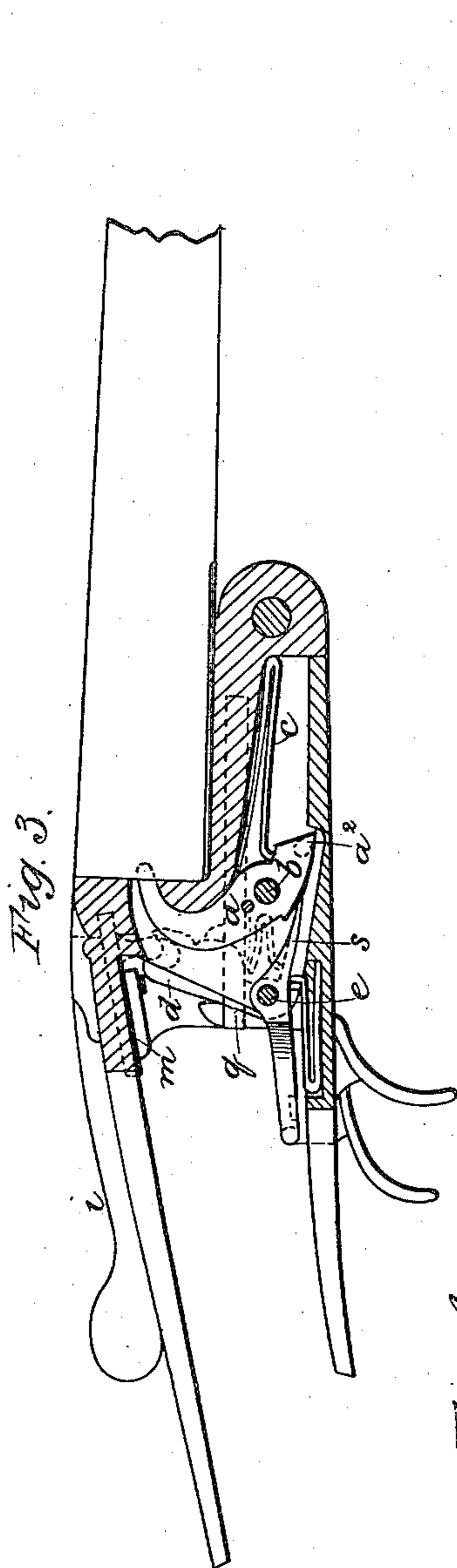
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BREECH LOADING FIRE ARM.

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Witnesses.  
James Compton  
L. Bacon

Inventors.  
Christopher George Bonehill.  
and William James Matthews.  
by J. J. Halsted, their  
attor

(No Model.)

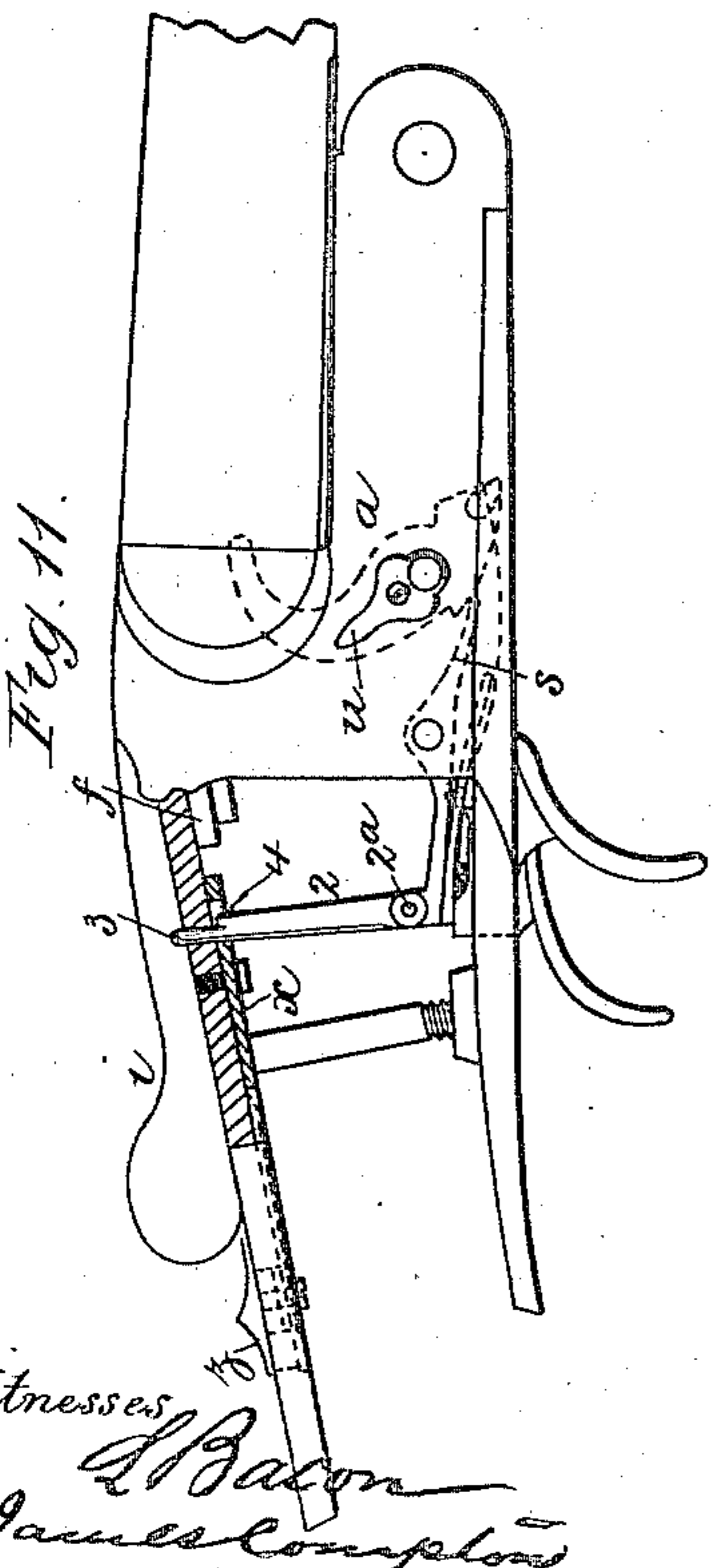
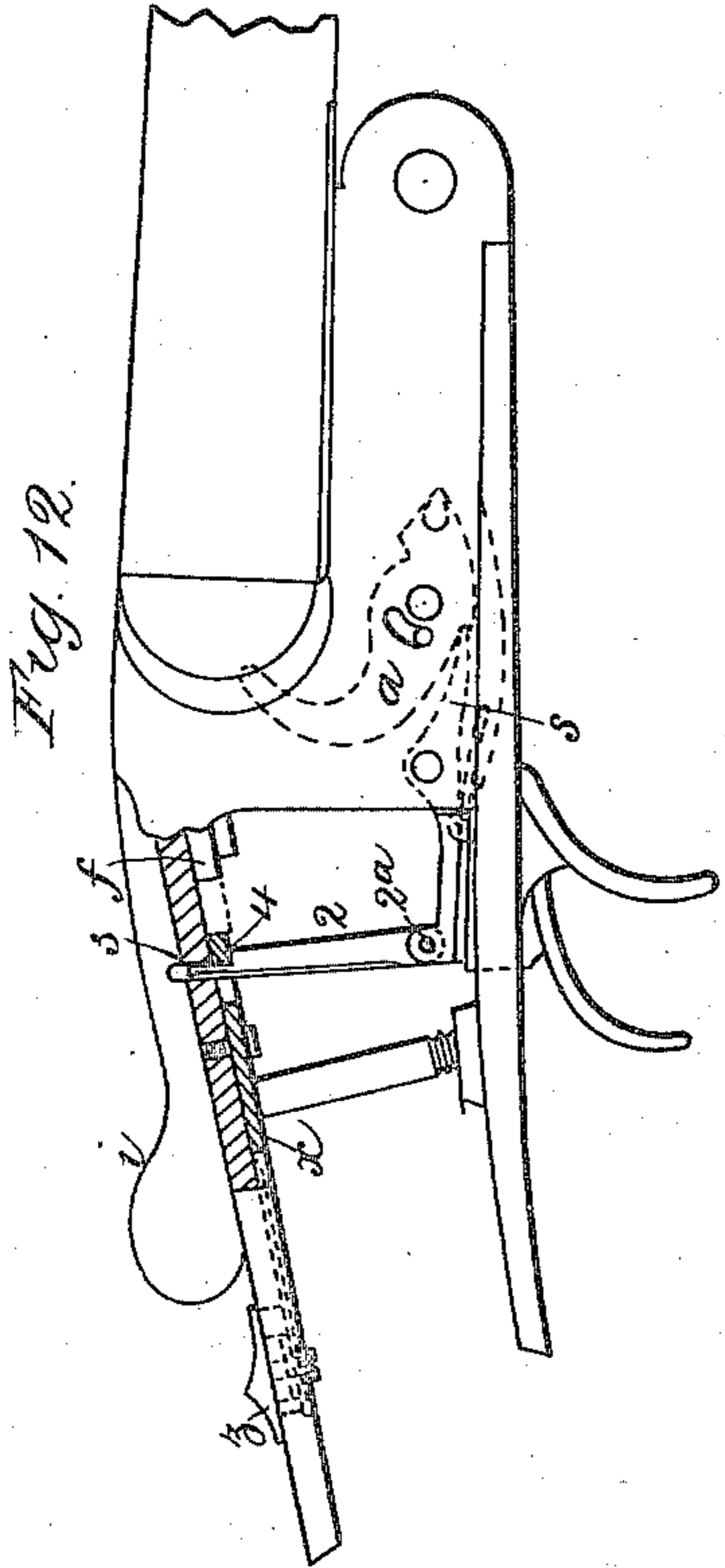
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C. G. BONEHILL & W. J. MATTHEWS.

BREECH LOADING FIRE ARM.

No. 246,365.

Patented Aug. 30, 1881.



Witnesses  
J. Bacon  
James Compton

Fig. 15.

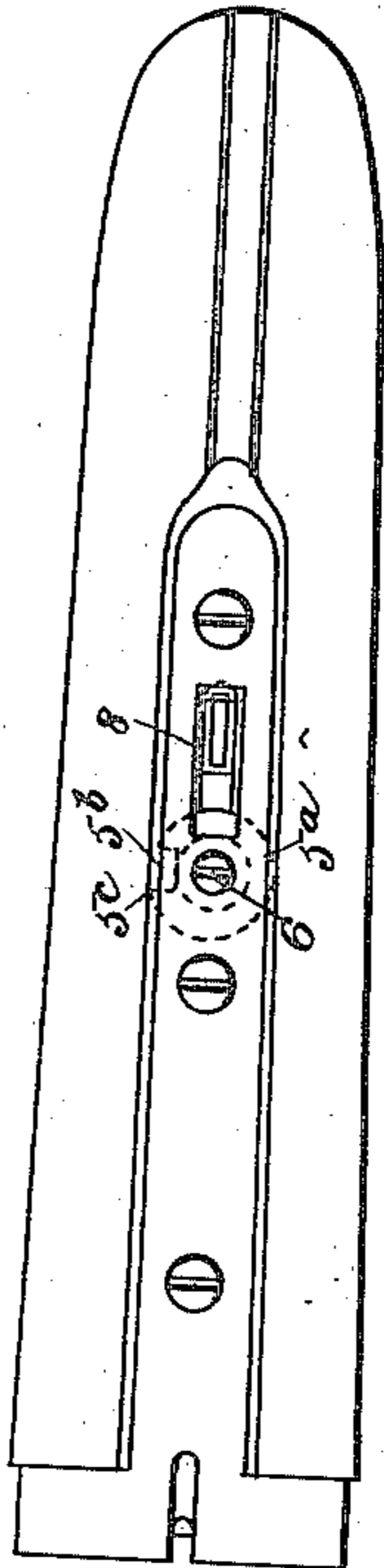


Fig. 16.

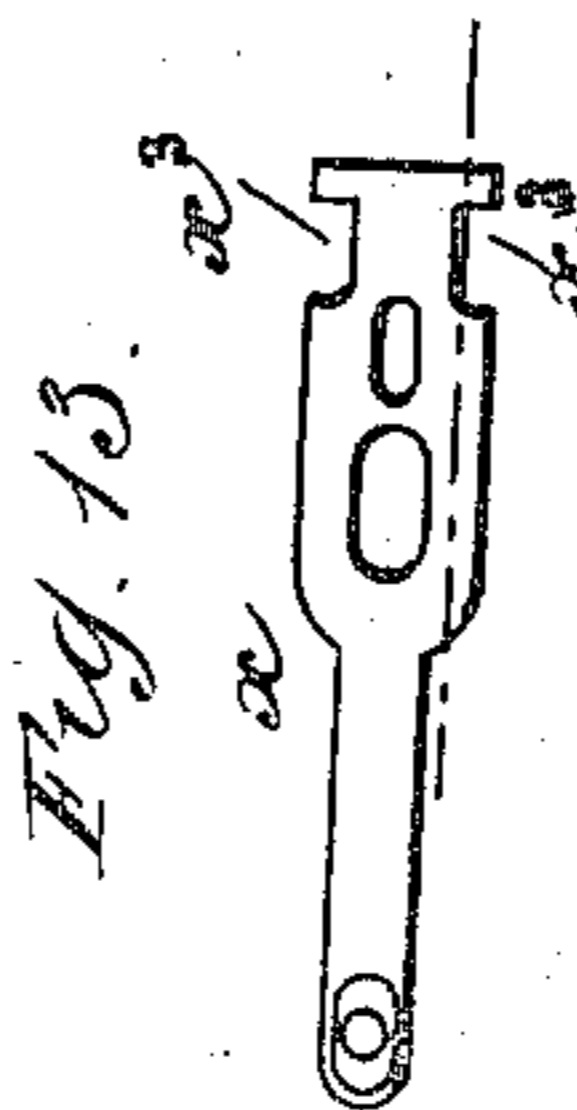
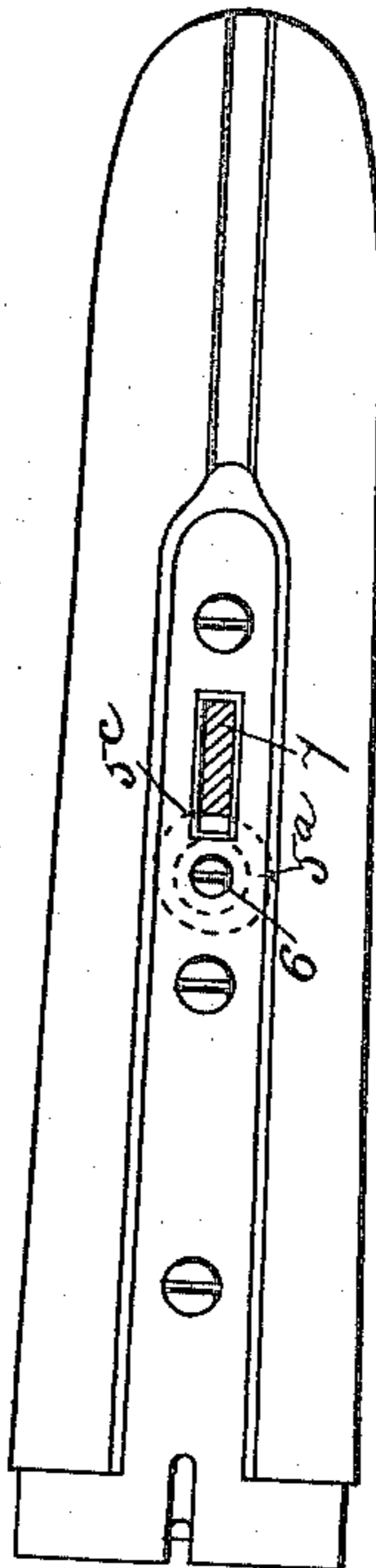


Fig. 14.

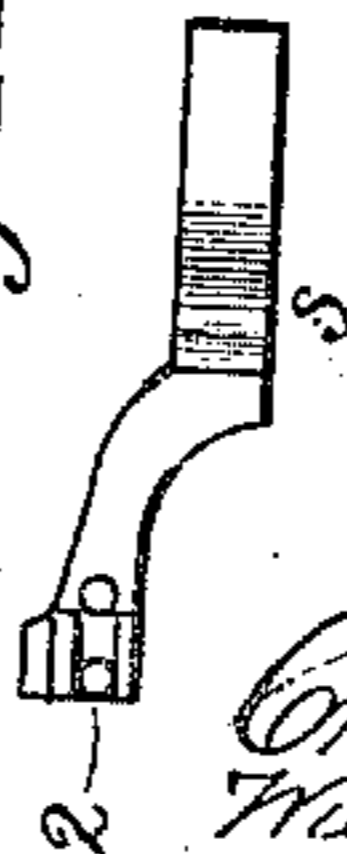
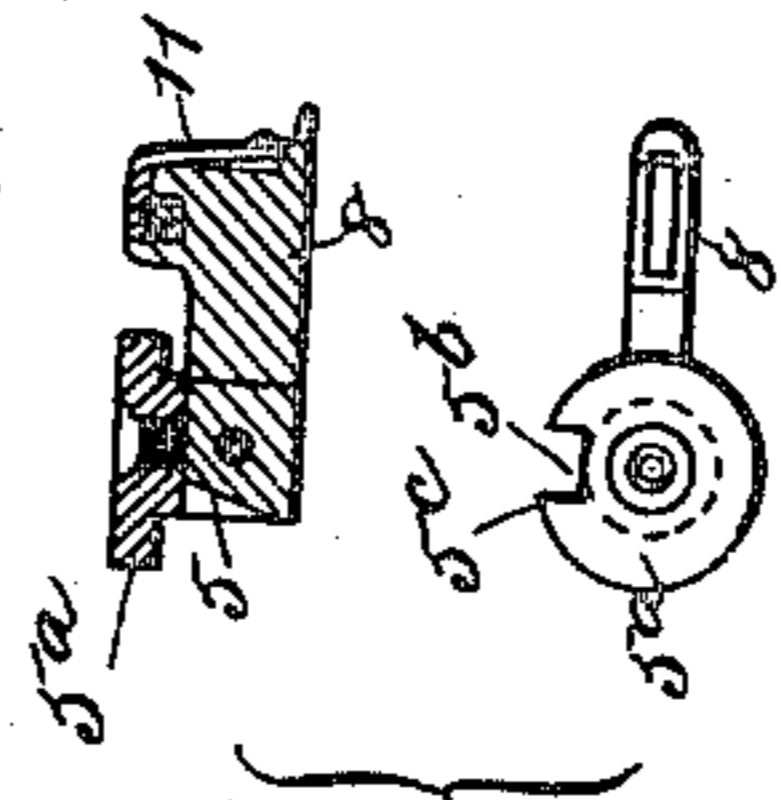


Fig. 17.



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# UNITED STATES PATENT OFFICE.

CHRISTOPHER G. BONEHILL AND WILLIAM J. MATTHEWS, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND; SAID MATTHEWS ASSIGNOR TO SAID BONEHILL.

## BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 246,365, dated August 30. 1881.

Application filed November 11, 1880. (No model.)

*To all whom it may concern:*

Be it known that we, CHRISTOPHER GEORGE BONEHILL and WILLIAM JAMES MATTHEWS, both of Birmingham, in the county of Warwick, England, have invented new and useful Improvements in Breech-Loading Small-Arms, of which the following is a specification.

Our invention has reference to breech-loading small-arms of the kind called "drop-down guns;" and our said invention consists of the arrangements or combinations of parts hereinafter described for cocking the internal or concealed hammers of the said guns and for bolting down the barrels of the said guns at the prolonged rib.

Our invention further consists of the arrangement or combination of parts hereinafter described of safety and indicating mechanism, and also of an improved "fore-end" fastener. We cock the internal hammers of the said guns by means of a cranked lever turning on a pin or axis crossing the body of the gun, the said lever having motion in a vertical plane. The arms of the said lever are nearly at right angles to one another. The said lever is situated between the two hammers, and its horizontal arm acts upon pins or projections on the sides of the hammers to cock them. The vertical arm of the said lever passes upward nearly to the under side of the tang of the break-off, and is acted upon by a top hand-lever having a side or horizontal motion in the following way: On the under side of the tang of the break-off a sliding piece or bolt works. On the under side and near the front end of this sliding piece is a projection or short arm, which engages with a fork at the top of the vertical arm of the cocking-lever described. The nose or extreme front end of the said sliding piece constitutes a bolt for taking into the prolonged end of the rib between the barrels for fastening down the said barrels. The lower end of the axis of the top hand-lever is formed with an eccentric arm or tumbler having a stud upon its end, which stud works in a cross-slot in the sliding piece or bolt. The axis of the hand-lever passes through a longitudinal slot in the sliding piece or bolt. A spring acting upon the cocking-lever gives the snapping ac-

tion to the sliding piece or bolt and the return motions to the parts connected with it. When the hand-lever is turned aside it operates through the eccentric arm or tumbler on its axis upon the sliding piece or bolt and moves the latter back or toward the butt-end of the gun. By this back motion of the sliding piece or bolt the bolting-nose is withdrawn from the rib and the barrels are unfastened. At the same time the sliding piece acting upon the vertical arm of the cocking-lever turns the latter on its axis and causes its horizontal arm to lift the hammers to full-cock. The sears of the lock mechanism engage in the ordinary way with the bents in the said hammers and hold them at full-cock. Internal hammers having curved noses to act directly on the cartridges or hammers having flat noses to act upon strikers may be used.

The safety and indicating mechanism is constructed as follows: To the outer or long arm of each of the sears we joint a rod. These rods pass upward, and their reduced upper ends work through holes in the tang, and also through slots in a safety-slide working on the under side of the tang. The reduced upper ends of the sear-rods join the other part by shoulders. When the hammers are cocked and the barrels unbolted by the back motion of the sliding piece or bolt hereinbefore described, the rear end of the said sliding piece acts against and presses back the safety-slide, and the latter engages with the shoulders of the jointed sear-rods. The upward motion of the said rods, and through them the sears, is hereby prevented, and the said sears cannot be withdrawn from the studs or bents in the hammers to permit of the discharge of the gun. Before the gun can be discharged the safety-slide must be pushed forward by a thumb-plate on the tang, so as to withdraw the said slide from the shoulders of the sear-rods. The sears are now at liberty to rise when acted upon by the triggers and the gun may be discharged. The reduced upper ends of the sear-rods act as indicators to indicate when the gun is cocked or has been discharged—that is to say, when the hammers have been cocked the said reduced ends of the sear-rods are situated be-

low the level of the tang; but when the gun has been discharged the said reduced ends protrude slightly above the level of the tang. A curved depression is made on the under side of the top hand-lever, to permit it to pass over one of the projecting indicators, when the said hand-lever takes its normal position on the tang.

Our improved fore-end fastener is constructed as follows: We connect to the bar of the fore end by a swelling joint a bolt, so as to make it capable of a partial rotation. The said bolt has at its inner end a locking-collar with a radial opening of the same width as the loop on the under side of the barrels. The rear end of the loop has a cross-opening made in it, in which opening the locking-collar of the rotating bolt may engage. When the bolt is turned so that the opening in its collar is opposite the loop the fore end may be passed to its seat on the barrels, and by turning the bolt through a quadrant an uncut-away part of the locking-collar enters the opening in the loop, and thereby fastens the fore end in its place. To unfasten the fore end the locking-bolt is turned back until the opening in its collar coincides with the end of the loop, when the fore end may be lifted from the loop. A stop on the locking-collar strikes against the loop when the opening in it coincides with the loop, and thereby prevents the further motion of the bolt. The locking-collar is turned and fixed in its fastening position by a thumb-plate jointed to the outer end of the bolt. This thumb-plate has a vertical motion, and may either be raised from or turned into a slot in a case or box fixed to the wooden part of the fore end. When the thumb-plate is turned into its slot the bolt is locked, and when raised from the slot the bolt is released, and may be turned for engaging its locking-collar with or disengaging it from the opening in the loop.

We will now proceed to describe, with reference to the accompanying drawings, the manner in which our invention may be performed.

Figures 1 and 2 represent longitudinal sections of the breech end of a double-barrel drop-down gun constructed according to our invention, the said sections being taken through the cocking-lever situated between the two internal hammers. Fig. 3 represents a longitudinal section of a portion of the gun without the stock and fore end, the said section being taken through the lock mechanism. In Figs. 1 and 3 the internal hammers are represented in their discharged position and the cocking-lever in its normal position. In Fig. 2 the internal hammers are represented cocked, the hand-lever on the tang being turned aside and the cocking-lever being raised to the position in which it fully cocks the hammers. Figs. 4 and 5 represent side elevations of the breech end of the gun, Fig. 5 exhibiting the position which the indicators take when the hammers are cocked, and Fig. 4 the position which the indicators take when the hammers have been discharged. Fig. 6 represents a plan of the un-

der side of the body. Fig. 7 represents, in side elevation and plan, the cocking-lever detached. Fig. 8 represents one of the hammers detached. Fig. 9 represents a plan of upper side of the safety-slide and sliding piece or bolt, which latter is operated upon by the hand-lever and its tumbler indicated by dotted lines. Fig. 10 represents the sliding piece or bolt separately and the tumbler of the hand-lever. The other figures represent portions of the fore-end fastener and safety and indicating mechanism, as hereinafter described.

The same letters of reference indicate the same parts in the several figures of the drawings.

*a a* are the internal hammers of the gun, turning freely on the cross-pin or axis *b*, and having curved noses, which act directly on the cartridges; and *a<sup>2</sup> a<sup>2</sup>* are the studs or projections on the sides of the hammers by which they are cocked.

*c c* are the mainsprings of the hammers fitted in recesses in the body of the gun. (See Fig. 6.)

*d d<sup>2</sup>* is the cocking-lever, turning on the fixed pin or axis *e*, crossing the body of the gun, the said lever having motion in a vertical plane. The cocking-lever is situated between the two hammers *a a*, the arms *d d<sup>2</sup>* of the said lever being nearly at right angles to one another. The end of the horizontal arm *d<sup>2</sup>* of the said cocking-lever is forked, the branches *d<sup>3</sup> d<sup>3</sup>* of the fork acting upon the pins or projections *a<sup>2</sup> a<sup>2</sup>* on the sides of the hammers to cock them. The vertical arm *d* of the cocking-lever passes upward nearly to the under side of the tang, and has a fork or slot in its top.

*f* is the sliding piece or bolt working on the under side of the tang of the break-off. This sliding piece serves to actuate the cocking-lever and safety-slide, and its nose *f<sup>2</sup>* engages with the prolonged rib *g* between the barrels for locking down the barrels at the rib. On the under side of the said sliding piece *f* is a short arm, *h*, which engages with the fork or slot in the top of the vertical arm *d* of the cocking-lever.

*i* is the hand-lever on the tang, through which the cocking and bolting of the gun are effected. The axis *k* of the hand-lever passes through and works in the longitudinal slot *l* in the sliding piece or bolt *f*, and the said axis *k* carries an eccentric arm or tumbler, *m*, the stud *n* on which works in the cross-slot *p* in the sliding piece or bolt *f*. (See Figs. 9 and 10.)

*q* is the under locking-bolt, which takes into the lump on the under side of the barrels. The vertical arm *d* of the cocking-lever passes through the rear end of the bolt *q*, and said bolt is worked by the motion of the said cocking-lever. (See Figs. 1 and 2.) By means of the spring *r* acting upon the horizontal arm *d<sup>2</sup>* of the cocking-lever the return motions of the said cocking-lever, the bolt *q*, the sliding piece or bolt *f<sup>2</sup>*, tumbler *m*, and hand-lever *i* are effected.

The action of the parts is as follows: When

the gun has been discharged the several parts occupy the respective positions represented in Figs. 1 and 3. In order to unbolt the gun and at the same time cock the hammer, the top hand-lever, *i*, is turned aside into the position represented in Fig. 2. By this side motion of the hand-lever it operates, through the eccentric arm or tumbler *m* and its stud *n*, upon the sliding piece or bolt *f*, and moves the latter 10 back or toward the butt-end of the gun, and thereby withdraws the nose *f*<sup>2</sup> of the said sliding piece or bolt *f* from the rib *g* and unfastens the barrels at the said rib. By the back motion of the sliding piece or bolt *f* the arm 5 *h* of the said sliding piece, acting upon the vertical arm *d* of the cocking-lever, turns the latter on its axis *e* and causes the forked end *d*<sup>3</sup> of its horizontal arm *d*<sup>2</sup> to act upon the studs *a*<sup>2</sup> *a*<sup>2</sup> of the hammers and lift the said hammers to full-cock, the hammers being held in 20 their cocked position by the sears *s s* engaging with the bents in the said hammers in the usual way. During the cocking of the hammers the vertical arm *d* of the cocking-lever withdraws the under locking-bolt, *q*, from the 25 lump on the under side of the barrels. Thus the turning aside of the top hand-lever, *i*, withdraws the upper and under locking-bolts, *f*, *f*<sup>2</sup>, and *q*, and at the same time cocks the hammers through the operation of the sliding piece 30 *f* and cocking-lever *d* *d*<sup>2</sup>, the several parts occupying the respective positions represented in Fig. 2. On loosening the top hand-lever, *i*, the said hand-lever, the cocking-lever *d* *d*<sup>2</sup>, and 35 the top and under bolts, *f* *f*<sup>2</sup> *q*, take the normal positions represented in Figs. 1 and 3 by the action of the spring *r*, leaving the hammers in the cocked positions represented in Fig. 2.

40 The gun is discharged by pressure on the triggers in the ordinary way.

The cocked and discharged positions of the internal hammers, *a a*, are indicated in the following manner: On the outside of the body *t* 45 of the gun, and turning freely on the axis of the hammers as a center, is a pointer or indicating-finger, *u*, (see Figs. 4, 5, and 6,) which is fixed to the hammer *a* by the screw-pin *v*, passed through and working in a curved slot, 50 *w*, in the body *t*. The said pointer or indicating-finger is thereby made to partake of the motion of the hammer, and when the said hammer is cocked the pointer or indicating-finger is situated horizontally on the body, as represented in Fig. 5; but when the said hammer 55 has been discharged the pointer or indicating-finger has the inclined position represented in Fig. 4. Each of the hammers has attached to it a pointer or indicating-finger of the kind described and represented.

60 For the purpose of locking the triggers by the act of cocking the gun, and thereby putting the gun into a position of safety, we employ a safety-slide, *x*, working on the under side 65 of the tang, the fore end of the said slide carrying a hanging rod, *y*, which is situated over

the two triggers of the gun, the said triggers being provided with shoulders or raised parts *y*<sup>2</sup>. (See Figs. 1 and 2.) The said safety-slide 70 *x* is slightly elastic, and is held in its acting and withdrawn positions by means of the fixed stud *x*<sup>2</sup> on the tang taking into a depression in the upper side of the safety-slide, as seen in Fig. 2, or bearing against a shoulder on the said safety-slide, as seen in Fig. 1. The safety-slide *x* 75 is withdrawn out of action by means of the thumb-plate *z*, situated on the top of the tang. When the hammers are cocked and the barrels unbolted by the back motion of the sliding piece or bolt *f* the rear end of the said sliding 80 piece bears against and presses back the safety-slide *x*, and the depending rod *y* of the said slide is brought over the shoulders or projections *y*<sup>2</sup> on the two triggers, and the said triggers are locked and the gun cannot be dis- 85 charged by pressure on the said triggers, as represented in Fig. 2. Before the gun can be discharged the safety-slide *x* must be pushed forward into the position represented in Fig. 1 by acting upon the thumb-plate *z*. By the for- 90 ward motion of the slide the rod *y* is withdrawn from over the shoulders *y*<sup>2</sup> of the triggers, which are thus unbolted, and may now be lifted for discharging the gun in the ordinary way.

Instead of locking the triggers by the act of 95 unbolting and cocking the gun, the sears may be locked by the same motion and the positions of the hammers indicated. This part of our invention is represented in the side elevations of the gun in Figs. 11 and 12, and in the 100 separate view of safety-slide in Fig. 13 and the sear and sear-rod in Fig. 14.

To the outer or long arm of each of the sears *s* a rod, 2, is jointed at 2<sup>a</sup>. These rods pass 105 upward, and their reduced upper ends, 3, work through holes in the tang, and also work in the side slots or recesses, *x*<sup>3</sup> *x*<sup>3</sup>, in the safety-slide *x*. (See Fig. 13.) 4 is a shoulder near the upper end of the sear-rod 2. When the 110 hammers *a a* are cocked and the barrels unbolted by the action of the sliding piece or bolt *f*, as hereinbefore described, the said sliding piece *f* presses back the safety-slide *x* and the latter engages with the shoulders 4 of the 115 jointed sear-rods 2, as represented in Fig. 12. The upward motion of the said sear-rods 2, and through them the sears, is thereby prevented, and the sears cannot be withdrawn from the bents in the hammers to permit of the 120 discharge of the gun. Before the gun can be discharged the safety-slide *x* must be pushed forward by its thumb-plate *z* into the position represented in Fig. 11. The slide *x* is thereby withdrawn from the shoulders 4 of the sear-rods 2, and the sears are now at liberty to rise 125 when pressed by the triggers to discharge the gun. The reduced upper ends, 3, of the sear-rods 2 act as indicators to indicate when the gun is cocked or has been discharged. When 130 the hammers *a a* have been cocked, as shown in Fig. 12, the reduced ends 3 of the sear-rods 2 are situated below the level of the tang,

and when the gun has been discharged the said reduced ends protrude above the said tang, as shown in Fig. 11. A curved depression on the under side of the top hand-lever, *i*, permits the said hand-lever to pass over one of the projecting indicators 3, when the said hand-lever takes its normal position on the tang.

Our improved fore-end fastener is represented in connection with the gun in Figs. 1 and 2, and detached from the gun in Figs. 15, 16, and 17.

Figs. 15 and 16 represent plans of the upper or inner sides of the fore end containing our improved fastener, and Fig. 17 represents the fastener separately in section and plan.

5 is the bolt of the fastener, turning or swiveling on the pin or center 6, secured to the bar of the fore end. 5<sup>a</sup> is the locking-collar at the inner end of the bolt 5, the said collar having in it a radial opening, 5<sup>b</sup>, of the same width as the loop 7 on the under side of the barrels. In the said loop 7 is an opening, in which the locking-collar 5<sup>a</sup> of the bolt 5 may engage. (See Figs. 1 and 2.)

Jointed to the bolt 5 is a thumb-plate, 8, for turning it and locking it in its fastened position. This thumb-plate 8 can either be turned into a slot in the metal case or box 10 of the fastener fixed to the wooden part of the fore end, as illustrated in Fig. 1, or be raised out of the said case or box, as represented in Fig. 2 and indicated in dotted lines in Fig. 1. When the thumb-plate 8 is turned out of the case or box 10 the locking-collar 5<sup>a</sup> of the bolt 5 can be turned through a quadrant, so as to make its opening 5<sup>b</sup> coincide with or remove its opening from the loop 7 on the barrels. When the bolt 5 is turned so that the opening 5<sup>b</sup> in its collar 5<sup>a</sup> is opposite the loop 7, as seen in Fig. 16, the fore end may be passed to its seat on the barrels, as seen in Fig. 2, and by now turning the bolt through a quadrant by its thumb-plate 8 an uncut-away part of the locking-collar 5<sup>a</sup> enters the opening in the loop 7, and thereby fastens the fore end in its place, as represented in Figs. 1 and 16. The thumb-plate 8 is now turned into its place in the box or case 10 and fixed in that position by the spring-snap fastening 11 (see Fig. 17) at its free end engaging with a shoulder at the end of the said box or case. To unfasten the fore end the thumb-plate 8 is turned out of its case 10 by prizing its free end, and is then turned

through a quadrant into the position represented in Fig. 2. The opening 5<sup>b</sup> in the locking-collar is thereby made to coincide with the loop 7, as illustrated in Fig. 16. The fore end is thereby unfastened, and may be lifted from the loop. A stop or portion of greater radius (marked 5<sup>c</sup>) on the locking-collar 5<sup>a</sup> strikes against the solid part of the loop 7 when the opening in the said collar coincides with the loop, and thereby prevents the further motion of the bolt, as seen in Fig. 16.

Having now described the nature of our invention and the manner in which the same is performed, we wish it to be understood that we claim as our invention of improvements in breech-loading small-arms of the kind called "drop-down guns"—

1. The arrangement or combination of parts hereinbefore described, and illustrated in the accompanying drawings, for cocking the internal hammers of the said drop-down guns by the turning aside of a top hand-lever—that is to say, the combination, with the hammer, of the cranked lever *d d'*, sliding piece *f h*, and eccentric arm or tumbler *m n* of the top hand-lever, *i*, the said parts being arranged and operating substantially as described and illustrated.

2. The sliding piece *x*, having slots or recesses *x'*, combined with the sear rod or piece 2, extending from the sears, and having a shoulder, 4, and reduced upper ends or points 3, serving as projecting indicators, said parts acting in combination substantially as described.

3. The construction and combination of the parts of fore-end fasteners for drop-down guns hereinbefore described, and illustrated in Figs. 1, 2, 15, 16, and 17 of the accompanying drawings—that is to say, a fore-end fastener consisting, essentially, of the rotating bolt 5, swiveling on the pin or center 6, locking-collar 5<sup>a</sup> at the inner end of said bolt, and having in it a radial opening, 5<sup>b</sup>, stop 5<sup>c</sup>, and jointed thumb-plate 8, the said parts being constructed, arranged, and operating substantially as described and illustrated.

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Witnesses:

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