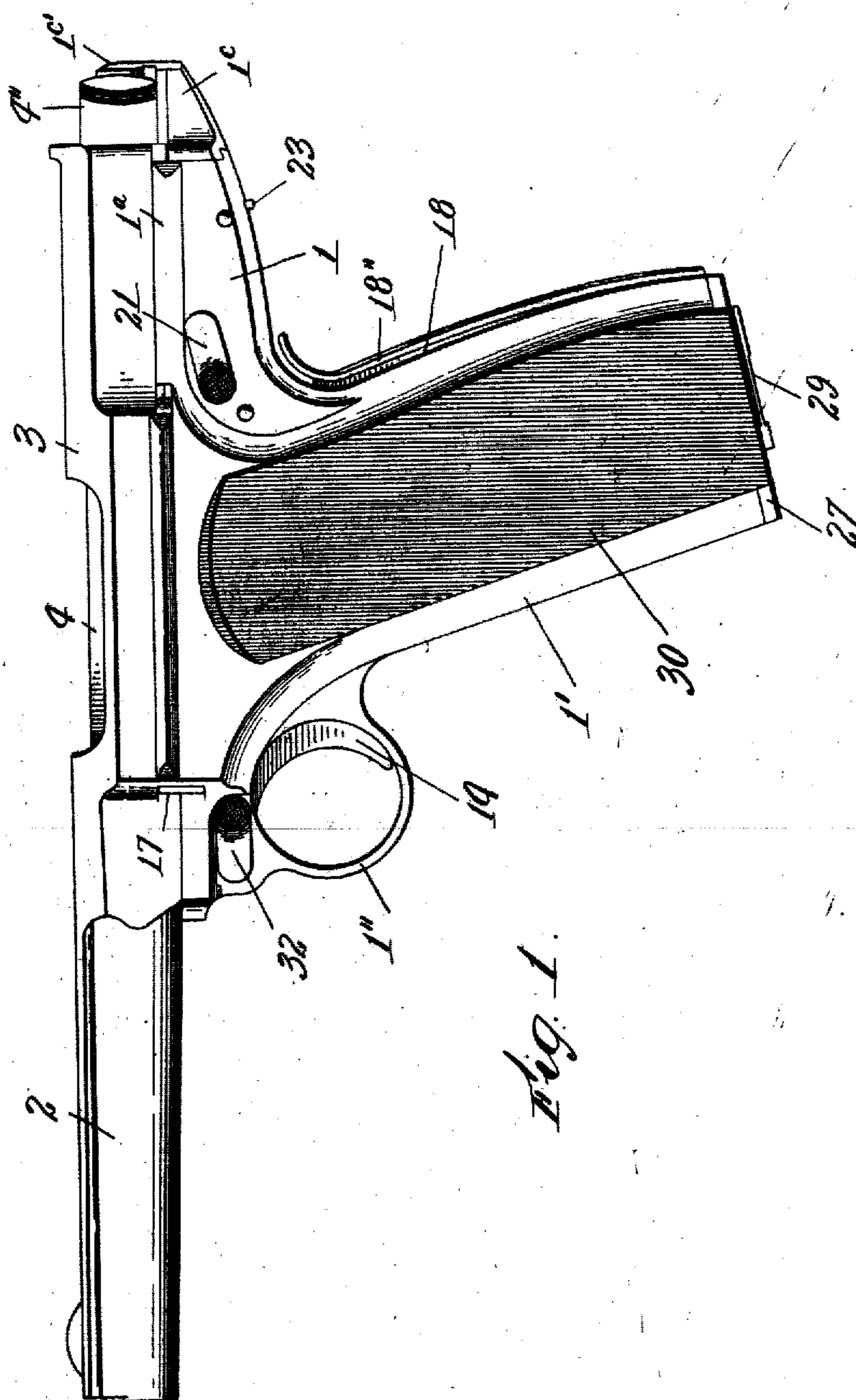


No. 812,015.

PATENTED FEB. 6, 1906.

M. BYE.
RECOIL OPERATED FIREARM.
APPLICATION FILED JULY 23, 1904.

7 SHEETS-SHEET 1.



Witnessed
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Inventor:
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M. BYE.
RECOIL OPERATED FIREARM.
APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 2.

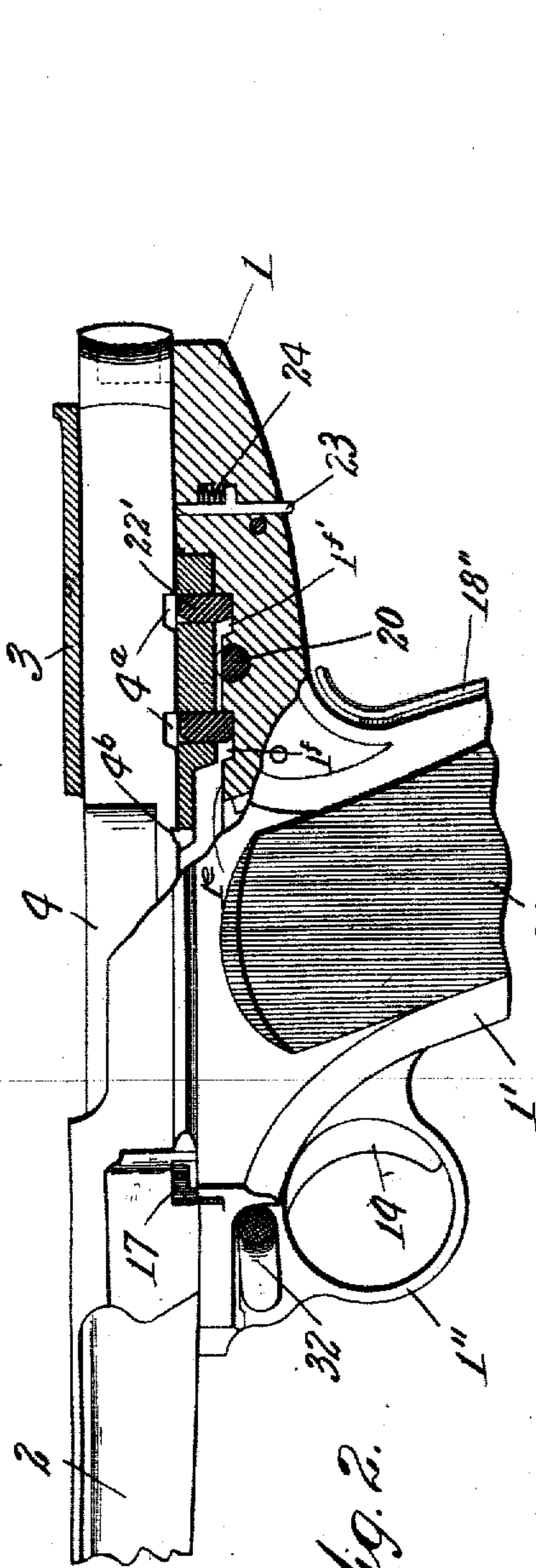


Fig. 2.

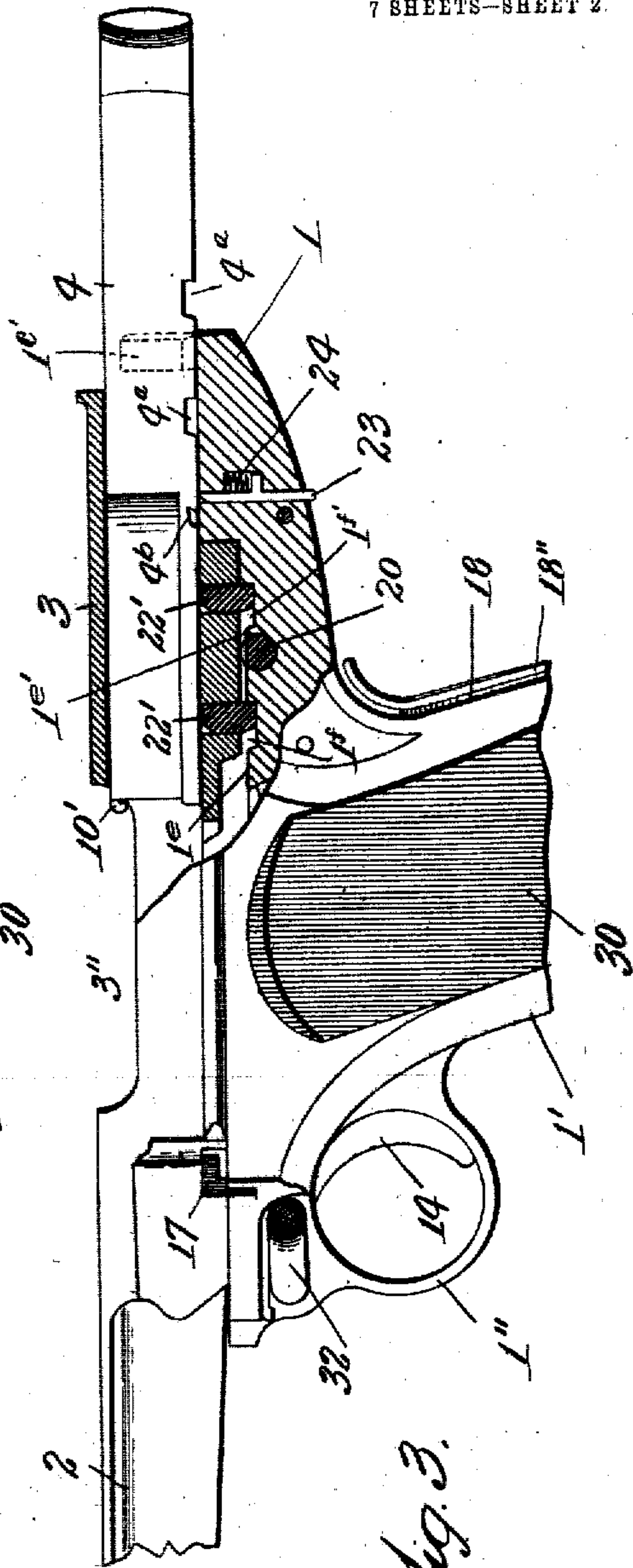


Fig. 3.

Witnesses:
C. F. Mason
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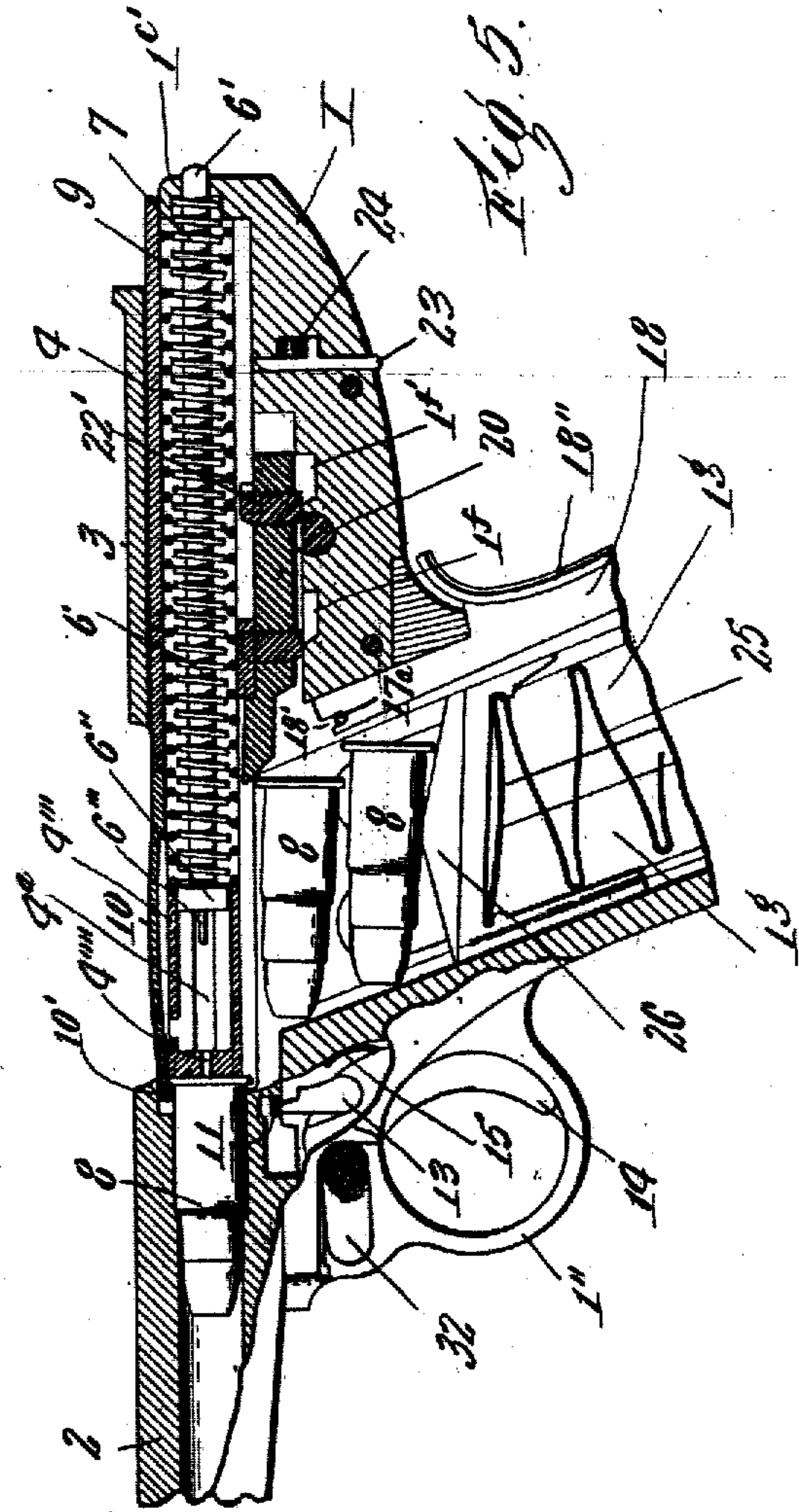
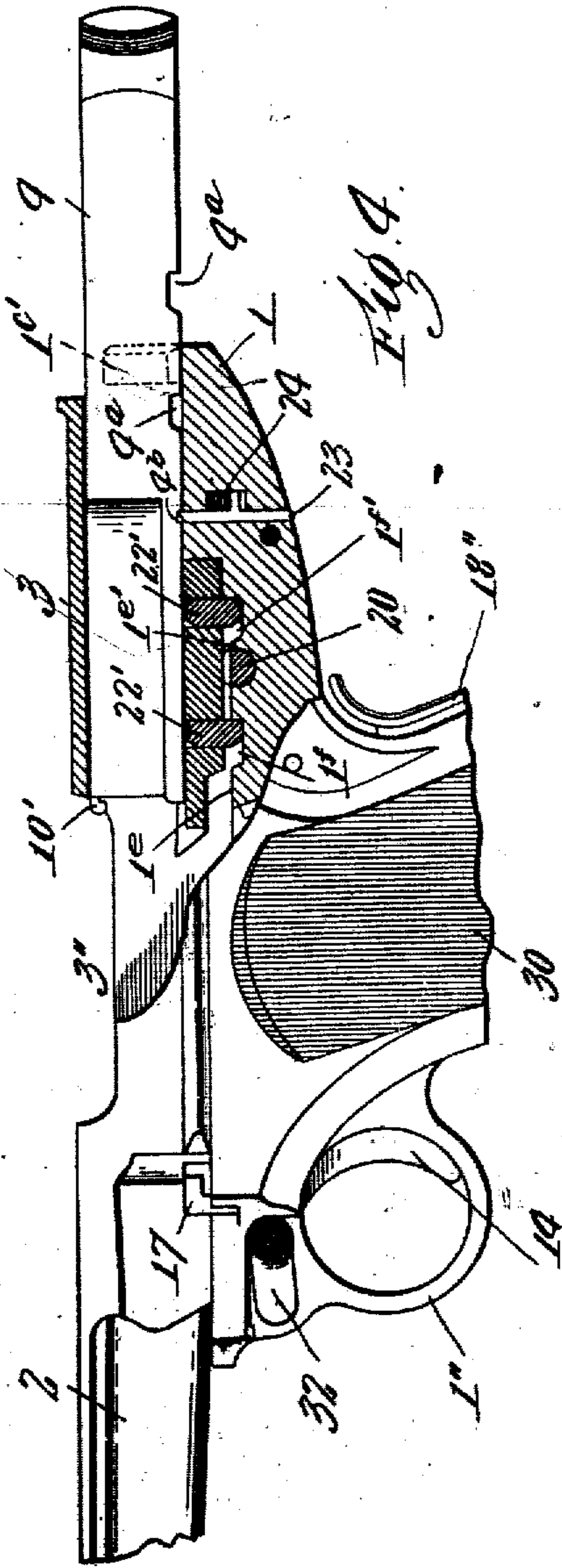
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APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 3.



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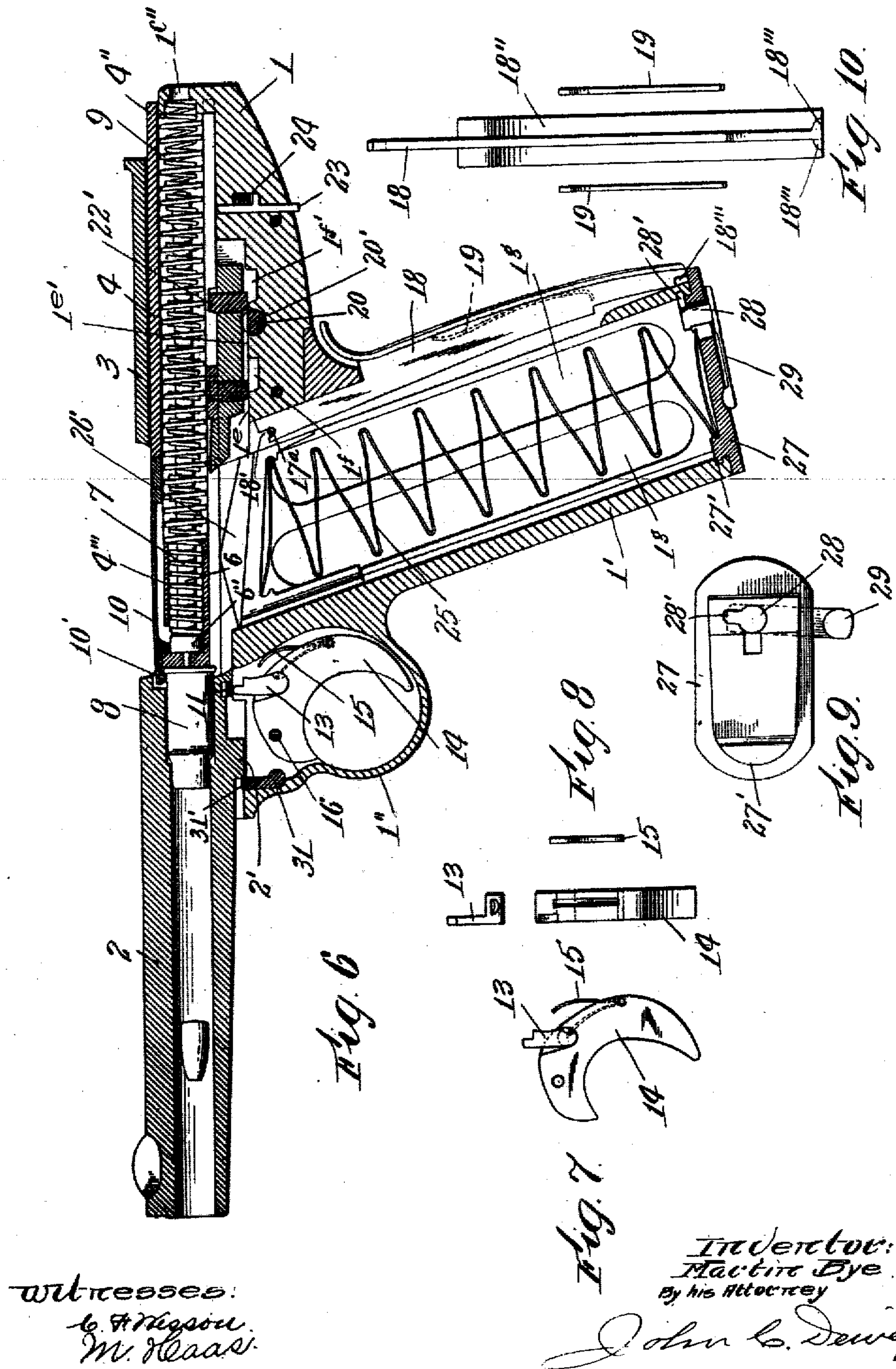
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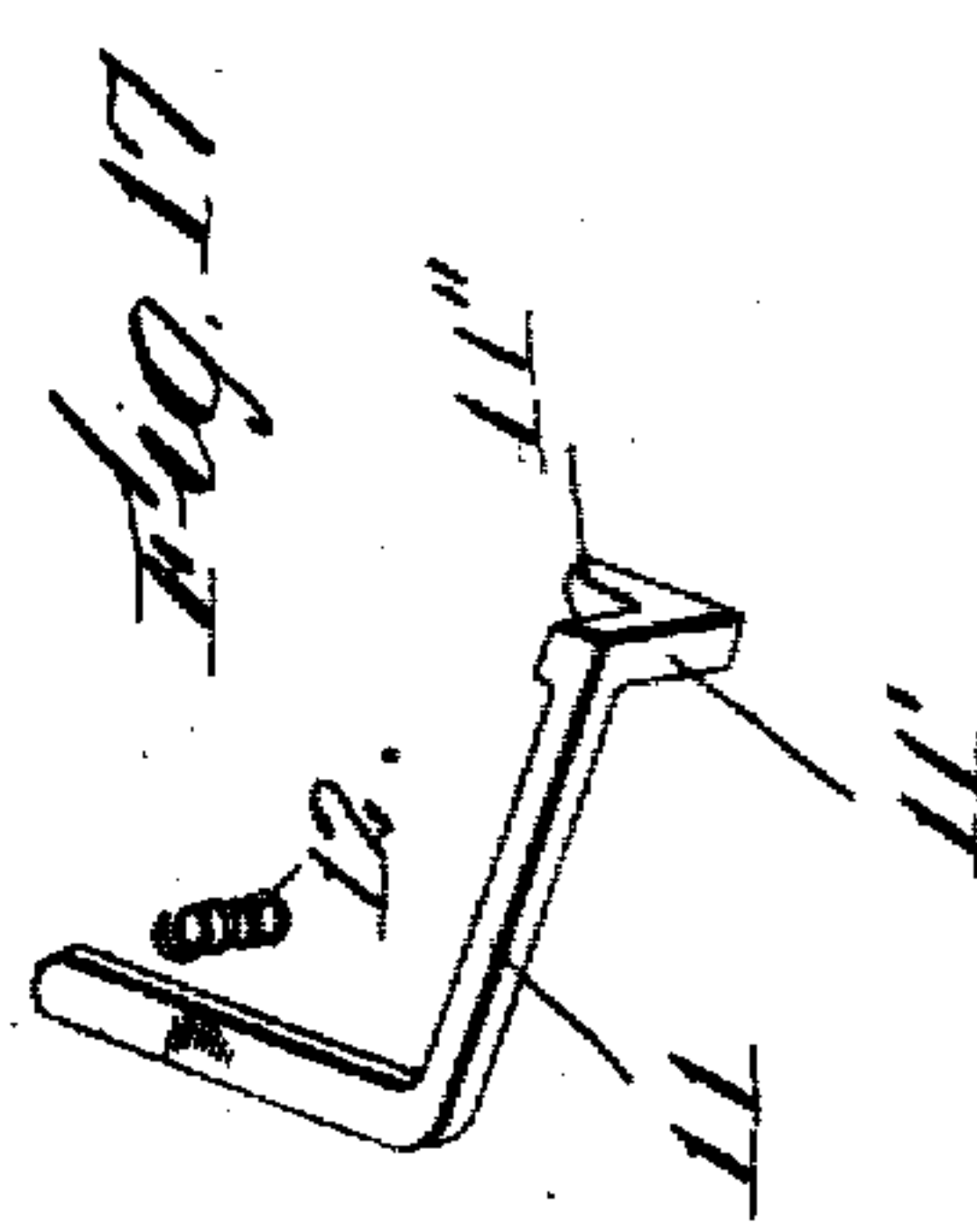
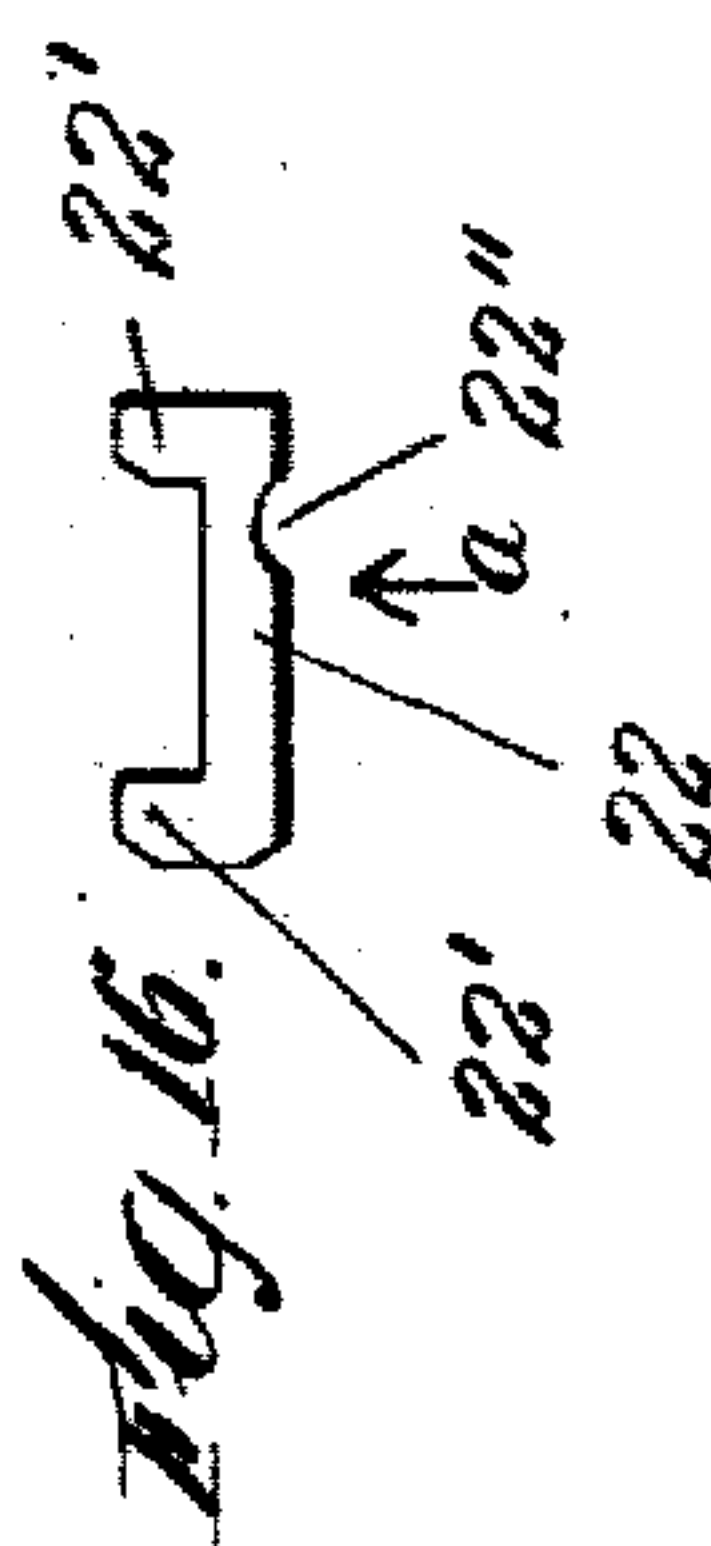
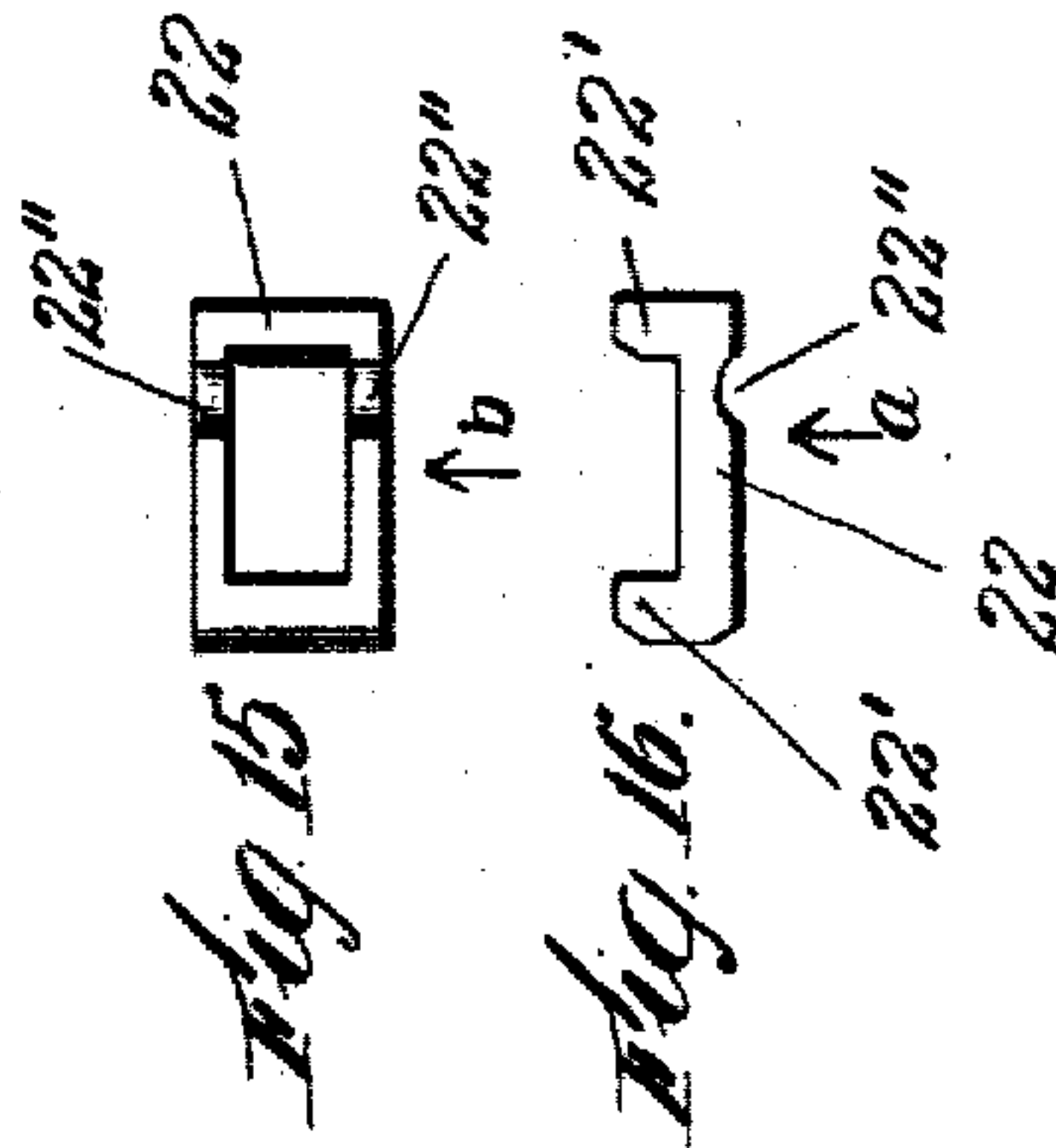
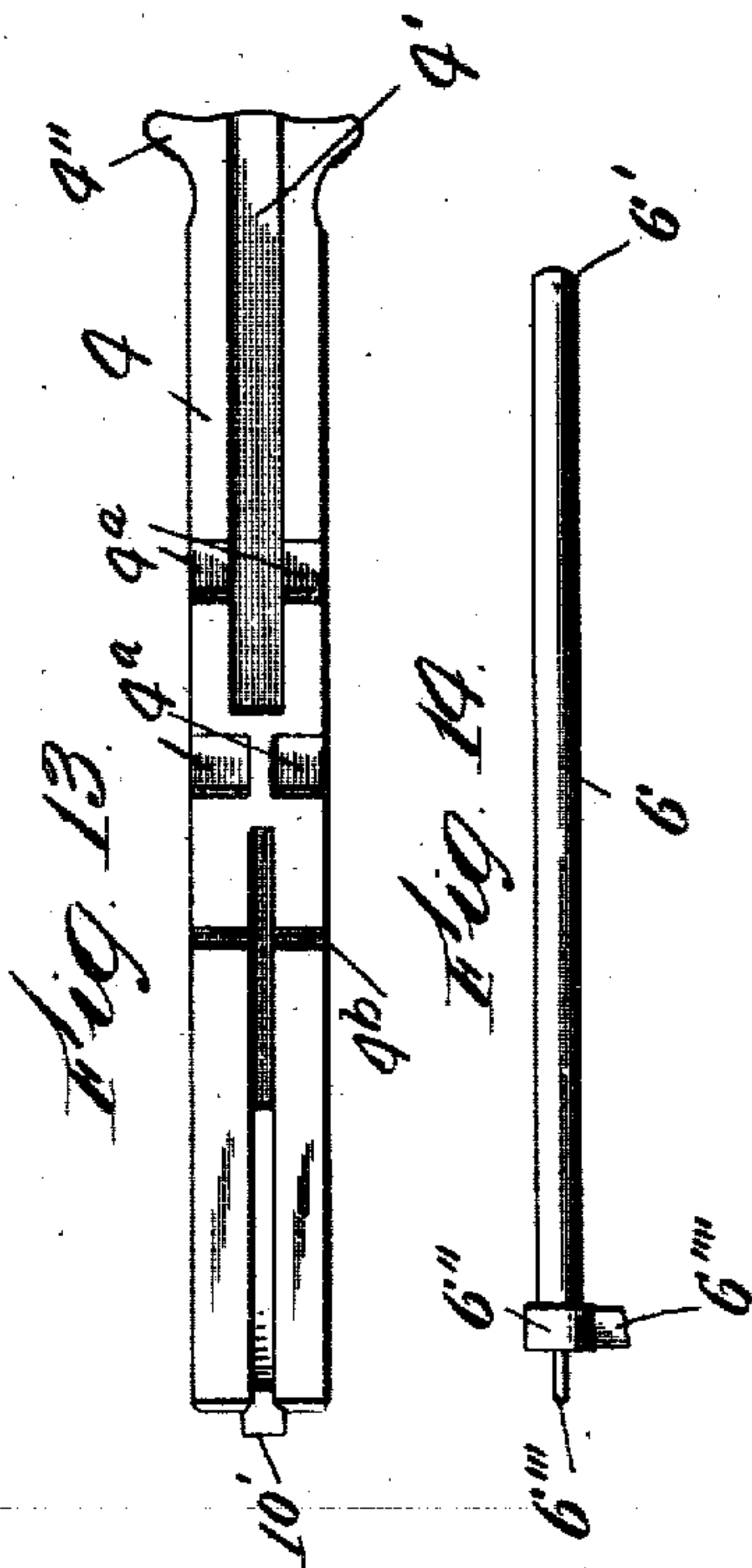
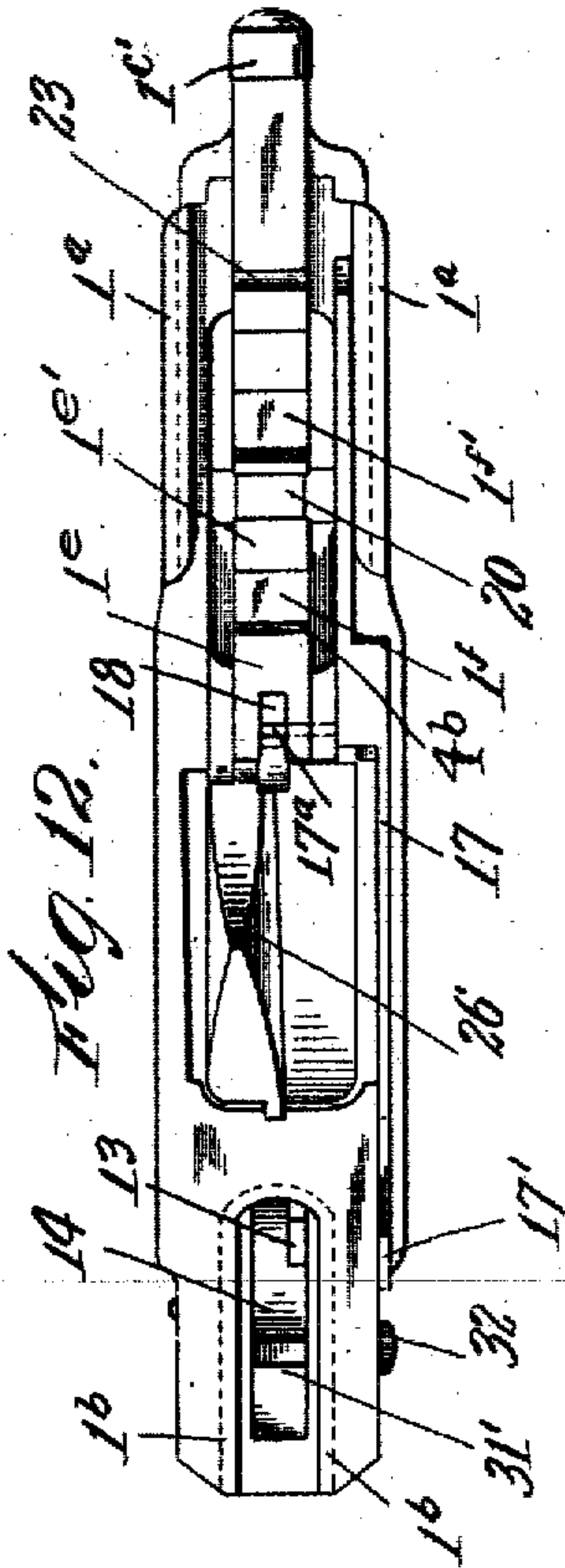
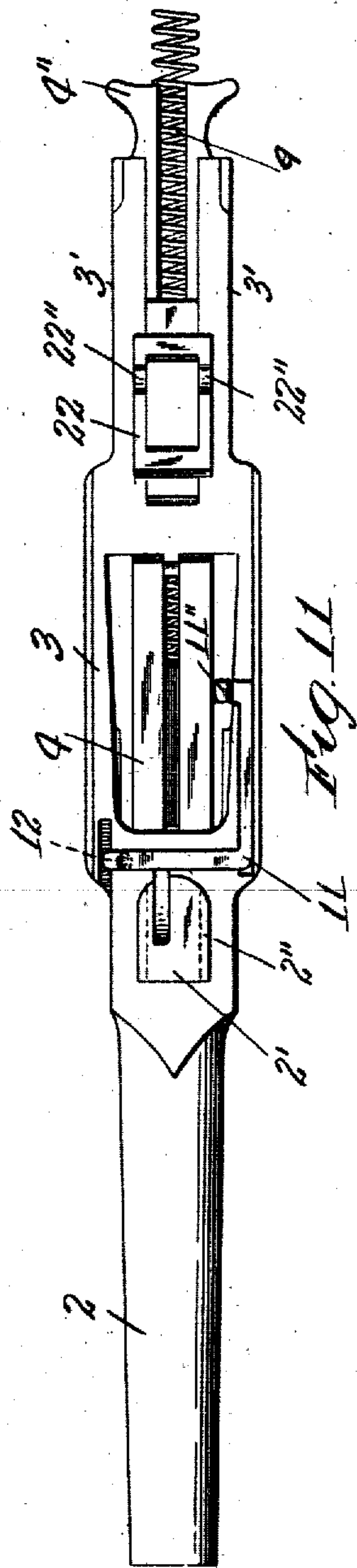
M. BYE.
RECOIL OPERATED FIREARM.
APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 4.



M. BYE.
RECOIL OPERATED FIREARM.
APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 5

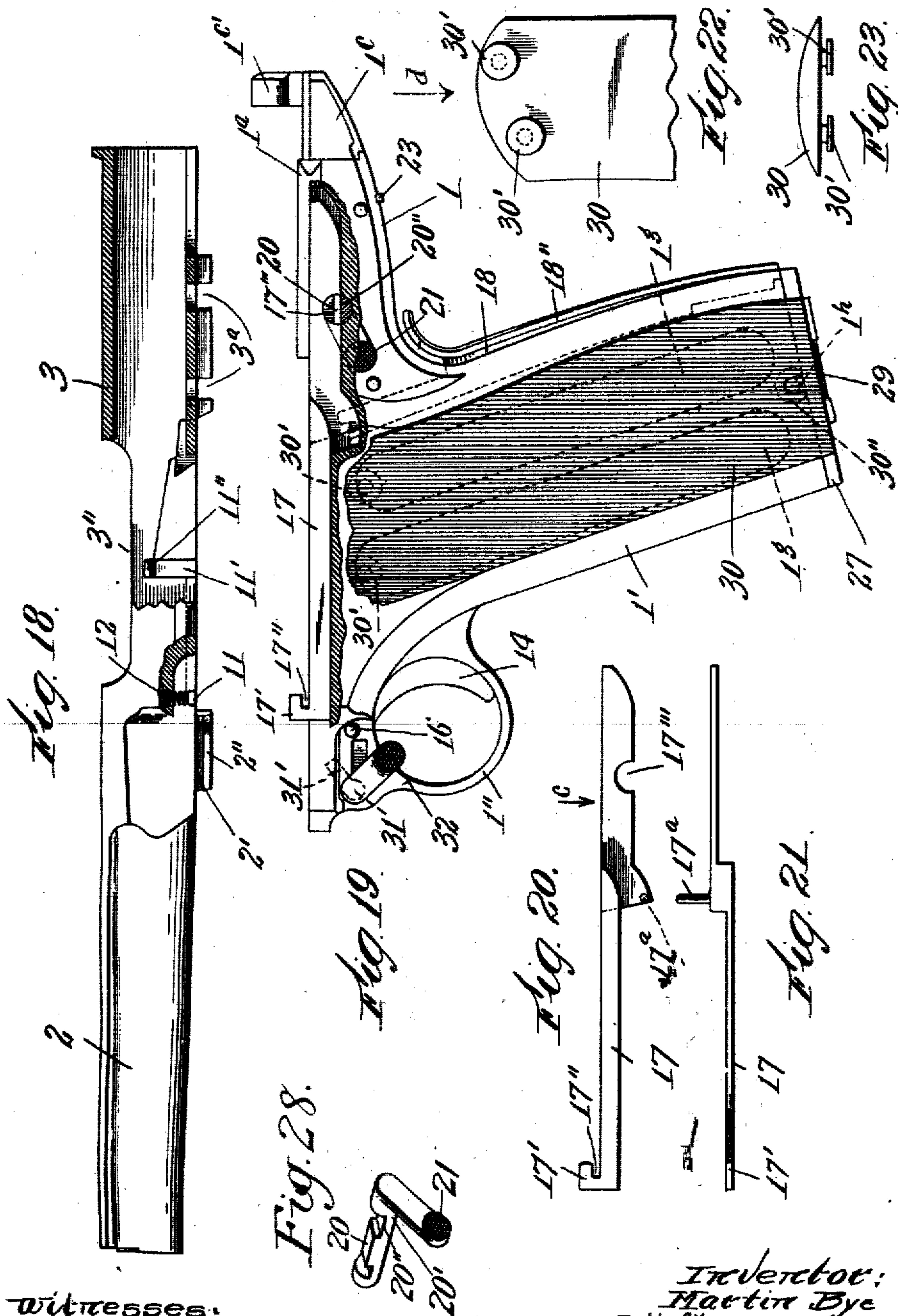


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RECOIL OPERATED FIREARM.
APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 6.



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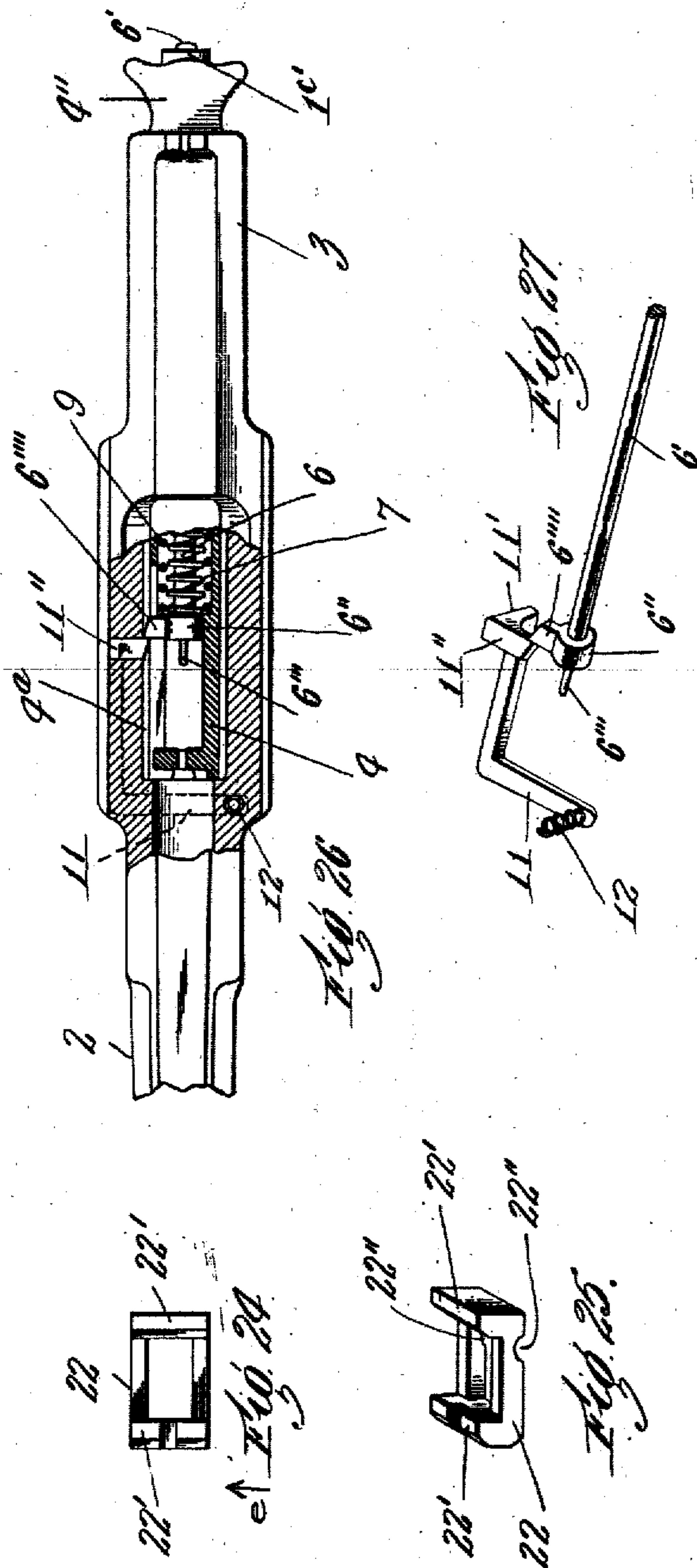
PATENTED FEB. 6, 1906.

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RECOIL OPERATED FIREARM.

APPLICATION FILED JULY 23, 1904.

7 SHEETS—SHEET 7.



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UNITED STATES PATENT OFFICE.

MARTIN BYE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HARRINGTON & RICHARDSON ARMS COMPANY, A CORPORATION OF MASSACHUSETTS.

RECOIL-OPERATED FIREARM.

No. 812,015.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed July 23, 1904. Serial No. 217,841.

To all whom it may concern:

Be it known that I, MARTIN BYE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Recoil-Operated Firearms, of which the following is a specification.

My invention relates to a recoil-operated firearm; and the object of my invention is to improve upon the construction of a recoil-operated firearm as ordinarily made.

In my improvements I combine with the frame or handle portion and the recoil-barrel and barrel extension and the breech-bolt a double sliding locking-bolt or a bolt with two separated locking-surfaces, which two surfaces engage two separated recesses in the under side of the breech-bolt and have a positive locking action to lock the breech-bolt and prevents its recoil or backward motion on the firing of the firearm until after the recoil of the barrel. The recoil of the barrel on the firing of the firearm and when the bullet is at the outer end of the muzzle operates the positive locking-bolt and releases the breech-bolt and allows it, with the firing-pin, to recoil or be moved back from the action of the gases to extract and throw out the shell and to cock the firing-pin. The breech-bolt is moved forward by its actuating-spring, a new cartridge is forced into position, and the barrel and barrel extension are also moved forward into their normal position. The forward movement of the barrel and barrel extension operates the locking-bolt and moves it into engagement with the breech-bolt to lock the same in its forward position with the firing-pin cocked and the firearm ready to be discharged. The breech-bolt sliding locking-bolt, above referred to, when the firearm is charged and cocked ready to fire is preferably seated or has a bearing on the upper rear surface of the frame or handle portion, which has two recesses therein to receive the bolt when it is moved backward. The upper surface of the bolt extends through two openings in the under side of the barrel extension and into two recesses in the under side of the breech-bolt. The recoil or backward movement of the barrel and barrel extension moves backward the locking-bolt on its seat or bearing and causes it to drop into the recesses in the upper side of the frame, but without disconnecting its upper surface from the barrel extension. The dropping down of the lock-

ing-bolt withdraws its upper surface from the recesses in the under side of the breech-bolt and leaves said bolt free to move backward and also free to move forward again. The forward movement of the barrel and barrel extension causes the locking-bolt, still engaged by the barrel extension, to move up out of the recesses in the frame and onto its normal seat or bearing and its upper surface into the recesses in the under side of the breech-bolt to lock the same in its forward position, all as will be hereinafter fully described.

In my improvements I also provide a rotary bolt with a lug thereon, which acts as a lock to hold the barrel and barrel extension and breech-bolt on the frame and prevent their accidental removal therefrom. The rotary bolt has an external spring thumb-handle, which extends over and holds the trigger-pin in place. I also provide a safety-slide, which locks the sear until the safety-lever on the handle is pressed in. I also provide a safety-lever in the form of a rotary bolt with an external handle, which locks the several parts and prevents any accidental discharge of the firearm in carrying or handling.

I employ two spiral expansion-springs, one for the firing-pin and the other one encircling the first one for the breech-bolt. I employ a lock which when the last shell is thrown out and the breech-bolt drawn back to its rearmost position is pushed in to engage and lock the breech-bolt to load the magazine. A spring acts to move out and hold out said lock.

I preferably make the barrel and barrel extension in one piece, and I do not use any screws which have to be removed in taking the firearm apart.

My invention consists in certain novel features of construction of my improvements above referred to, as will be hereinafter fully described.

I have shown in the drawings my improvements embodied in a firearm of the piston class.

Referring to the drawings, Figure 1 is a side view of a recoil-firearm embodying my improvements. Fig. 2 is a partial sectional view showing the barrel and barrel extension in their backward position on the recoil with the locking-bolt in a position to release the breech-bolt. Fig. 3 corresponds to Fig. 2, showing the locking-bolt dropped down, but the breech-bolt released and in its backward

position after ejecting the cartridge-shell and preparatory to reloading. Fig. 4 is a partial sectional view showing the breech-bolt locked in its rearmost position preparatory to loading the magazine. Fig. 5 is a longitudinal sectional view through the upper part of the firearm with a cartridge in position and the firearm cocked preparatory to its discharge. Fig. 6 is a central vertical section through the firearm shown in Fig. 1, showing the positions of the parts when the firearm is discharged, with a bullet passing through the barrel. Fig. 7 is a side view of the trigger detached. Fig. 8 is a rear view of the trigger, the spring, and the trigger-latch detached. Fig. 9 shows the inner side of the lower end plate on the handle detached. Fig. 10 shows the inner side of the safety-lever at the rear of the handle detached and the two actuating-springs. Fig. 11 shows the under side view of the barrel and barrel extension and breech-bolt detached. Fig. 12 shows the upper side of the frame or handle portion. Fig. 13 shows the under side of the breech-bolt detached. Fig. 14 shows the firing-pin detached. Fig. 15 is a bottom view of the breech-locking bolt detached looking in the direction of arrow *a*, Fig. 16. Fig. 16 is a side view of the breech-locking bolt shown in Fig. 15 looking in the direction of arrow *b*, same figure. Fig. 17 is a perspective under side view of the sear for the firing-pin detached. Fig. 18 is a side view and partial section of the barrel and barrel extension detached. Fig. 19 is a side view and partial section of the frame and handle portion detached. Fig. 20 is a side view of the sliding safety-bar detached. Fig. 21 is a plan view of the safety-bar shown in Fig. 20 looking in the direction of arrow *c*, same figure. Fig. 22 shows the inner upper end of one of the handle side pieces detached with the actuating-buttons thereon. Fig. 23 is an upper edge view looking in the direction of arrow *d*, Fig. 22. Fig. 24 is a top view of the breech-locking bolt shown in Fig. 16. Fig. 25 is a side perspective view of the locking-bolt shown in Fig. 24 looking in the direction of arrow *e*, same figure. Fig. 26 is a horizontal cross-section through the frame and firing mechanism to illustrate the relative position of some of the parts not clearly shown in the other figures, and Fig. 27 shows the firing-pin and sear detached in the relative position shown in Fig. 26 with the firing-pin held by the sear. Fig. 28 is a perspective view of the locking-bolt detached for the longitudinally-sliding safety-bar.

In the accompanying drawings, 1 is the frame, on which and within which are supported the several operative parts of the firearm. The frame 1 is in this instance made with the downwardly-projecting part 1', forming the handle and having at its upper front part the trigger-guard 1'' in the usual way. Upon the upper side of the frame 1,

which extends in a horizontal plane, (see Fig. 19,) is mounted to recoil and slide thereon the barrel 2 and barrel extension 3, (see Fig. 18,) which are preferably made in one piece, as shown. In order to attach the barrel 2 and barrel extension 3 to the frame 1 and allow them to slide thereon and to detach or remove the same, I in this instance provide undercut ways 1^a at the upper rear end of the frame 1, (see Figs. 12 and 19,) which ways are adapted to receive side fins or extensions 3' on the under side of the rear part of the barrel extension 3. (See Fig. 11.) I also provide at the front upper end of the frame 1 undercut ways 1^b (see Fig. 12) to receive the projecting edges 2'' on the under side of the block 2' on the barrel portion 2. (See Figs. 11 and 18.) The inner side of the barrel extension 3 is cored out to receive the breech-bolt 4, and there is an opening 3'' through the upper part of the front end of the barrel extension 3 directly over the handle portion, through which the shells are ejected in the ordinary way and through which the magazine within the handle is loaded in the ordinary way. The breech-bolt 4 (see Fig. 13) is inserted into the cored-out part of the barrel extension 3 from the outer end thereof with its rear end 4'' extending out beyond the barrel extension. (See Fig. 11.) When the breech-bolt 4 is in its normal position, its rear end is substantially flush with the rear end of the frame 1, as shown in Fig. 1. The rear end of the frame 1 consists in this instance of a plate 1^c, which is attached to and forms a part of the frame 1. The plate 1^c has a projection 1^{c'} at its end extending up at right angles therefrom which has an opening 1^{c''} therethrough for the outer end 6' of the firing-pin 6. (See Fig. 5.) The under side of the breech-bolt 4 is grooved or slotted longitudinally, as shown at 4', Fig. 13, and is also cored out longitudinally above said slot to allow of the breech-bolt 4 being moved out and passing by the projection 1^{c'}, as shown in Fig. 4.

Within the cored-out part of the breech-bolt 4 extends the firing-pin 6, which is encircled by a spiral expansion and actuating spring 7, one end of which extends within the projection 1^{c'} and has a bearing therein (see Fig. 5) and the other end of which bears against the enlarged end 6'' on the firing-pin 6. (See Fig. 5.) The nose 6''' of the firing-pin 6 is adapted to pass through a hole 4''' in the end of the breech-bolt 4 to engage the cartridge 8 and cause the bullet to be discharged. (See Fig. 5.) A side extension 6''' on the enlarged end 6'' of the firing-pin 6 travels in a slot in the side of the breech-bolt 4 and extends in the path of and is engaged by a sear operated by the trigger, (see Figs. 26 and 27,) to be hereinafter described. A second spiral expansion-spring 9 encircles the firing-pin spring 7 within the cored-out part

of the breech-bolt 4 and bears at one end against the front side of the projection 1' and at its other end against an annular shoulder 4''' on the inner side of the breech-bolt 4.

(See Fig. 5.) The spring 9 acts to move forward the breech-bolt 4 after it has been moved back to eject the cartridge and reload the firearm. The hook end 10' of the extractor 10 in the upper side of the front end of the breech-bolt 4 engages the flange on the cartridge, as shown in Fig. 5, to withdraw it from the barrel and cause it to be ejected in the ordinary way.

The sear 11 (shown detached in Fig. 17) consists in this instance of a flat angular piece seated in a recess on the under side of the barrel extension 3 at the rear end of the barrel 2. (See Fig. 11.) On one end of the sear 11 is a projection 11', having thereon an inward projection 11'', which is adapted to extend into the path of the projection 6''' on the firing-pin 6. A small spiral spring 12 extends into an opening in the under side of the barrel extension 3 and bears against the foremost free end of the sear 11, as shown in Fig. 18, and acts to move down said end, and with it the extension 11'' on the opposite end of the sear, to cause said extension to move into and be held in the path of the projection 6''' on the firing-pin 6, as shown in Fig. 27.

In order to move the sear 11 against the action of the spring 12 and cause the projection 11'' thereon to move out of the path of the projection 6''' on the firing-pin 6 to allow the firing-pin 6 to be operated, a trigger-pawl 13, pivoted at its lower end in a recess on the rear upper edge of the trigger 14 and actuated by a small leaf-spring 15, (see Fig. 7,) is adapted to extend under and engage with its upper end on the drawing back of the trigger 14, pivoted on the pin 16, the end of the sear 11 (see Fig. 6) near the spring 12 to move said sear upwardly against the action of said spring 12 and to move the sear and the projection 11'' thereon out of the path of the projection 6''' on the firing-pin 6.

The operation of the trigger and the mechanism above described for releasing the firing-pin to allow it to discharge the cartridge is prevented by a sliding safety-bar 17, (see Figs. 19, 20, and 21,) which bar is adapted to fit into a groove in the upper side of the frame 1 at one edge thereof, as shown in Figs. 12 and 19. Said bar 17 has a hooked front end 17', having a recess 17'' therein which is adapted to receive the transverse part of the sear 11 when it is in its outer position with the projection 11'' extending in the path of the projection 6''' on the firing-pin 6 and prevent it from being moved inwardly against the action of the spring 12 by the engagement of the trigger-pawl 13 therewith, as above described.

The sliding safety-bar 17 has a pin 17^a

thereon, which extends out from the inner side thereof and is adapted to extend into a notch 18' in the upper end of a safety-lever 18, located at the rear of the handle portion of the frame 1. (See Fig. 6.) The safety-lever 18 has a broadened outer edge 18'' to be engaged by the operator. The lower end of the safety-lever 18 has projections 18''' thereon adapted to enter undercut portions in the lower rear end of the handle portion to hold the lever in place. Two leaf-springs 19 extend in recesses in the rear part of the handle portion, one at each side of the flat portion of the lever 18, and are attached at their lower ends and are preferably used to press out the upper end of the lever 18. (See Fig. 6.) To fire the firearm, it is necessary to press in the safety-lever 18 at its upper end. The inward movement of the lever 18, through engagement with the pin 17^a on the sliding bar 17, moves forward the sliding bar 17 and disengages the recess 17'' thereon from the transverse bar of the sear 11 to allow the upward movement of said sear through the engagement of the trigger-pawl 13 therewith on the backward movement of the trigger 14. The sliding safety-bar 17 has also in its under edge a curved recess 17''', (see Fig. 20,) which is adapted to receive a rounded projection 20' on a rotary bolt 20, (see Fig. 28,) which has a bearing in the upper side of the frame 1, as shown in Fig. 6, and is operated by the external thumb-lever 21. (See Fig. 1.) The rotary locking-bolt 20 in its normal position has the flat portion 20'', (see Fig. 28,) which allows the longitudinally-sliding safety-bar to move freely thereover. When it is desired to lock the safety-bar 17 in its rearmost position, the rotation of the bolt 20 by the movement rearwardly of the thumb-lever or handle 21 through an arc of substantially one hundred and eighty degrees, will cause the rounded under side of the bolt at the end thereof contiguous to the handle to enter the recess 17''' in the sliding safety-bar 17 and lock said bar to prevent any accidental discharge of the firearm in carrying or handling the same. A small spring (not shown) is employed in connection with the rotary bolt 20 to hold it in its operative and inoperative positions.

I will now describe my positive locking-bolt for locking the breech-bolt 4 and preventing its recoil or backward movement until the recoil or backward movement of the barrel and barrel extension on the firing of the firearm has moved said locking-bolt to disengage it from the breech-bolt.

The locking-bolt (marked 29) is preferably made as shown in Figs. 15 and 16 and Figs. 24 and 25 as a plate with its central part cut out or made open and an extension 22' at each end on one side. Each extension 22' has one edge beveled, as shown. The two exten-

sions 22' form two separate locking-surfaces and make a double locking-bolt. By means of the two separate locking-surfaces adapted to engage two separate recesses in the breech-bolt I obtain a positive lock to lock the breech-bolt and prevent its recoil or backward motion on the firing of the firearm until after the recoil of the barrel. I have found in practice that a single locking-surface will not operate satisfactorily to lock the breech-bolt. The other side of the bolt 22 has a circular recess 22'' therein to receive the round surface 20' on the rotary locking-stud 20, above described.

The flat side of the sliding locking-bolt 22 when the bolt is in its normal position rests and has its bearing within the upper side of the frame 1 on the projections 1^a and 1^b on said frame, (see Fig. 6,) and the extensions 22' on the bolt 22 project up through openings 3^a (see Fig. 18) in the lower side of the barrel extension 3 and into recesses 4^a (see Fig. 13) in the under side of the breech-bolt 4, (see Fig. 5,) thus locking the breech-bolt 4 and preventing any recoil or backward movement thereof.

At the rear of the projections 1^a and 1^b, on which the bolt 22 rests, are recesses 1^c and 1^d, the front ends of which are slightly inclined or beveled. (See Fig. 6.) The cross-bars of the bolt 22 are adapted to fit into the recesses 1^c and 1^d (see Fig. 3) when the bolt 22 is moved back off of the projections 1^a and 1^b by the recoil or backward movement of the barrel 2 and barrel extension 3 on the firing of the firearm.

The dropping of the bolt 22 into the recesses 1^c and 1^d causes the projections 22' on the bolt 22 to drop out of engagement with the recesses 4^a in the under side of the breech-bolt 4 and leave said bolt free to be moved back by the recoil to eject the shell and cock the firing-pin and to be moved forward by the spring 9 to recharge the firearm. (See Fig. 6.) As the breech-bolt 4 moves forward the forward movement of the barrel 2 and barrel extension 3, actuated by the spring 9, will cause the bolt 22 to move up the inclined ends of the recesses 1^c and 1^d and out of said recesses and on to the projections 1^a and 1^b by reason of the projections 22' extending through the openings 3^a in the barrel extension 3 and cause said projections 22' to enter the recesses 4^a in the breech-bolt 4 to lock said bolt, as shown in Fig. 6.

It will be seen that the action of the locking-bolt 22, with the two projections or locking-surfaces 22', to lock the breech-bolt 4 is positive, and no spring is required to operate the same.

At the rear end of the frame 1 I provide a lock 23, which in this instance consists of a plate or slide, loosely mounted in a vertical opening in the rear part of the frame, away

from and disconnected with the magazine, and having its outer engaging end extending through the lower part of the frame at the rear of the handle and its inner end adapted to enter a recess 4^b in the under side of the breech-bolt 4, (see Fig. 4,) to hold said bolt 4 in its extreme rear position. The slide 23 has a reciprocating movement and is normally held in its outer position, as shown in Fig. 5, in this instance by a small spiral expansion-spring 24, inclosed in a recess in the handle portion. When the breech-bolt 4 is drawn back into its extreme rear position after the last shell is thrown out and preparatory to recharging the magazine through the opening 3', the moving in of the lock 23 against the action of the spring 24, so that its upper end will extend into the transverse slot 4^b in the under side of the breech-bolt 4, (see Fig. 13,) will hold said breech-bolt 4 in its extreme rear position. (See Fig. 4.) The action of the spring 9 on the breech-bolt 4 holds the lock 23 in the slot 4^b; but the slight drawing out of the bolt 4 will release the lock 23.

Within the handle portion of the frame 1 extends in this instance an expansion leaf-spring 25, which has at its upper end a block 26, which is fitted to slide in grooves in the handle portion and acts to force up and into position the cartridges 8 in the ordinary way. The lower end of the spring 25 is in this instance attached to the inner side of the end plate 27 of the handle portion. The end plate 27 has the projection 27' on one end thereof, which is adapted to extend into a groove within the end of the handle, as shown in Fig. 6, and at its other end has a stud 28, with a projection 28' on its inner end, which is adapted to be moved into a groove within the outer end of the handle by the external thumb-latch 29 to secure the end plate 27 to the lower end of the handle.

The end plate 27 is so constructed and attached to the end of the handle portion that it can be readily removed. On the removal of the end plate 27 the side pieces 30 of the handle can be readily detached, said side pieces having buttons 30' on their inner surfaces which are adapted to extend through the slots 1^a and into recesses at the upper end of said slots. A button 30'' at the lower end of each side piece 30 extends into a recess 1^b in the lower end of the handle portion, as shown by broken lines in Fig. 19.

On the front end of the trigger portion at the upper part of the trigger-guard is located a rotary bolt 31, having a projection 31' thereon which is adapted to extend up in front of the projection 2' on the lower side of the barrel 2 (see Fig. 6) to detachably secure the barrel and barrel extension 3 to the upper part of the frame 1 and prevent their being accidentally detached therefrom. The stud 31 has a spring-handle 32 attached thereto

and extending on the outer side of the trigger-guard. The downward movement of the handle 32, as shown in Fig. 19, moves the pin 31' out of the path of the projection 2' on the barrel 2 and allows the barrel 2 and barrel extension 3 to be drawn forward on the frame 1 and be detached therefrom. The engaging end of the handle 32 extends over the trigger-pin 16 and acts to hold said pin in position, and said pin acts to hold said handle in its normal position.

From the above description, in connection with the drawings, the operation of the several parts of my improvements in recoil-firearms will be readily understood by those skilled in the art.

The construction of the side pieces 30 of the handle and the manner of attaching the same, as shown in the drawings and above described, are not claimed herein, as the same form the subject-matter of another application of mine, Serial No. 239,998.

It will be understood that the details of construction of my improvements may be varied, if desired.

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

1. In a firearm, the combination with the frame, the slidable barrel and barrel extension thereon, and the slidable breech-bolt within the barrel extension, of a positive locking-bolt for the breech-bolt, having two projections or locking-surfaces thereon, and supported on the frame, and engaging the barrel extension, and adapted to be moved into engagement with the breech-bolt to lock the same, and out of engagement therewith to release the same.
2. In a recoil-operated firearm, a positive sliding double locking-bolt for locking the breech-bolt in its forward position, said locking-bolt consisting of a plate having its central part open or perforated, and an extension at each end on one side forming the locking-surface, and each extension having one edge beveled, and said locking-bolt operated on the recoil of the barrel, to release the breech-bolt and allow its recoil.
3. In a recoil-operated firearm, the combination with a frame portion, a barrel, a barrel extension, and a breech-bolt slidable therein, of a positive slidable double locking-bolt, having two projections or locking-surfaces thereon, and supported on the upper part of the frame portion, and engaging the barrel extension at two places, and adapted to be moved by the movement of the barrel extension, into and out of engagement with the breech-bolt, at two places, to lock the same in its forward position, and to release the same, to be moved back to its rear position.
4. In a firearm, the combination with the barrel and barrel extension, the slidable

breech-bolt, and the firing-pin therein, and actuating-springs for the breech-bolt and the firing-pin, within the breech-bolt, of a sear having a projection adapted to extend in the path of the firing-pin, a trigger, a trigger-pawl for engaging the sear to move it out of engagement with the firing-pin, and a slidable longitudinally-moving safety-bar adapted to engage the sear to prevent its movement, said safety-bar connected with and operated by a lever at the rear of the handle, and said lever.

5. In a firearm, the combination with the sear, and means to operate it to release the firing-pin to discharge the firearm, of a longitudinally-sliding safety-bar extending in a groove in the upper side of the frame, adapted to engage directly with the sear to prevent its operation, and a lever located at the rear of the handle and connected with said sliding safety-bar, to move the same and release the sear.

6. In a firearm, the combination with a sear, and means to operate it to release the firing-pin to discharge the firearm, of a longitudinally-sliding safety-bar moving in a groove in the upper side of the frame, and having a front hook end adapted to engage the sear to prevent its operation, and a lever located at the rear of the handle and connected with said sliding safety-bar, to move the same and release the sear.

7. In a firearm, the combination with the sear, and means to operate it to release the firing-pin to discharge the firearm, of a longitudinally-sliding safety-bar, adapted to engage and lock the sear and prevent its operation, and a lever located at the rear of the handle and connected with said sliding safety-bar, to move the same and release the sear, and a rotary bolt having a projection thereon, and a thumb-lever attached to said bolt for operating the same, said projection adapted to be moved into engagement with the sliding safety-bar to lock the same, and prevent accidental discharge of the firearm, and to be moved out of engagement with the same to release the sliding bar.

8. In a firearm, the combination with the frame, and the slidable breech-bolt, of a slide at the rear of the handle, and away from and disconnected with the magazine, said slide having a reciprocating movement within the frame, with its outer engaging end extending through the lower side of the frame, at the rear of the handle, and held in its normal position by a spring, and adapted to be moved by the hand of the operator into engagement with the breech-bolt, when it is moved into its rearmost position, and held in engagement therewith, to lock the same.

9. In a firearm having a handle, the combination with the sear, and means to operate it to release the firing-pin to discharge the

firearm, of a longitudinal sliding safety-bar, adapted to engage and lock the sear to prevent its operation, and a lever located in an opening at the rear of the handle and connected directly with said sliding safety-bar to move the same and release the sear, and said lever having projections thereon to en-

gage recesses in the end of the handle, to detachably secure said lever to the handle.

MARTIN BYE.

Witnesses:

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M. HAAS.