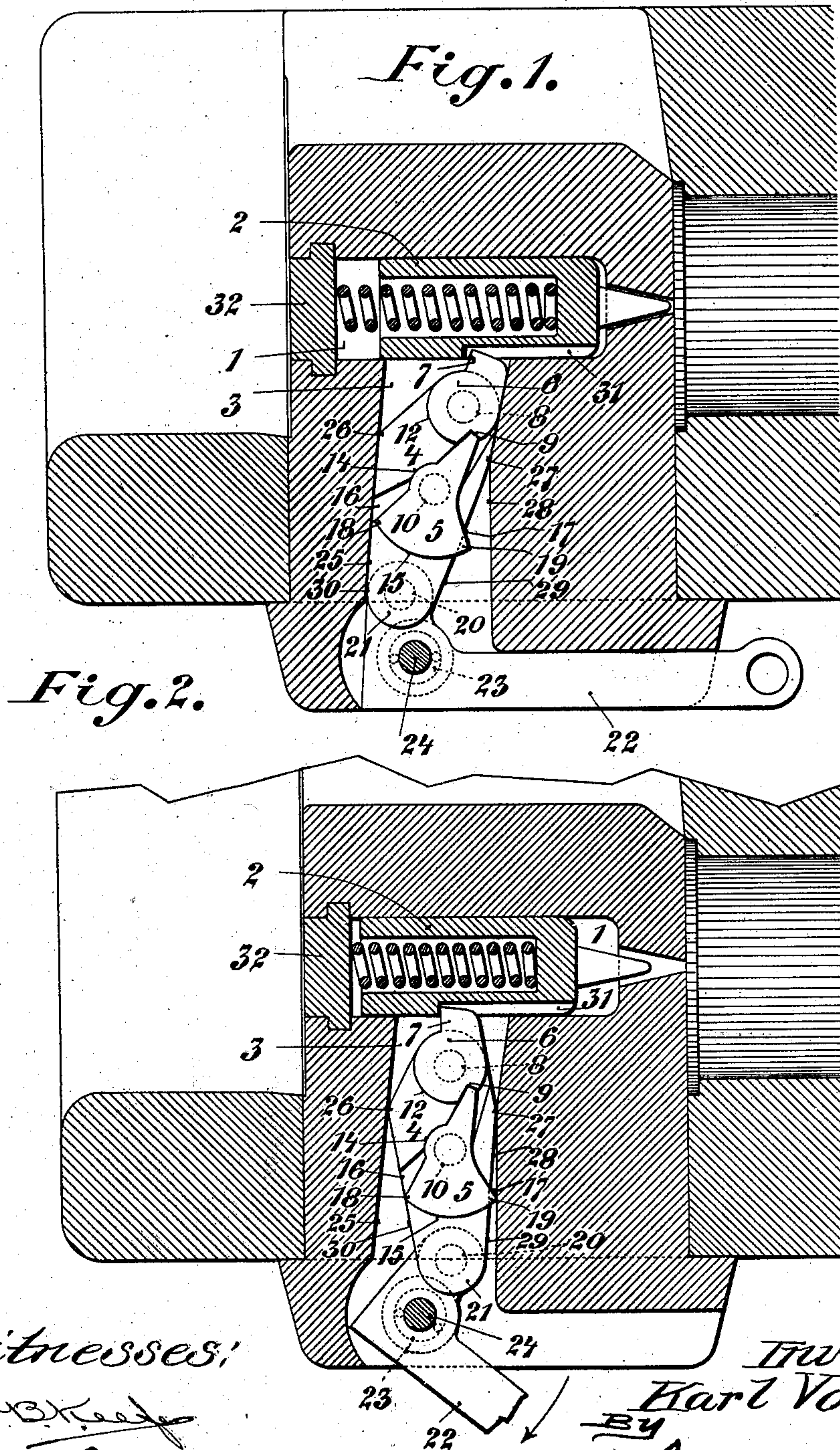


K. VÖLLER.
TRIGGER MECHANISM FOR GUNS.

APPLICATION FILED APR. 4, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:
[Signature]
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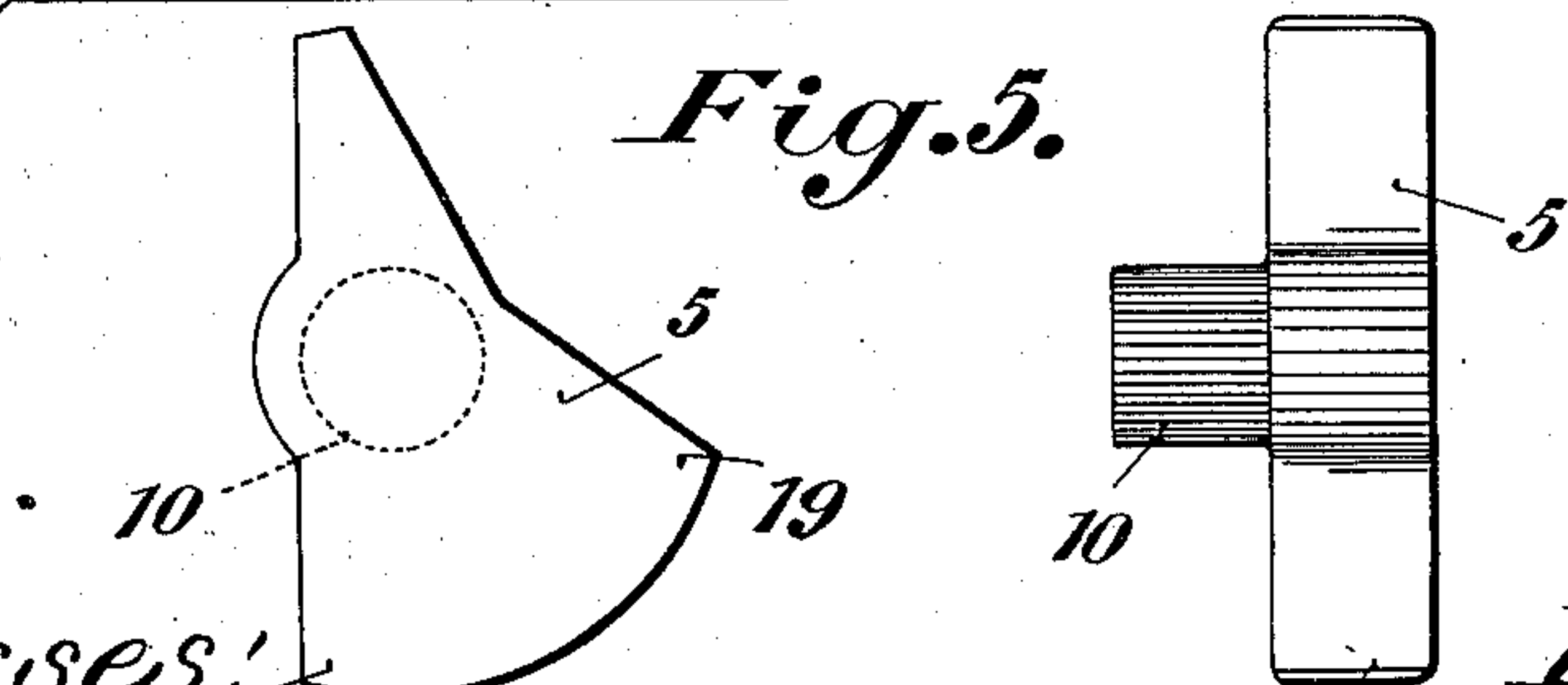
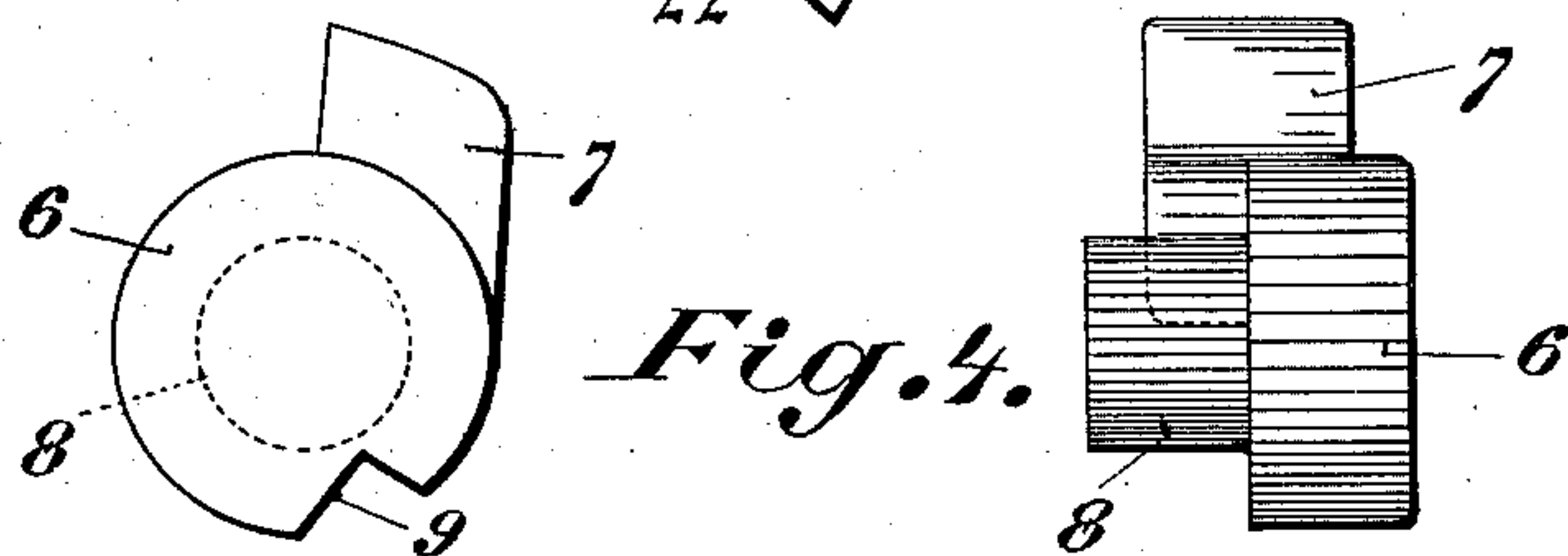
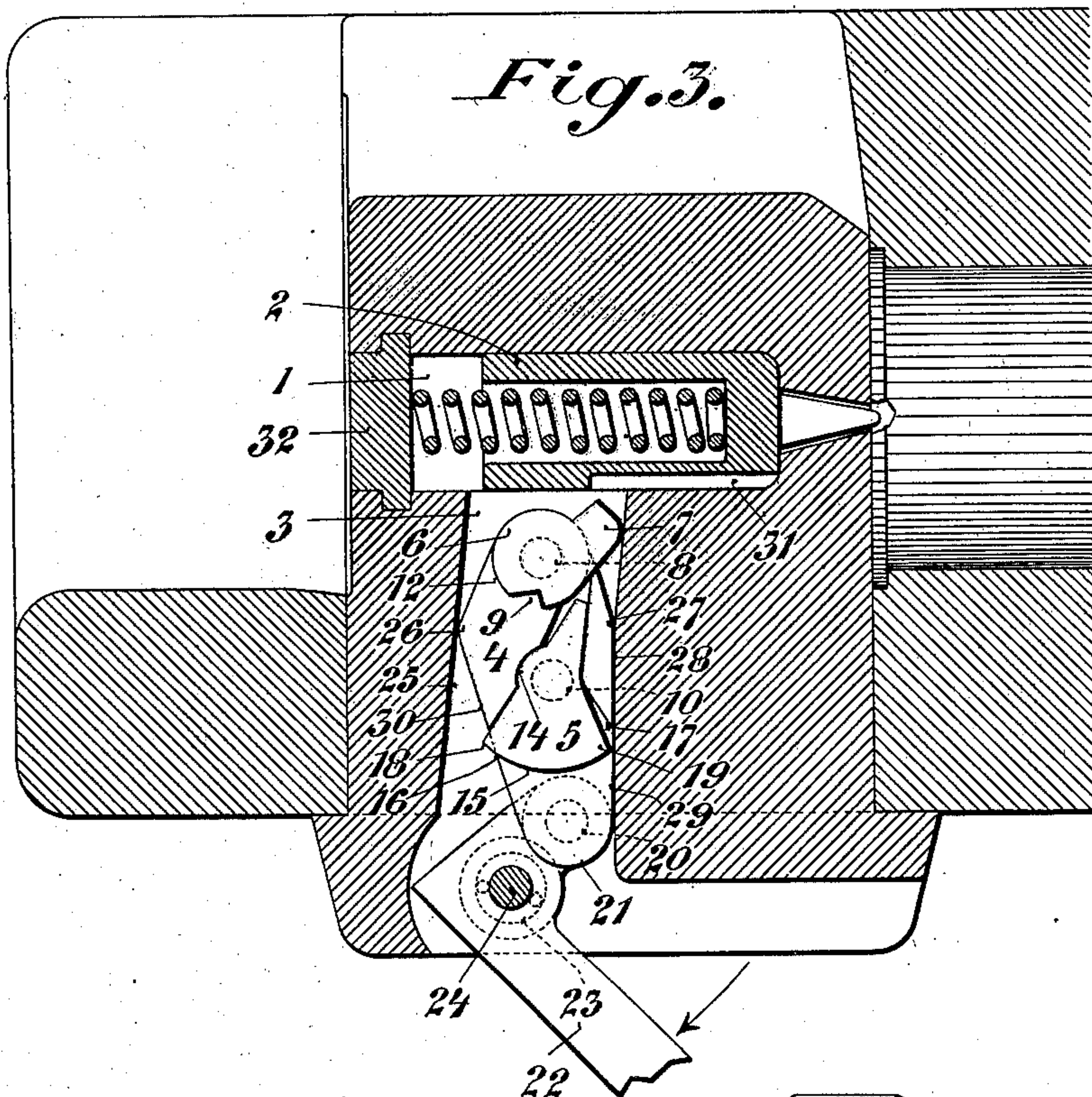
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TRIGGER MECHANISM FOR GUNS.

APPLICATION FILED APR. 4, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses, 18

W.B. Keeler

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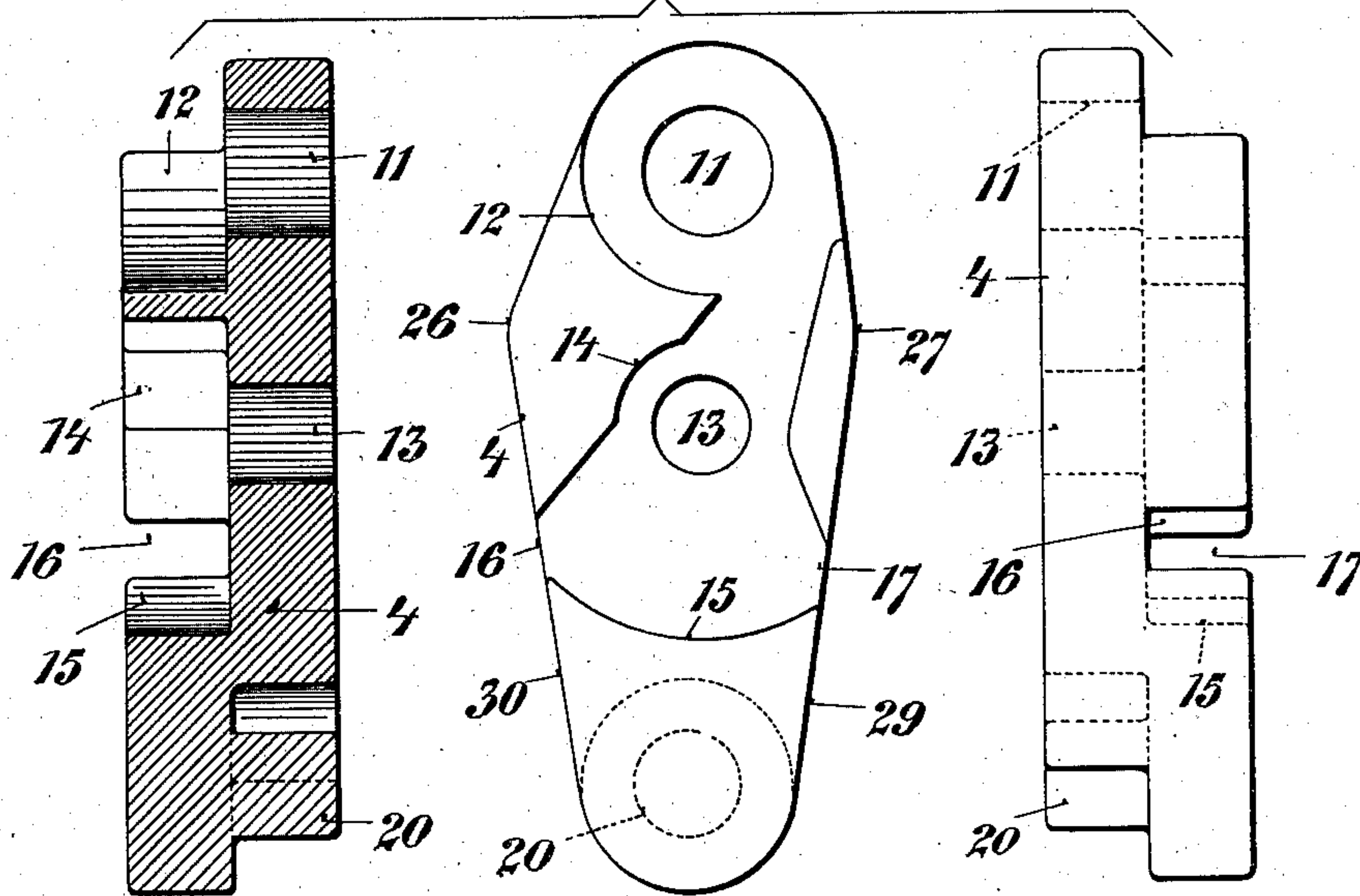
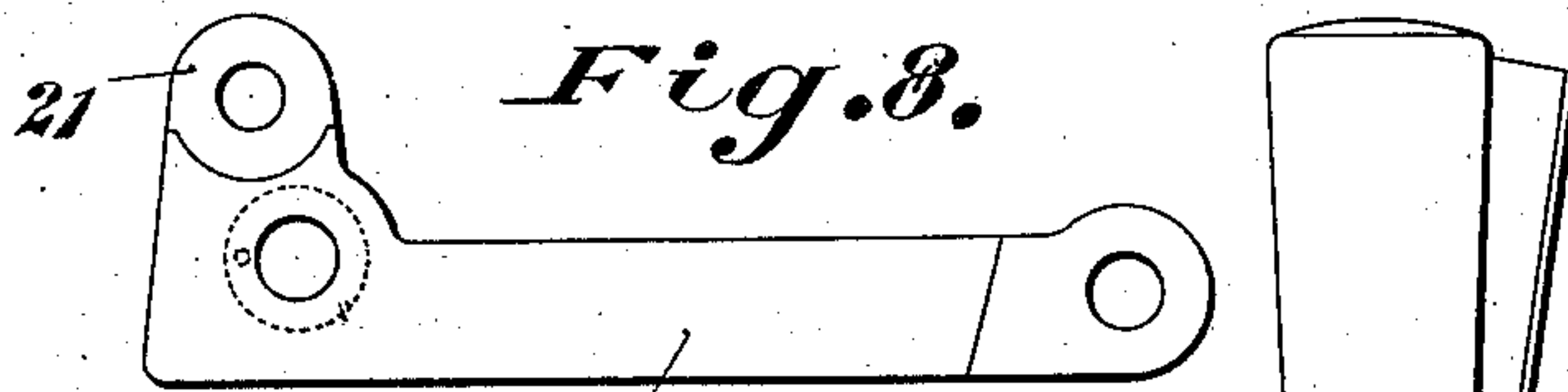
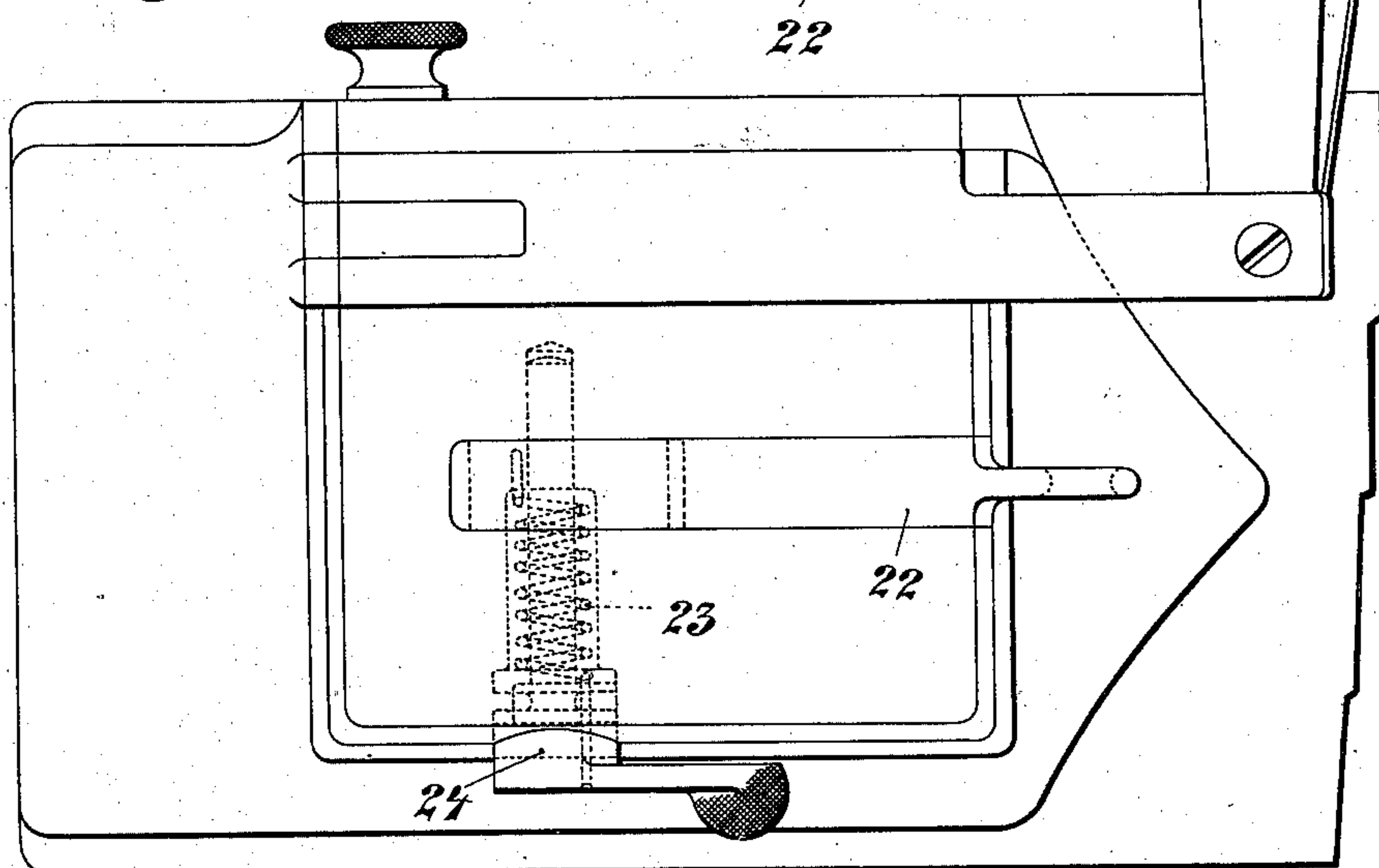
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K. VÖLLER.
TRIGGER MECHANISM FOR GUNS.

APPLICATION FILED APR. 4, 1903.

NO MODEL.

3 SHEETS—SHEET 3.

Fig. 6.*Fig. 8.**Fig. 7.*

Witnesses:

*J. B. Keefe**N. L. Bogan*

Inventor

Karl Völler

By

*James L. Norris**Attys.*

UNITED STATES PATENT OFFICE.

KARL VÖLLER, OF DUSSELDORF, GERMANY.

TRIGGER MECHANISM FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 740,716, dated October 6, 1903.

Application filed April 4, 1903. Serial No. 151,191. (No model.)

To all whom it may concern:

Be it known that I, KARL VÖLLER, engineer, a subject of the King of Prussia, Emperor of Germany, residing at Dusseldorf, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in or Relating to Trigger Mechanism for Guns, of which the following is a specification.

My invention relates to a trigger mechanism for guns. It is chiefly characterized by the firing-pin compression-lever arranged at right angles to the bolt or firing-pin and operated by a trigger resting with its two opposite lateral faces against the walls of a recess in which it is mounted and being provided with a rotatable pawl for holding and releasing the bolt, as well as a catch for locking and releasing the pawl. When the compression-lever is swung in one direction, the pawl held by the catch compresses the spring of the firing-bolt until the catch strikes with its outer edge against the wall of the recess and becomes disengaged from the notch in the pawl. The latter thereupon yields and the bolt-spring propels the bolt forward. When the compression-lever is pushed in the other direction, (say by a spring,) it again brings the pawl into engagement with the bolt, and the catch, striking against the other wall of the recess, engages with the notch of the pawl and locks it. The catch and the pawl during that time being mounted on the compression-lever are caused by it to participate in its movement. It is possible to arrange or construct them so that they are flush with the surface of the compression-lever. Finally, the compression-lever itself does not require any fixed pivot, as it turns between the walls of the recess in which it is arranged. It is sufficient to mount the trigger rotatably on an accessible pin arranged in the breech-block and to hinge the compression-lever to a lug or extension on the trigger. This results in the trigger mechanism according to this invention having the advantage over those hitherto known of being easily removable independently of the bolt or firing-pin without necessitating the use of tools and, further, of enabling the trigger in case of a misfire to be pulled over and over again and, finally, of permitting in case of a misfire the parts of the

trigger-action and of the bolt to be replaced without removing the breech-block from its locked position.

In the accompanying drawings a trigger mechanism according to my invention is illustrated by way of example.

Figure 1 is a cross-section of the breech-block, showing the trigger mechanism in the position of rest. Fig. 2 is a similar view with the bolt or firing-pin cocked. Fig. 3 is a similar view with the bolt released. Fig. 4 shows the cocking-pawl, Fig. 5 the catch, Fig. 6 the compression-lever, Fig. 7 a front elevation of Fig. 1, and Fig. 8 the trigger in elevation.

The trigger mechanism is arranged in a recess 3 in the breech-block, having a rectangular cross-section and extending in height as far as the bore 1 for the bolt 2, the length from back to front of said recess depending on the width and extent of movement of the compression-lever 4, carrying the catch 5 and the cocking-pawl 6, the width being determined by the thickness of the compression-lever. Figs. 4, 5, and 6 show various parts separately in different views. The disk 6 of the pawl is provided with a projection 7 and with a concentric round pin 8, adapted to fit in the hole 11 in the recessed upper part of the lever 4. The right-angled notch 9, opposite the projection 7, serves for engaging the end of the catch 5, Fig. 5. The latter has two arms, the arm used for locking being wedge-shaped, while the other arm or end is wider and is limited by an arc of circle drawn from the center of the pivot 10. The compression-lever 4 is cut away or recessed to receive the catch 5 and the cocking-pawl 6. The pin 8 of the pawl is seated in the bore 11, and the circular part rests circumferentially, for the purpose of relieving pressure on the pin, against the wall 12 of the compression-lever 4, limited by an arc drawn with the same radius. The recess for the cocking-pawl merges into another recess having an enlarged shape of the cocking-pawl. A hole 13 is provided to receive the pin 10 of the catch, and the circular edges 14 and 15 serve as abutments or guides. The lateral face of the compression-lever is cut away on both sides, and openings 16 and 17 enable the edges 18 and 19 of the pawl or catch to pro-

ject through. On the other side of the lever, at its lower end, there is a semicircular recess with a concentric projecting pin 20. This pin receives a correspondingly-shaped boss 21 on the inner end of the trigger 22, shaped somewhat like a bell-crank lever, Figs. 1, 2, 3, and 8. The latter is automatically returned to its position of rest after it has been pulled by a torsion-spring 23, Fig. 1.

The recessing of the compression-lever and the introduction into the recesses of the catch and pawl result in a construction having flat sides with no projections beyond the surfaces of the lever. The recess or slot 3, which is of the same width throughout, receives the compression-lever with the two pawls. The compression-lever has only sufficient play to enable it to slide easily into the recess 3. In this way the pawls need not be screwed or keyed to the compression-lever, as the walls of the recess hold them in place. After removal of the bolt 24 the mechanism can be removed and the parts cleared, repaired, or changed without necessitating the use of any tools.

Fig. 1 shows the trigger mechanism in the position of rest. The spring 23 holds the trigger 22 in position and acts on the trigger in opposition to the direction of pull, which direction is shown in Figs. 2 and 3 by the arrows. The projection 7 of the cocking-pawl 6 engages with a projection on the bolt 2, which is slightly withdrawn from the primer during the preliminary partial compression of its spring. The catch or pawl 5 locks the pawl 6, its wedge-shaped arm resting with the edge 18 against the wall 25 of the recess. Movement of the compression-lever 4, hinged by means of its pin 20 to the boss 21 of the trigger 22, is prevented by the preliminary compression of the torsion-spring 23, which holds the trigger in position.

In Fig. 2 the trigger 22 has been pulled in the direction of the arrow. The other end 21 of the trigger consequently moves forward and carries with it the lower end of the compression-lever, the edges 26 and 27 of which had up to then rested against the walls 25 and 28 of the recess. By this movement the projection 7 of the pawl 6 forces back the bolt 2, as the catch 5 still locks the pawl and does not release it until just before the trigger 22 has been turned so far that the lateral face 29 of the compression-lever comes against the wall 28 of the recess. In this movement the edge 19 of the catch 5, projecting through the opening 17, comes in contact with the wall of the recess and thereupon turns about its pivot 10 and its wedge-shaped end is forced out of engagement with the notch 9 in the pawl 6. The spring of the bolt being thus released throws the latter forward, Fig. 3. The released pawl 6 thereupon is moved into the position shown in Fig. 3. The catch 5 has turned so far that its other edge 18 projects through the opening 16. On the release of the trigger it is returned into its position

of rest by the torsion-spring, and the boss 21 again moves the compression-lever in the opposite direction until the lateral face 30 rests against the wall 25. During this movement the projection 7 of the pawl is brought into the position shown in Fig. 1 and again engages with the projection of the bolt. The edge 18 of the catch projecting through the opening 16 is forced back and again locks the pawl. During this locking movement the pawl pulls the bolt slightly back, so that the firing-point is just retired into the block. In order to examine or replace the bolt without removing the trigger mechanism, the bolt is provided with a groove 31, open in front, so that after removing the closing-plate 32 the bolt can be withdrawn from the back.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A trigger mechanism comprising a compression-lever, arranged at right angles to the bolt and operated by a trigger-lever and provided with a pivoted "cocking-pawl," the lever normally resting with two diametrically opposite faces against the walls of a recess in which it operates in such way that when the compression-lever is turned in one direction, the bolt is withdrawn and its spring compressed by the movement of the "cocking-pawl" held by a catch pivoted on the compression-lever and having lateral edges adapted to project beyond the lateral edges of the lever, which catch on striking against the wall of the recess, releases the cocking-pawl and consequently the withdrawn bolt, while when the compression-lever is turned in the opposite direction, it returns the "cocking-pawl" into engagement with the bolt in its position of rest, the catch, on striking against the other wall of the recess being turned so as to reengage the cocking-pawl, substantially as described.

2. A trigger mechanism comprising a compression-lever decreasing in size toward each end from the medial portion, whereby the intersections of these tapering sides form projections on each side of the lever on which the same may turn as on a fulcrum, a breech-block provided with a recess, the walls of which engage the projections of the compression-lever, and a trigger-lever pivoted in said breech-block.

3. Trigger mechanism of the kind described comprising in combination with a block having a recess a compression-lever provided with two pawls, the lever recessed to receive the same and having at both sides openings through which the edges of one of the pawls can project in the movement of the mechanism for the purpose of engaging or releasing the other pawl when the compression-lever strikes against the walls of the said recess, substantially as described.

4. A trigger mechanism comprising a compression-lever provided with a projection on

each side thereof on which the lever may turn
as on a fulcrum, and said lever further pro-
vided with recesses to receive the cocking-
pawl and its catch or pawl, the pivot-pins of
5 which engage in holes in the compression-le-
ver, so that the whole presents a flat surface
and may be easily withdrawn and replaced,
substantially as described.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 10
nesses.

KARL VÖLLER.

Witnesses:

WILLIAM ESSENWEIN,
PETER LIEBER.