

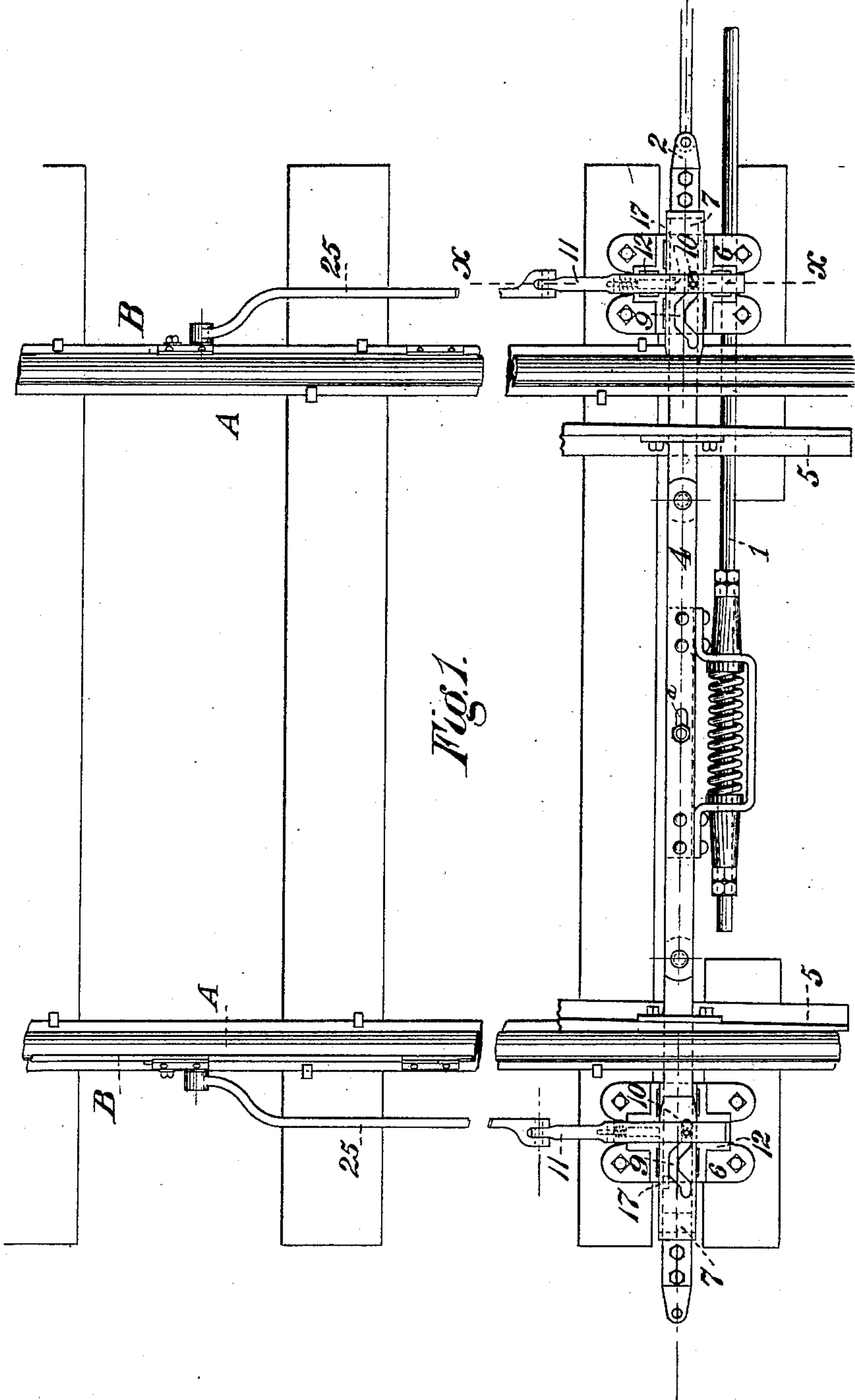
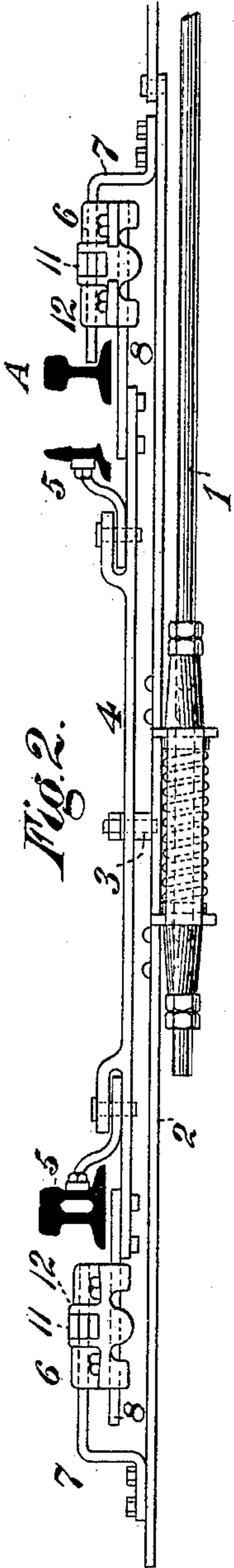
(No Model.)

2 Sheets—Sheet 1.

C. R. & H. JOHNSON.
SAFETY LOCK FOR SWITCH POINTS.

No. 358,933.

Patented Mar. 8, 1887.



WITNESSES:

C. M. Clarke.
R. H. Whittlesy

INVENTOR,

Charles R. Johnson
Henry Johnson
By Darwin S. Wolcott Att'y.

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Fig. 4.

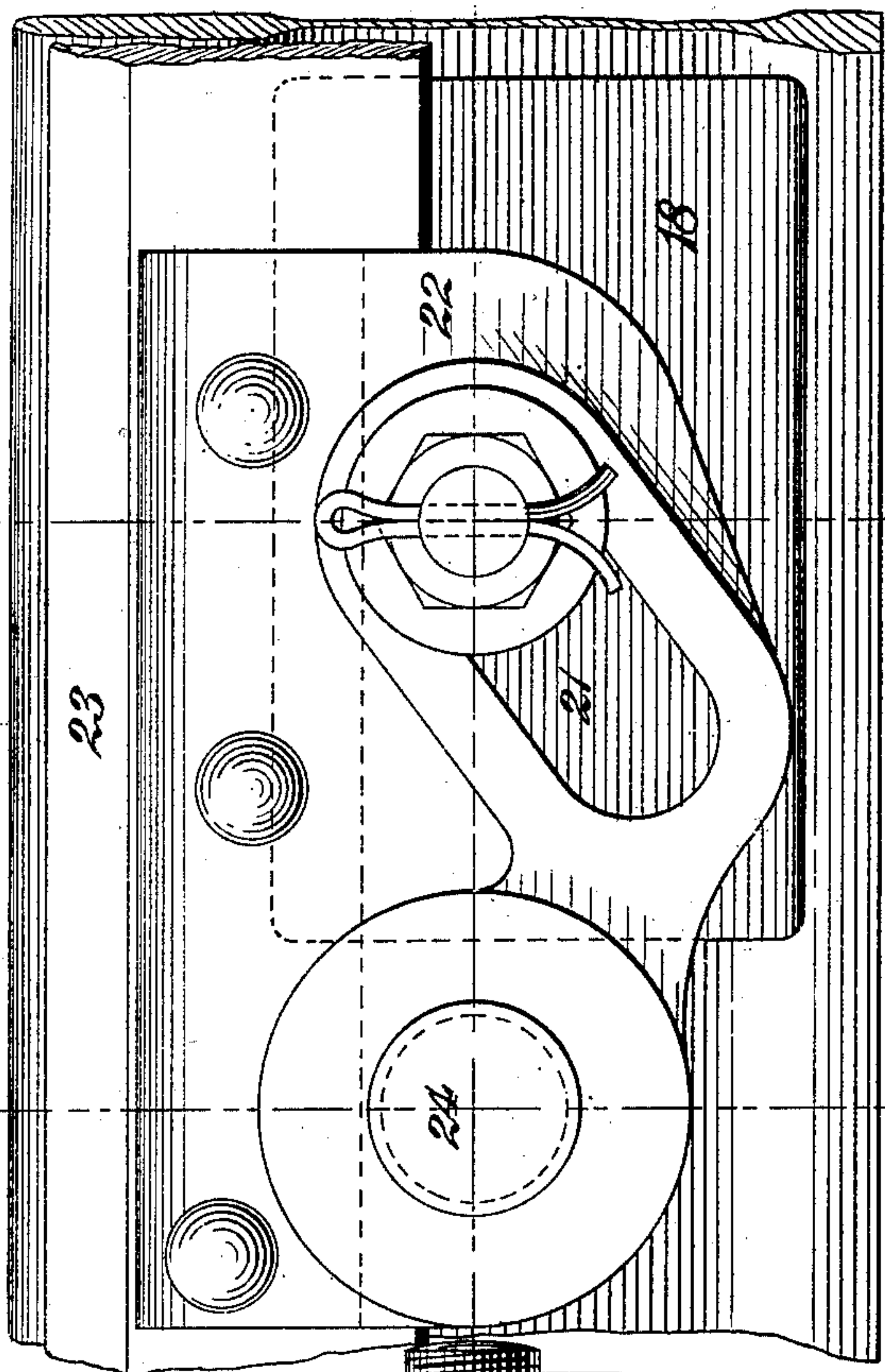
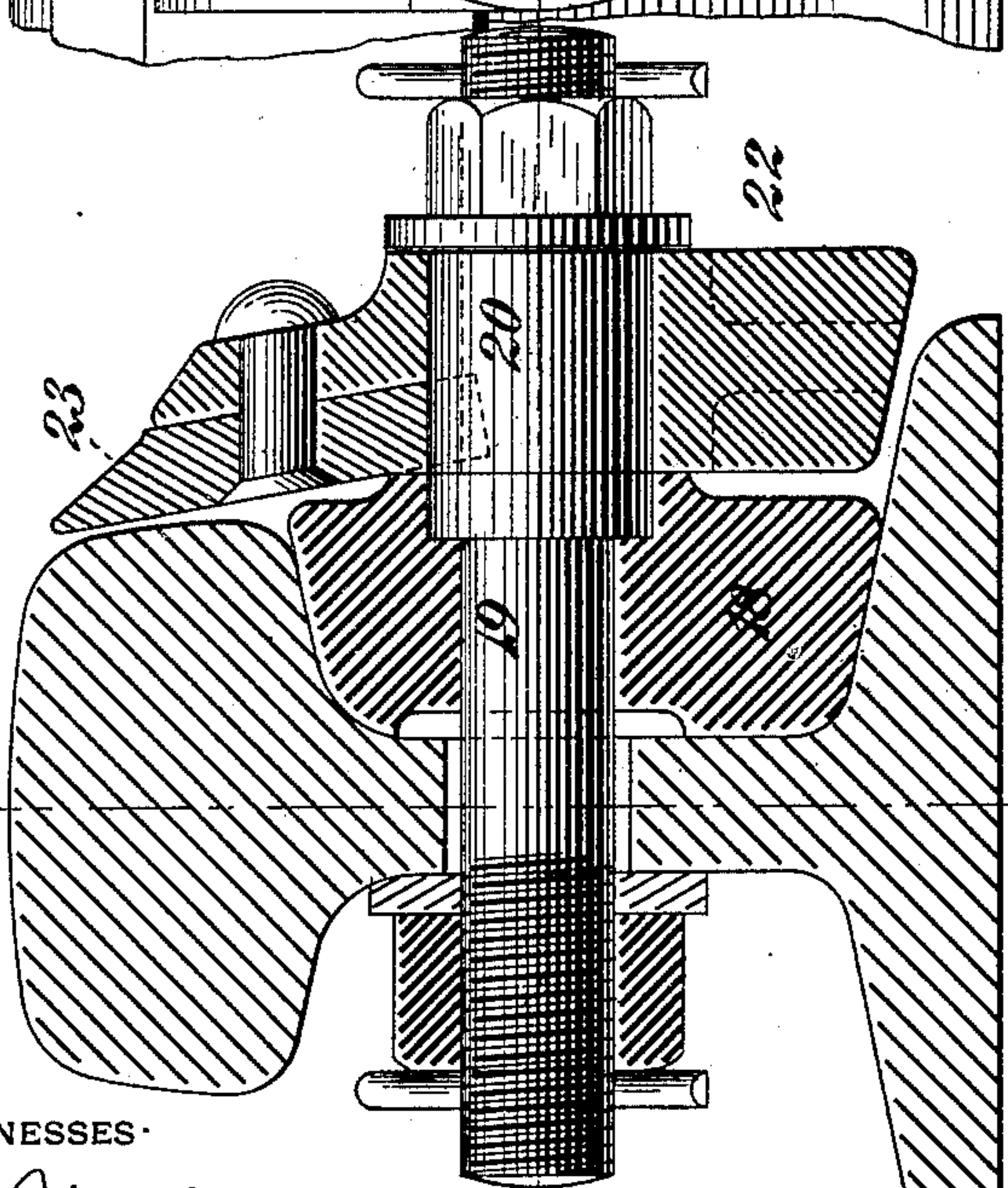


Fig. 3.



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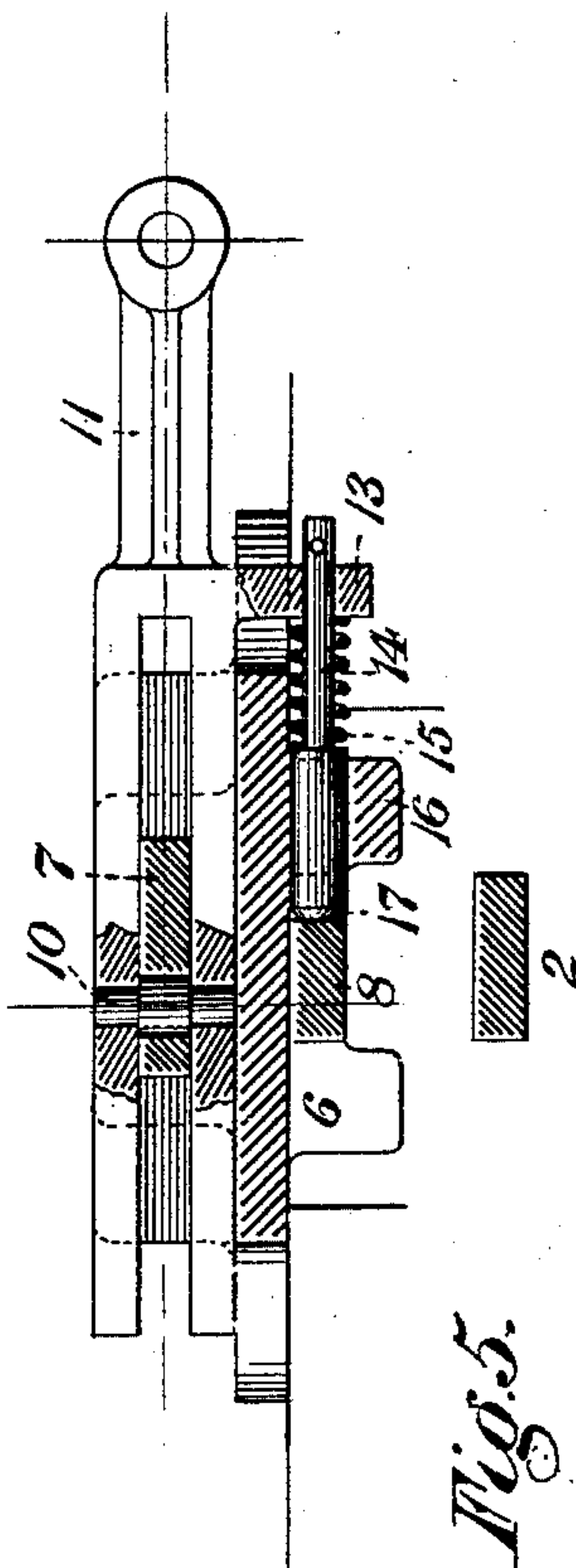


Fig. 5.

UNITED STATES PATENT OFFICE.

CHARLES R. JOHNSON, OF ALLEGHENY, AND HENRY JOHNSON, OF PITTSBURG, PENNSYLVANIA.

SAFETY-LOCK FOR SWITCH-POINTS.

SPECIFICATION forming part of Letters Patent No. 358,933, dated March 8, 1887.

Application filed November 2, 1886. Serial No. 217,848. (No model.)

To all whom it may concern:

Be it known that we, CHARLES R. JOHNSON, residing at Allegheny, and HENRY JOHNSON, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, subjects of the Queen of Great Britain, have invented or discovered certain new and useful Improvements in Safety-Locks for Switch-Points, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a top plan view of a portion of a switch and mechanism for operating the same. Fig. 2 is a side elevation of the switch-operating mechanism. Figs. 3 and 4 are sectional and side elevations of a main rail and a detector-rail applied thereto. Fig. 5 is a sectional detail view of a portion of the operating mechanism on the line *x x*, Fig. 1.

The invention herein relates to certain improvements in mechanism for locking switch-points either in open or closed positions, and for the retention of said lock in engagement with the switch-operating mechanism while a train or car is passing over the switch-points, thereby preventing the throwing of the switch during the passage of such train or car; and to this end the invention consists, in general terms, in the construction and combination of parts, substantially as hereinafter described and claimed.

In the practice of our invention the switch-operating rod 1 is connected in any suitable manner, preferably by means of a relief-spring, to a plate, 2, extending from side to side of the track, under the rails. This plate 2 is connected, preferably midway between the rails, by a stud, 3, to a plate, 4, the stud passing through a slot, *a*, in said plate, which is attached to the movable switch-points 5, as shown. To the cross-ties between which the plate 2 is arranged are bolted or otherwise secured the frames 6, and in suitable ways formed in the upper part of said frames are arranged the plates 7, connected at their outer ends to the plate 2, and in suitable slots in the lower portion of the frames 6 are arranged the plates 8, bolted at their inner ends to the ends of the plate 4. In the plates 7 are formed the angu-

lar slots 9, through which pass the studs or pins 10, the ends of said pins engaging the prongs of bars 11, arranged at right angles, or nearly so, to the plates 7, between suitable guides, 12, formed on the frames 6, said prongs being on opposite sides of the plates 7. From the under side of the bars 11 project lugs 13, (see Fig. 5,) having openings therethrough for the reception of the end of pins 14, springs 15 being arranged around said pins, between shoulders thereon and the lugs 13, the opposite ends of said pins being supported in openings in lugs 16, depending from the frames 6. The pins are prevented from being withdrawn from the lugs 13 by keys passing through the ends of the pins outside of the lugs. These pins are adapted to engage notches 17, formed in the edges of the plates 8, one of said pins engaging the notch in one of said plates 8 when the switch is open for the siding and the other pin engaging the notch in the other plate 8 when the switch is open for the main line.

To the main rails A, a suitable distance from the switch-points, is attached a detector rail or plate, B. In attaching the detector-rails to the main rails blocks 18 are fitted between the head and flange of the rail, and are held in place by bolts 19, the reduced portions of said bolts passing through the blocks and web of the rail and being held in place by nuts on the opposite side of the rail. These bolts 19 are provided with large stud-like heads 20, which pass through angular slots 21 in plates 22, to which are secured bars or rails 23, of a length slightly greater than the distance between the trucks of a car. These plates 22 and rails 23 are so constructed that when the studs 20 are at the upper end of the slots 21 the upper edges of the rails 23 are slightly below the tread of the main rails A, and when said plates 22 are raised, so as to bring the studs 20 to the lower ends of the slots 21, the upper edges of the rails 23 will be slightly above the treads of the rails A.

The plates 22 nearest the switch-points are provided with trunnions 24 for the reception of the ends of connecting-bars 25, the opposite ends of said bars being attached to the ends of the bars 11.

The operation of the above-described mech-

anism is as follows, the switch-points being in the position shown in Fig. 1 and the pin 14 of one of the bars 11 being in engagement with the notch 17 in one of the plates 8, and the detector-rails being below the tread of the main rail, all as shown at the right hand in Fig. 1: To shift the switch-points the rod 1 is moved to the right. By this movement, and while the stud 3 is moving along the slot *a* in the plate 4, the plate 2, and with it the slotted plate 7, is also moved to the right. This movement of the plate 7 shifts the bar 11, through the medium of the stud 10 and slot 9, sufficiently far to disengage the pin 14 from the notch 17 in the plate 8 at the right of Fig. 1, and cause the plates 22 to ride up the studs 20 sufficiently far to raise the detector-rails 23 above the heads of the main rail. By the time the above-mentioned movements have been effected the stud 3 has reached the end of the slot *a* in the plate 4, which consequently will thereafter move with the plate 2 and shift the switch-rails to the desired position. During this movement of the plates 2 and 4 and switch-rails, the plates 7 have been moving along the studs 10, and by the time the switch-points have reached the desired position the studs 10 will be at the left-hand end of the slots 9, (see Fig. 1,) and during the latter part of the travel of the plates 7 the bars 11 and detector-rail 23 have been returned to their normal position by means of the slots, and the plates 8 have been so shifted that the notch 17 in the plate to the left of Fig. 1 has been brought in line with the pin 14, so that said pin will enter said notch, thereby preventing any accidental movement of the plates 4 and 8 and switch-rails 2.

It is obvious that it would be impossible to shift the plate 2, and thereby unlock the plates 8 and 4, while a train or car is passing along that portion of the main rails where the detector-rails 23 are located, as the car-wheels will prevent a sufficient movement of the detector-rail to allow of the necessary movement on the part of the plate 7 to cause a disengagement of the pin 14 from the notch 17 in the plate 8.

In case the detector-rails are placed behind the switch-points, two such detector-rails are employed, one being placed alongside of one

of the rails of the main track and the other along the outside rail of the siding. When, however, it is desired to have the protection afforded by the detector-rail in front of the switch-points, only one such rail is used, in which case only a single locking mechanism is employed, located at one side of the track, and the plate 8 is provided with two notches 17, arranged a distance apart equal to the movement of the switch-points. If desired, the shifting-lever may be attached directly to the end of the plate 2, as indicated.

No claim is made herein to the specific form and construction of the detector herein shown and described, as the same will form the subject-matter of another application to be filed in due time.

We claim herein as our invention—

1. The combination of a plate, 2, operated by the switch-rod and connected to an angularly-slotted plate, a detector-rail connected to said slotted plate and operated thereby, a plate, 4, connected to the switch-points and operated by the plate 2, and a bolt or pin for locking the plate 4, said bolt being operated by the movement of the plate 2, substantially as set forth.

2. The combination of the angularly-slotted plate 7, the bar 11, operated by said plate and connected to a detector-rail, a locking-bolt operated by the bar 11, a plate connected to the switch-points and constructed to be locked in the different positions of the switch-points, and mechanism connected to the plates 4 and 7 and constructed to shift the plate 7 prior to the movement of the switch-points, substantially as set forth.

3. The combination of the detector-rail, a bar leading to the switch-shifting mechanism, a plate connected to the switch-points, a locking-pin adapted to engage said plate and operated by the bar leading to the detector-rail, and mechanism for shifting the switch-points and detector-rails, substantially as set forth.

In testimony whereof we have hereunto set our hands.

CHARLES R. JOHNSON.
HENRY JOHNSON.

Witnesses:

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DARWIN S. WOLCOTT.