

No. 865,433.

B. W. ROWE.
RAILWAY SIGNAL.
APPLICATION FILED APR. 3, 1907.

PATENTED SEPT. 10, 1907.

3 SHEETS—SHEET 1.

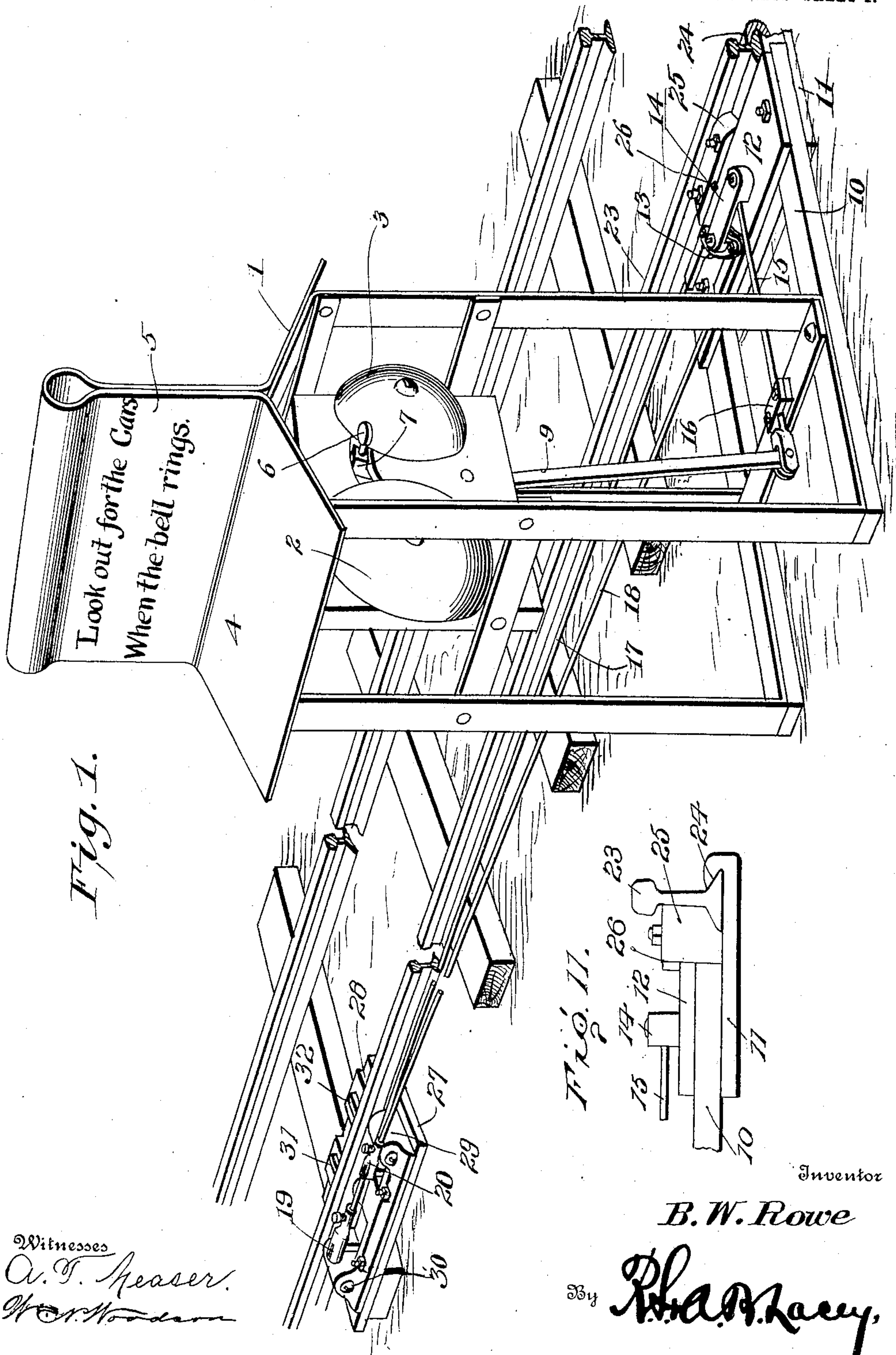


Fig. 1.

Fig. 11.

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3 SHEETS—SHEET 2.

Fig. 3.

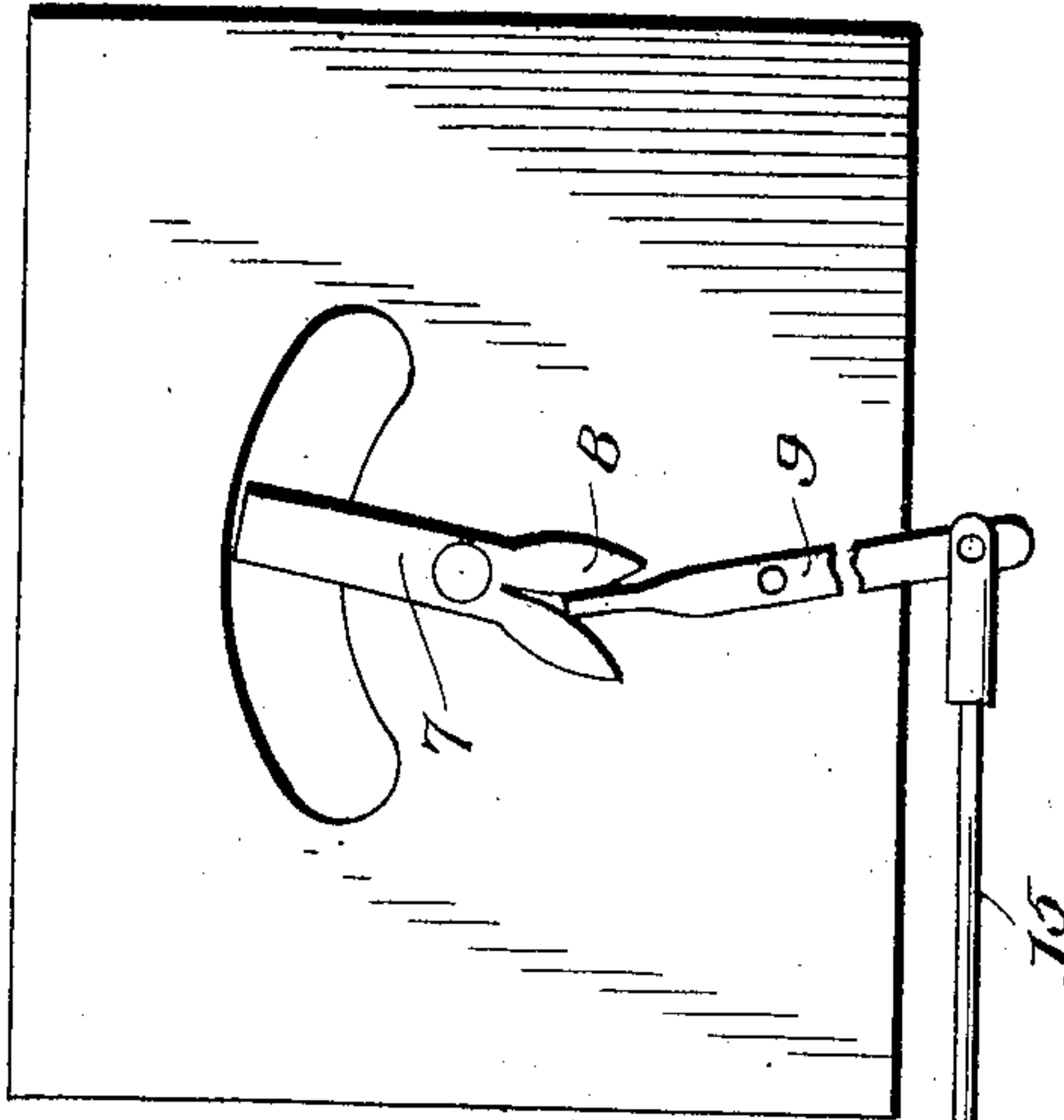
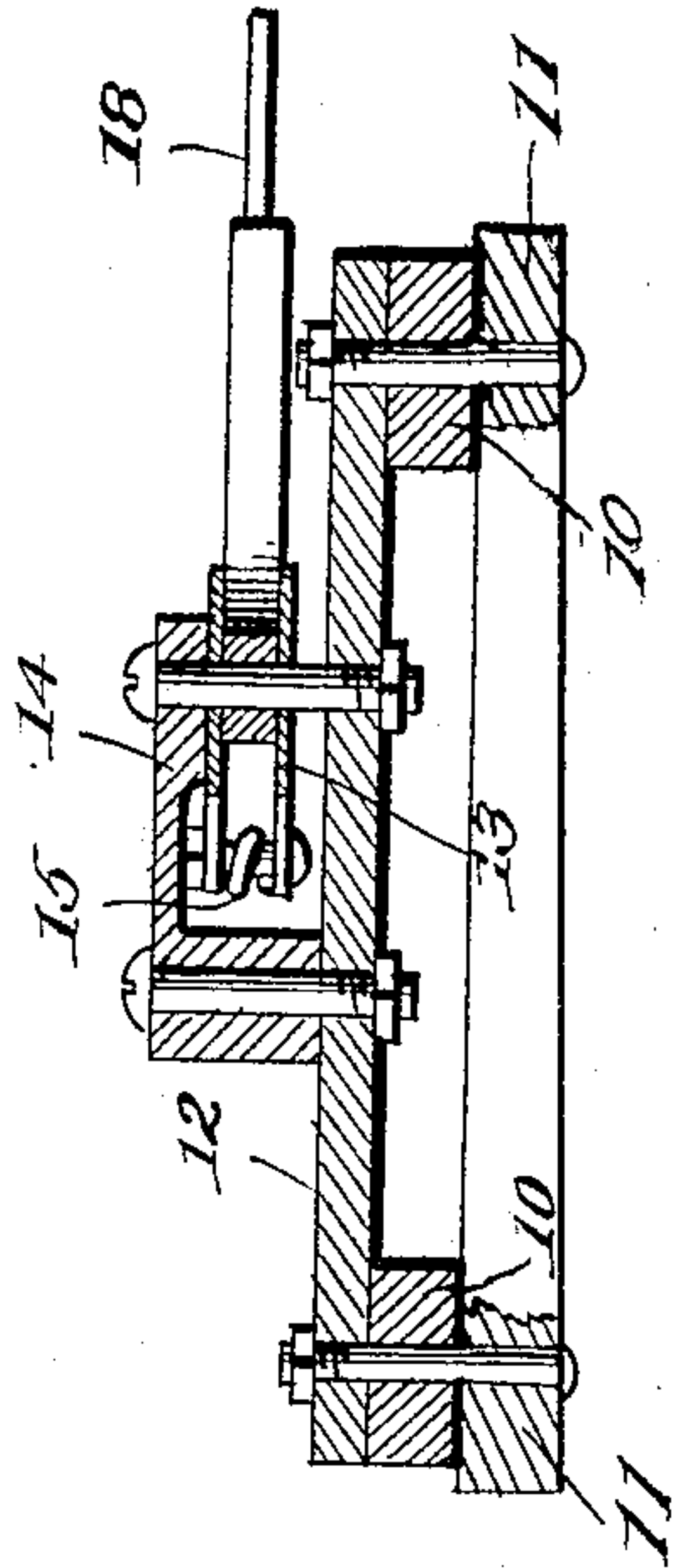


Fig. 4.

Fig. 2.

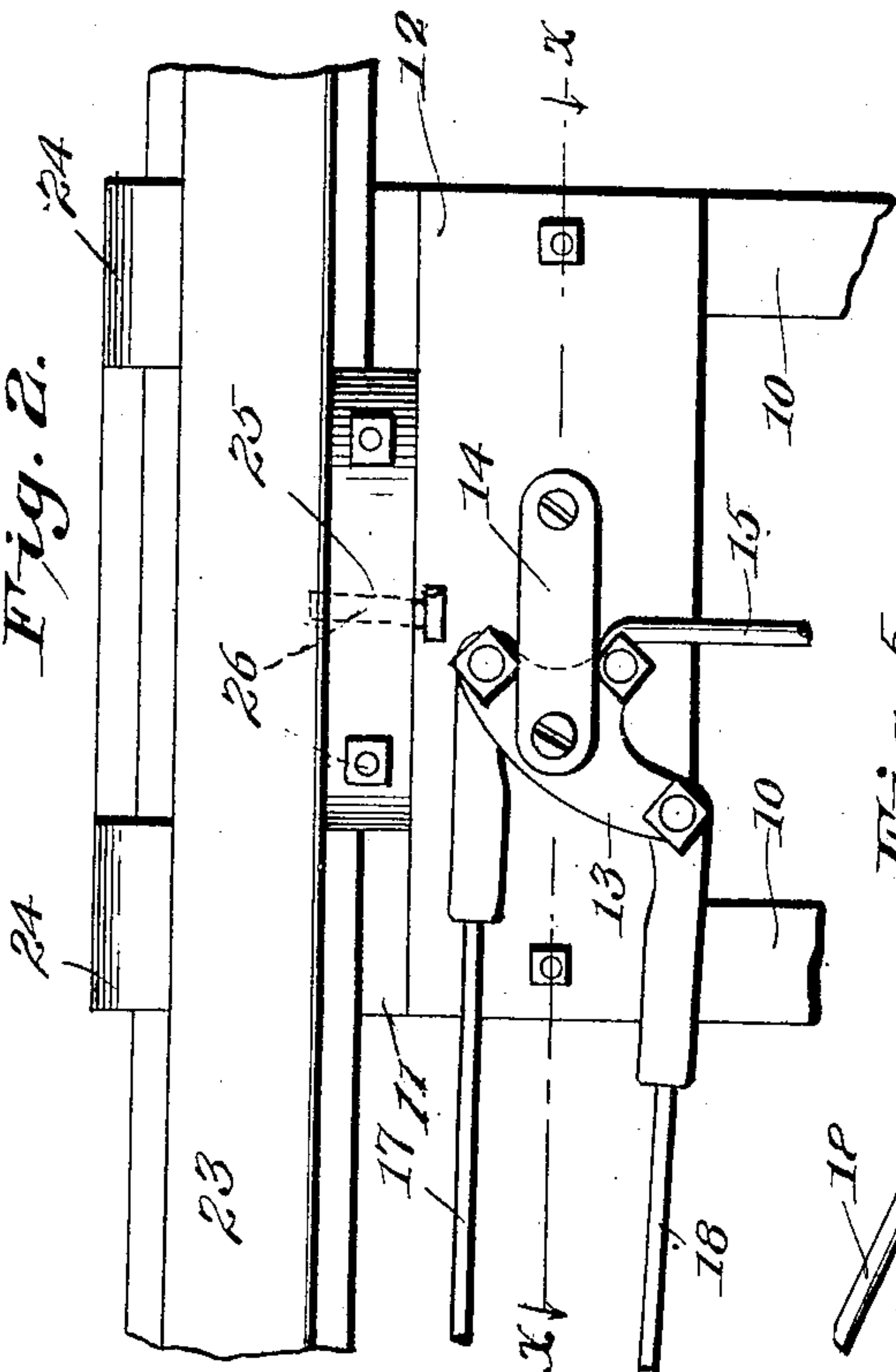
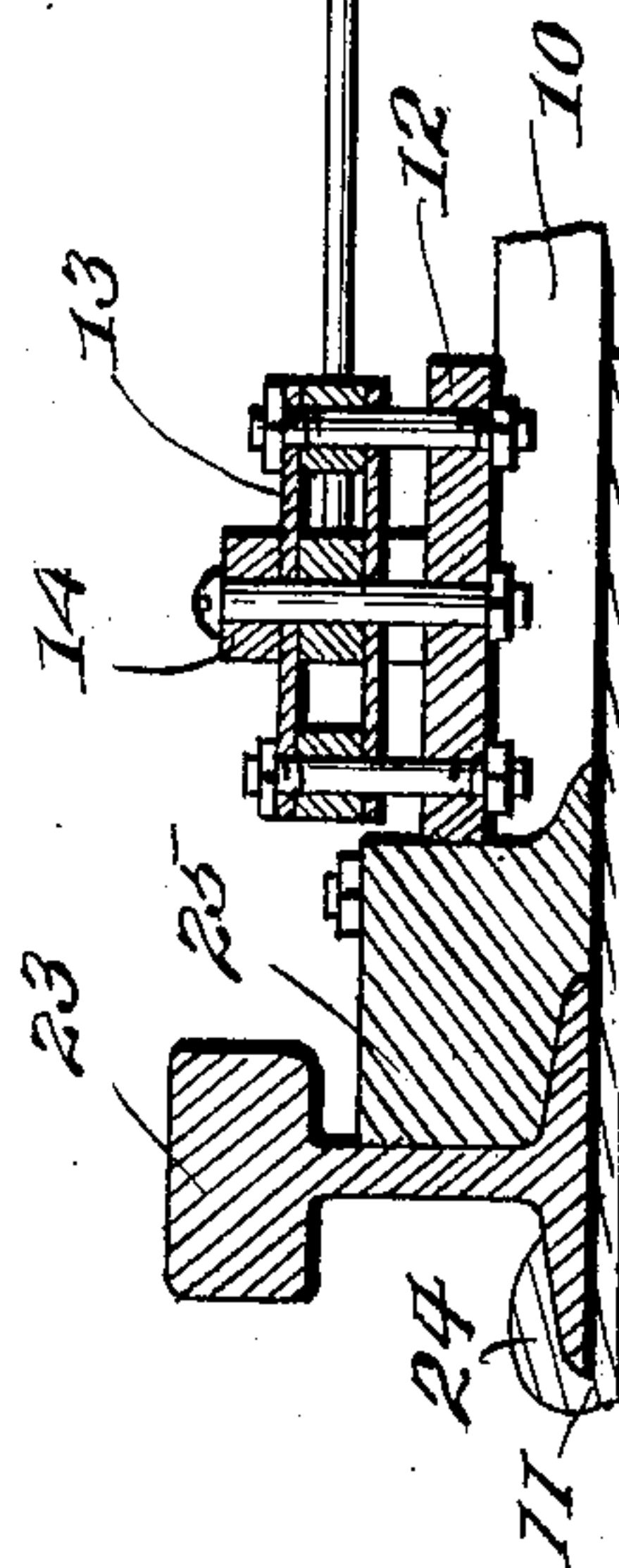
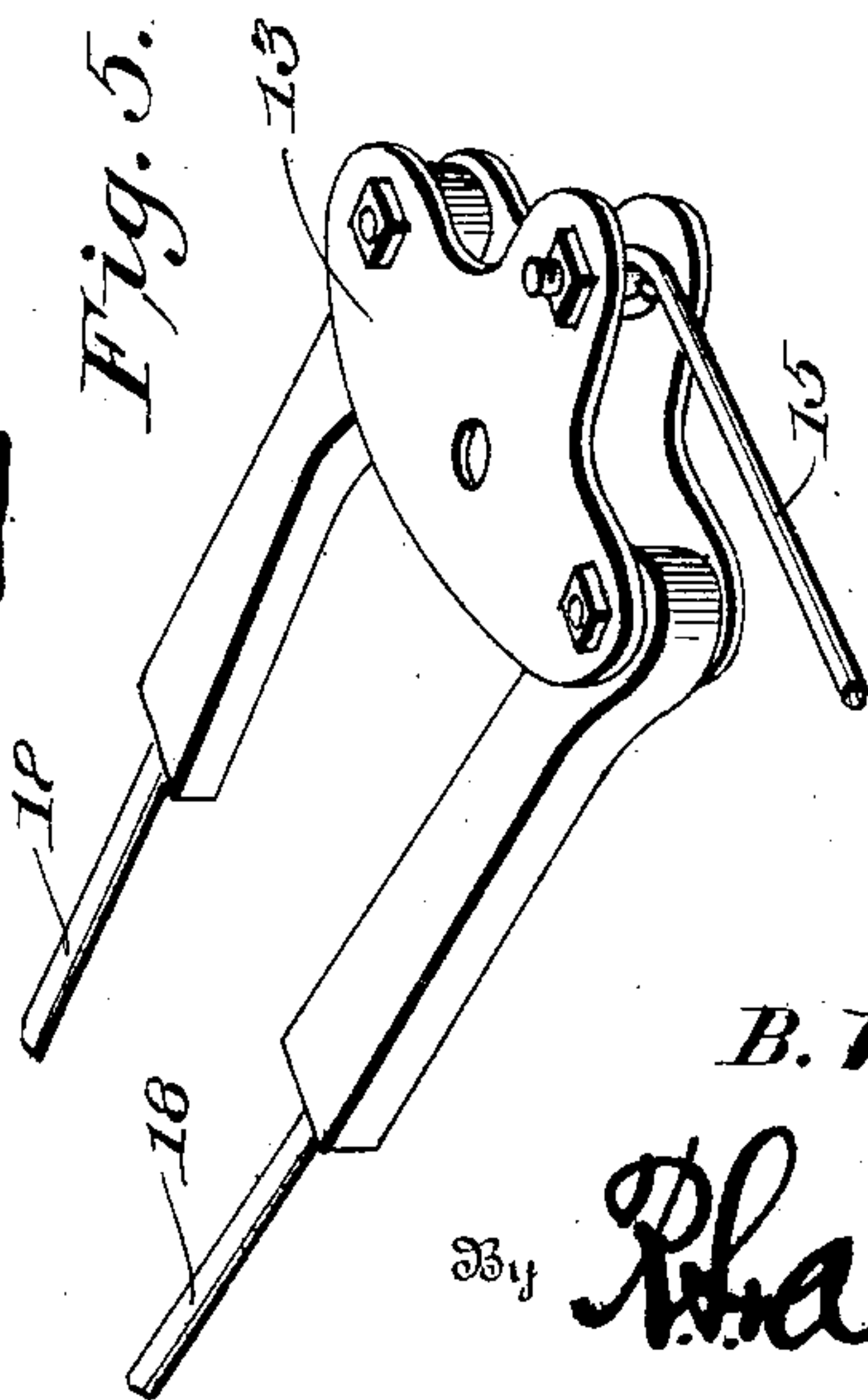


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

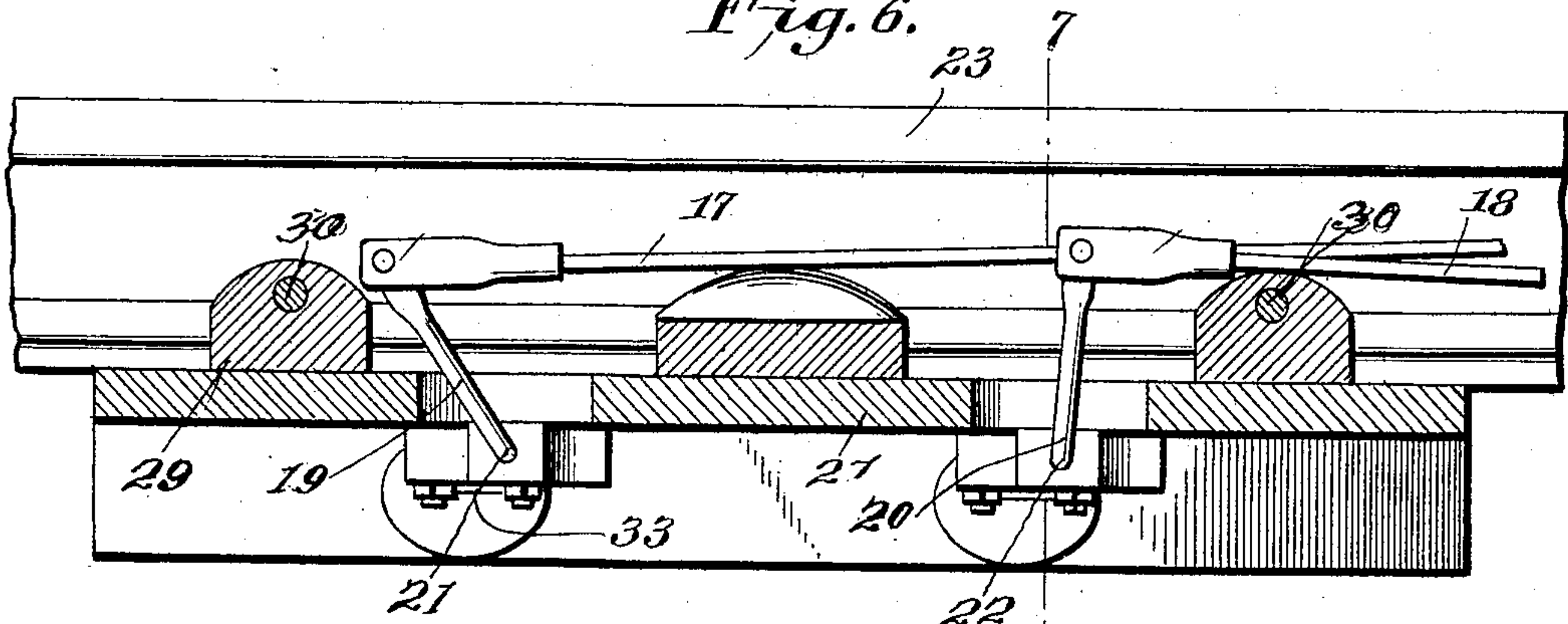


Fig. 7.

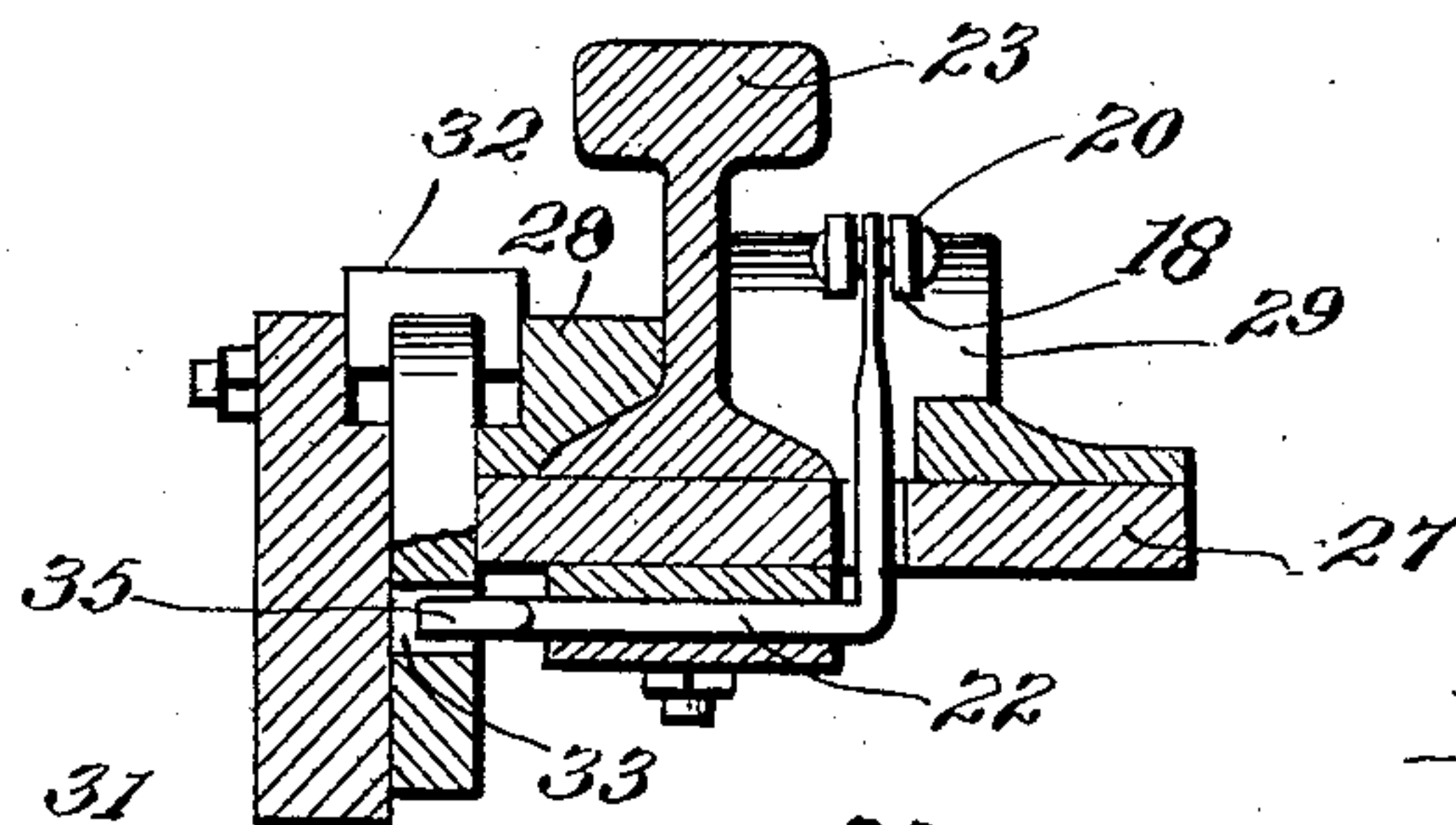


Fig. 8.

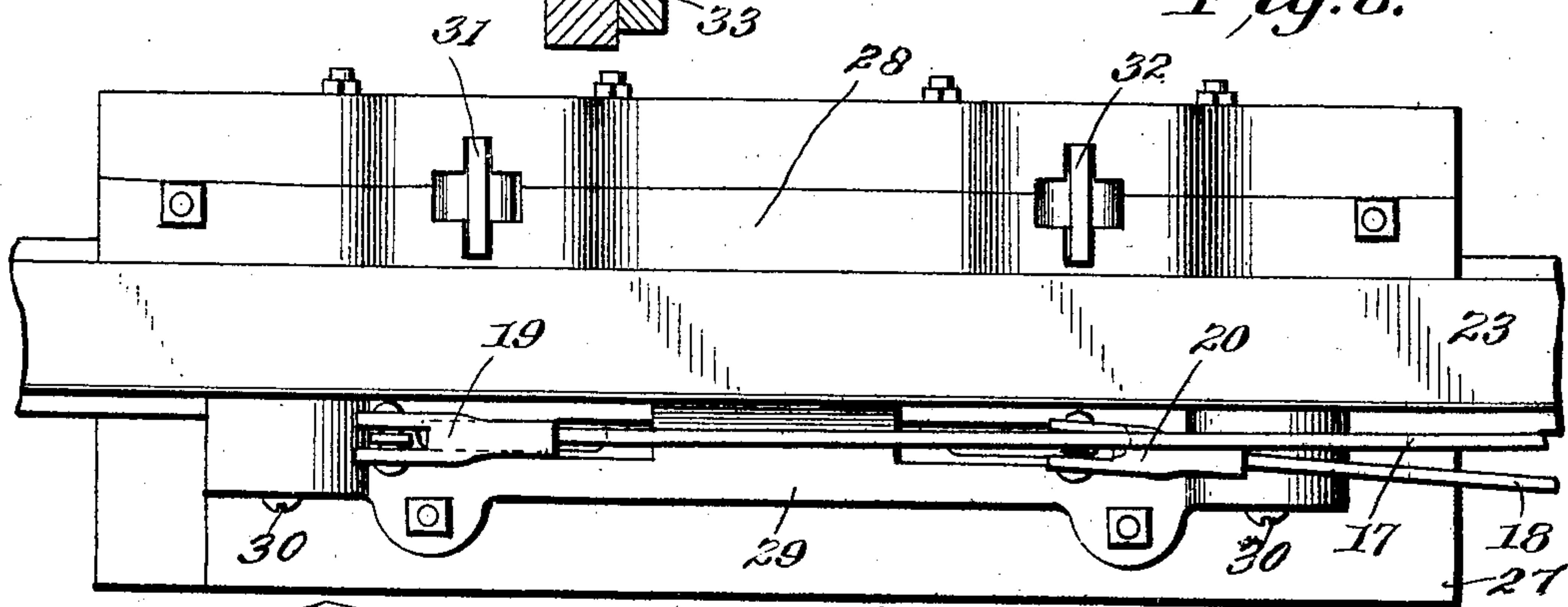


Fig. 9.

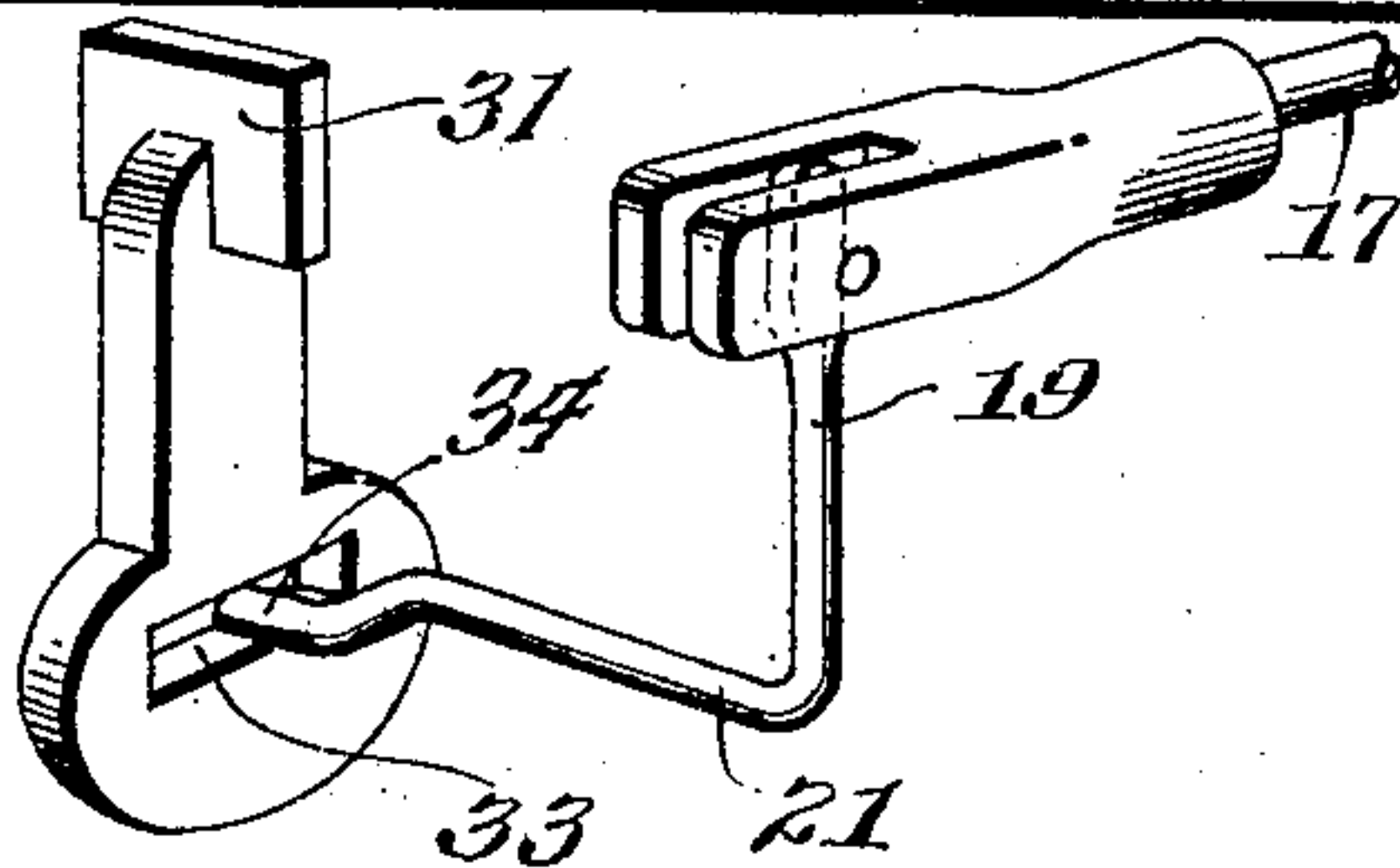
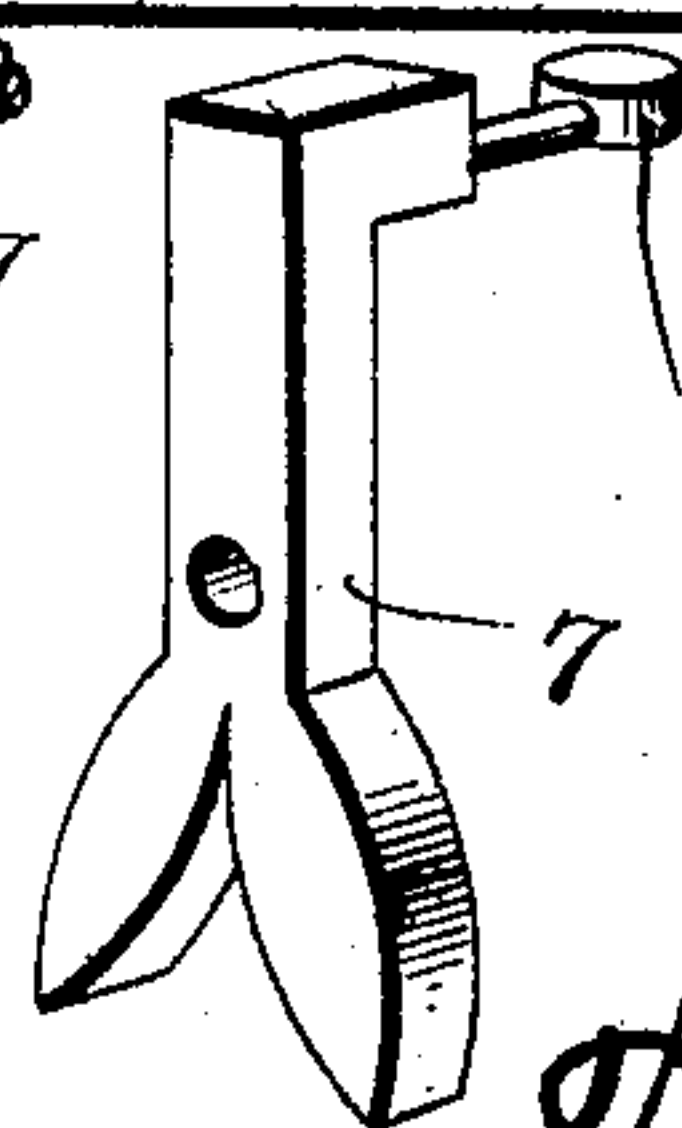


Fig. 10.



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UNITED STATES PATENT OFFICE.

BYRON W. ROWE, OF PLYMOUTH, WISCONSIN.

RAILWAY-SIGNAL.

No. 865,433.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed April 3, 1907. Serial No. 366,177.

To all whom it may concern:

Be it known that I, BYRON W. ROWE, a citizen of the United States, residing at Plymouth, in the county of Sheboygan and State of Wisconsin, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to means for giving warning at crossings of the approaching of a train, thereby lessening the danger at roads, paths, and the like intersecting with a crossing and railway.

The invention provides means of the character and for the purpose aforesaid which may be fitted to a rail of a railroad track at any point, thereby obviating special appliances for the purpose.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of a railway provided with signal appliances embodying the invention. Fig. 2 is a detail view of the bell crank, its mountings and the several connections for receiving and transmitting the power. Fig. 3 is a sectional view on the line $x-x$ of Fig. 2 looking in the direction of the arrows. Fig. 4 is a transverse section of the rail, the plate clamped thereto and the means for transmitting motion from the bell crank to the lever 4 operating the hammer of the signal. Fig. 5 is a detail perspective view of the bell crank and connections. Fig. 6 is a longitudinal section of the plate supporting the trips and the cranks co-operating therewith. Fig. 7 is a transverse section on the line 7-7 of Fig. 6. Fig. 8 is a top plan view of the parts shown in Fig. 6. Fig. 9 is a detail perspective view of a crank shaft and the trip co-operating therewith. Fig. 10 is a detail perspective view of the hammer and its lever.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The signal may be either of the audible or visual type, or both and is arranged at or near the crossing or other place to be protected. The trip for operating the signal is located some distance therefrom to insure operation of the signal in ample time to avoid accident.

To one side of the track is located a tower or other structure 1 forming a housing for the signal which in the present instance comprises two gongs 2 and 3 either of like pitch and tone, or of different sound so as to attract attention when sounded. The tower or structure consists of a frame-work closed at the top by means

of a roof or cover 4, the same sloping in opposite directions from a medial line and having a vertical extension 5 projected from the ridge and constituting a sign-board to admonish any one approaching of the dangerous nature of the crossing. The gong bells 2 and 3 are arranged to be sounded by means of a single hammer 6 which is carried by a lever 7 pivoted to a suitable support and having a fork 8 at its lower end between which the upper end of a lever 9 is adapted to play. Beams 10 project laterally from a plate 11 and support the tower or structure 1 upon their outer ends, said beams being secured to the plate 11 in any substantial way. A plate 12 overlaps the inner ends of the beams 10 and is bolted to said beams and to the lower plate 11. A bell crank 13 is mounted upon the top plate 12 and is arranged between said plate and a bracket arm 14, the latter being fast at one end to the plate 12. A rod 15 connects one arm of the bell crank 13 with the lower end of the lever 9 and transmits motion from said bell crank to said lever, the rod 15 being directed in its movements by a suitable guide 16 attached to a cross piece fitted to the beams 10. Rods 17 and 18 connect the other arms of the bell crank with arms 19 and 20 of crank shafts 21 and 22 located some distance from the signal and adapted to be operated by the approaching train.

The plate 11 is adapted to be clamped or secured to a rail of the track and is provided with lugs 24 adapted to engage over the foot of the rail at one side thereof and with a lug 25 bolted to said plate and arranged to engage over the foot of the rail upon the opposite side. The lug 25 is removably fitted to the plate 11, whereas the lugs 24 are preferably formed therewith. This construction admits of the plate being clamped or secured to the rail at the required point. To prevent any possible slipping of the plate 11, a set screw 26 is threaded into a side of the lug 25 and its inner end is adapted to bear against the rail 23.

At some distance from the tower or structure 1 is arranged the trips and this distance may approximate half a mile, more or less. The crank shafts 21 and 22 are mounted in bearings applied to a plate 27 which like the plate 11 is adapted to be secured to the rail 23, said plate having a flange 28 at or near one edge, and a flange 29 at or near the opposite edge, said flanges engaging over opposite portions of the foot of the rail. Flanges 28 and 29 are preferably separate from the plate 27 and are bolted thereto although one or the other of such flanges may be formed with the plate. One or more set screws 30 may be provided and threaded into one of the flanges as 29 to secure the plate 27 from possible movement when properly fitted to the rail. The crank shafts 21 and 22 are located below the rail and beneath the plate 27 and their crank arms 19 and 20 project upward and have the rods 17 and 18 connected therewith so as to insure transmission of movement

from the crank shafts to the bell crank 13. Trips 31 and 32 are mounted in the plate 27 in position to be engaged by the flanges of the car wheels so as to operate the signal. The trips 31 and 32 are approximately of cruciform in horizontal section, this construction giving the best results so that when the flange of a car wheel strikes the trips off the center, it gives it bearings both ways. The lower end of each trip is widened and formed with a slot 33 in which operates a crank arm i the crank shaft, the crank shaft 21 having a crank arm 34 to enter the slot of the trip 31 and crank shaft 22 having a crank arm 35 to enter the slot of the trip 32. When one trip is depressed the other trip is elevated; hence the bell crank is oscillated as the trips 31 and 32 are successively depressed.

When the signal apparatus is applied to a line of railway, the rods 17 and 18 are located upon the outer side of the track, thereby preventing interference therewith of snow and ice which form and accumulate upon the track between the rails. It will be understood that the device may be readily secured to the track and is easily removed for any purpose, and it will be further observed that by having the parts attached directly to the track rail, they maintain a fixed relation to each other and to the track.

Having thus described the invention, what is claimed as new is:

1. In railway safety appliances, the combination of a signal comprising a framework having a plate extended beneath a rail of the track, a lug projected from the plate and engaged over the foot of the rail at opposite sides thereof, a trip device embodying a plate having a portion extended beneath a rail of the track, flanges projected from the plate and engaging over the foot of the rail at opposite sides thereof and clamped thereto, and intermediate connecting means between the trip device and the signal.

2. In railway safety appliances, the combination of a signal, beams projected therefrom, a plate extended beneath a rail of the track and having lugs to engage over the foot of the rail upon one side thereof, a second lug secured to the plate and engaging over the foot of the rail upon the opposite side thereof, the aforesaid timbers resting upon the plate, a second plate placed upon the timbers and secured thereto and to the lower plate, and actuating means for the signal having a portion mounted upon said upper plate.

3. In safety appliances for railways, the combination of a pair of gong bells, a hammer arranged to operate between the bells, a lever carrying the hammer and provided with a fork, and a lever arranged to play between the members of said fork for imparting oscillatory movement to the lever to effect sounding of said gong bells.

4. In safety appliances for railways, a plate extended beneath the rail of the track and provided with lugs to engage over the foot of the rail upon one side thereof, a second lug secured to the rail and engaging over the foot thereof upon the opposite side, a set screw threaded into the last mentioned lug and adapted to bear against the side of the rail to prevent displacement of said plate, a framework supporting the signaling means and secured to said plate, and actuating means for the signal supported by means of said framework and the plate attached to the rail.

5. In railway safety appliances, the combination of a signal, crank shafts located a distance from the signal and having angularly disposed crank arms, connecting means between a crank arm of each crank shaft and the signal, vertically arranged trips, each having a slot to receive the other crank arm of each of said crank shafts, the parts being arranged so that depression of one of said trips effects elevation of the other trip.

6. In railway safety appliances, the combination of a signal, a plate located a distance from the signal and extending beneath a rail of the track and clamped thereto, crank shafts mounted in bearings applied to said plate and arranged beneath said rail, each crank shaft having crank arms arranged upon opposite sides of the said rail, connecting means between a crank arm of each crank shaft and the signal, and vertically arranged trips having loose connection with the other arms of said crank shafts.

7. In railway safety appliances, the combination of a signal, a plate located a distance from the signal and extending beneath a rail of the track and clamped thereto, crank shafts mounted in bearings applied to said plate and arranged beneath said rail, each crank shaft having crank arms arranged upon opposite sides of the said rail, connecting means between a crank arm of each crank shaft and the signal, and vertically arranged trips having loose connection with the other arms of said crank shafts, said trips having lateral extensions arranged at a right angle to the length of the track to sustain the thrust incident to contact of the operating wheel therewith.

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

BYRON W. ROWE. [L. S.]

Witnesses:

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OTTO BERGEMANN.