

J. L. SHIPMAN.  
LOAD BINDER, WIRE TIGHTENER, AND LIFTING JACK.  
APPLICATION FILED APR. 22, 1909.

958,777.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

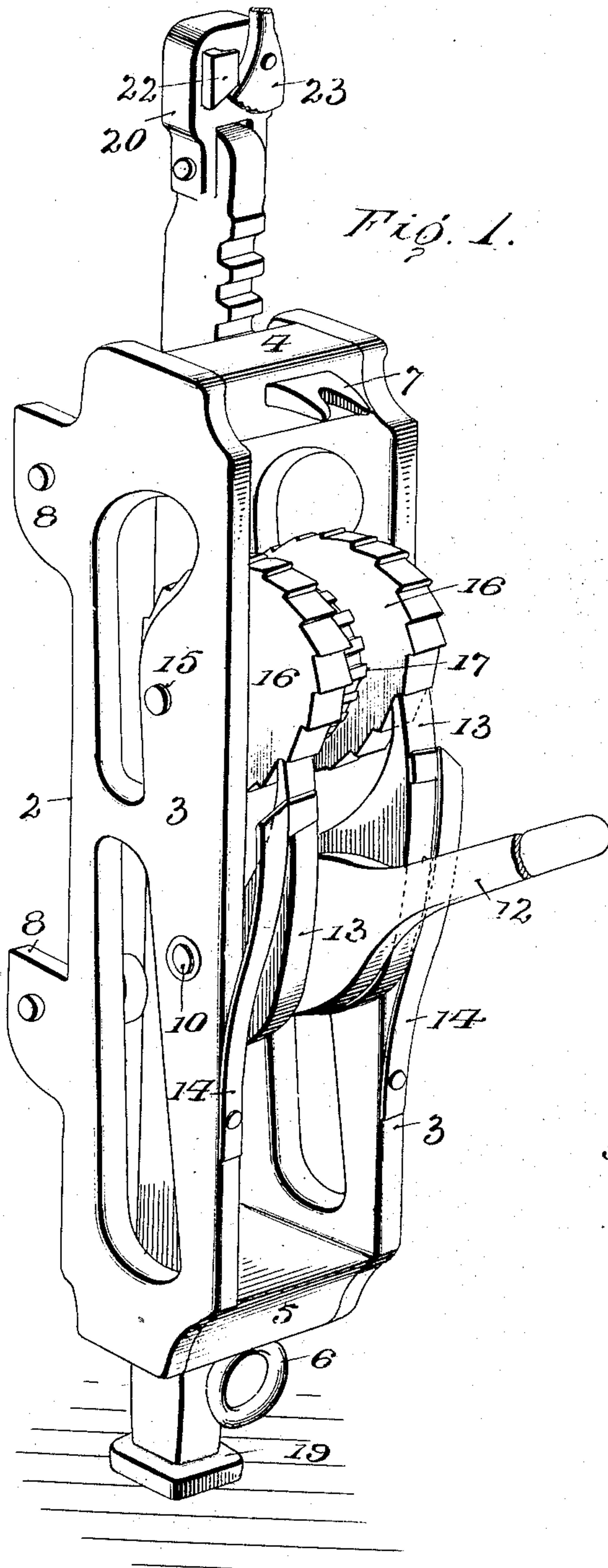


Fig. 1.

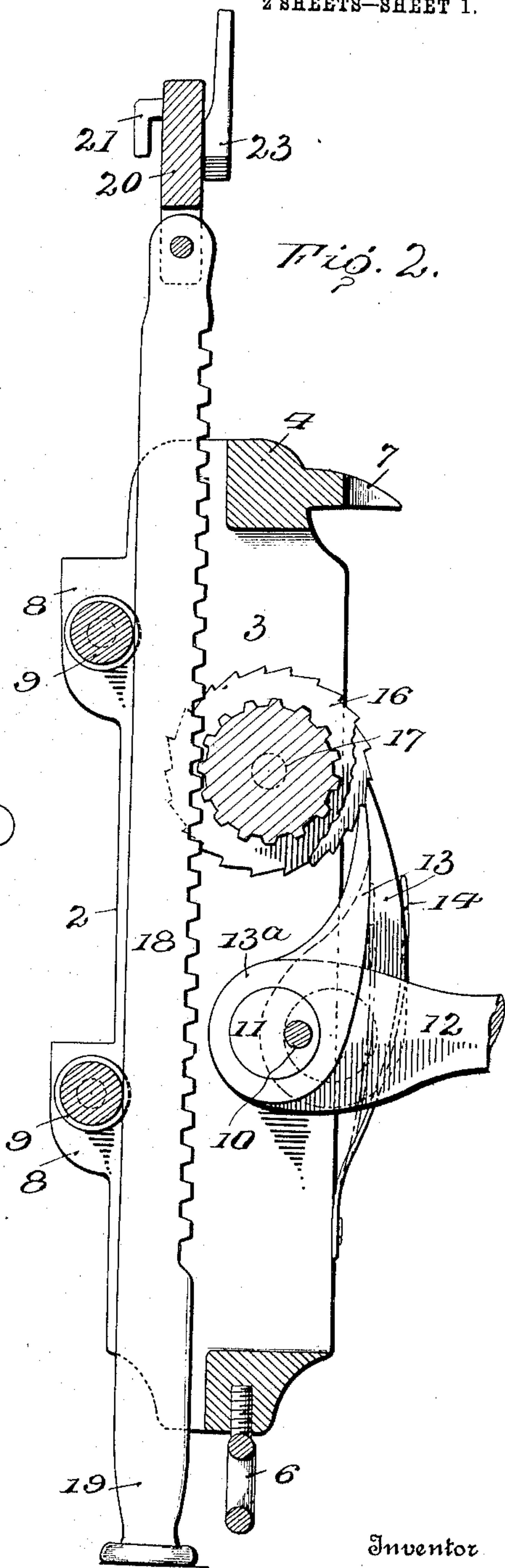


Fig. 2.

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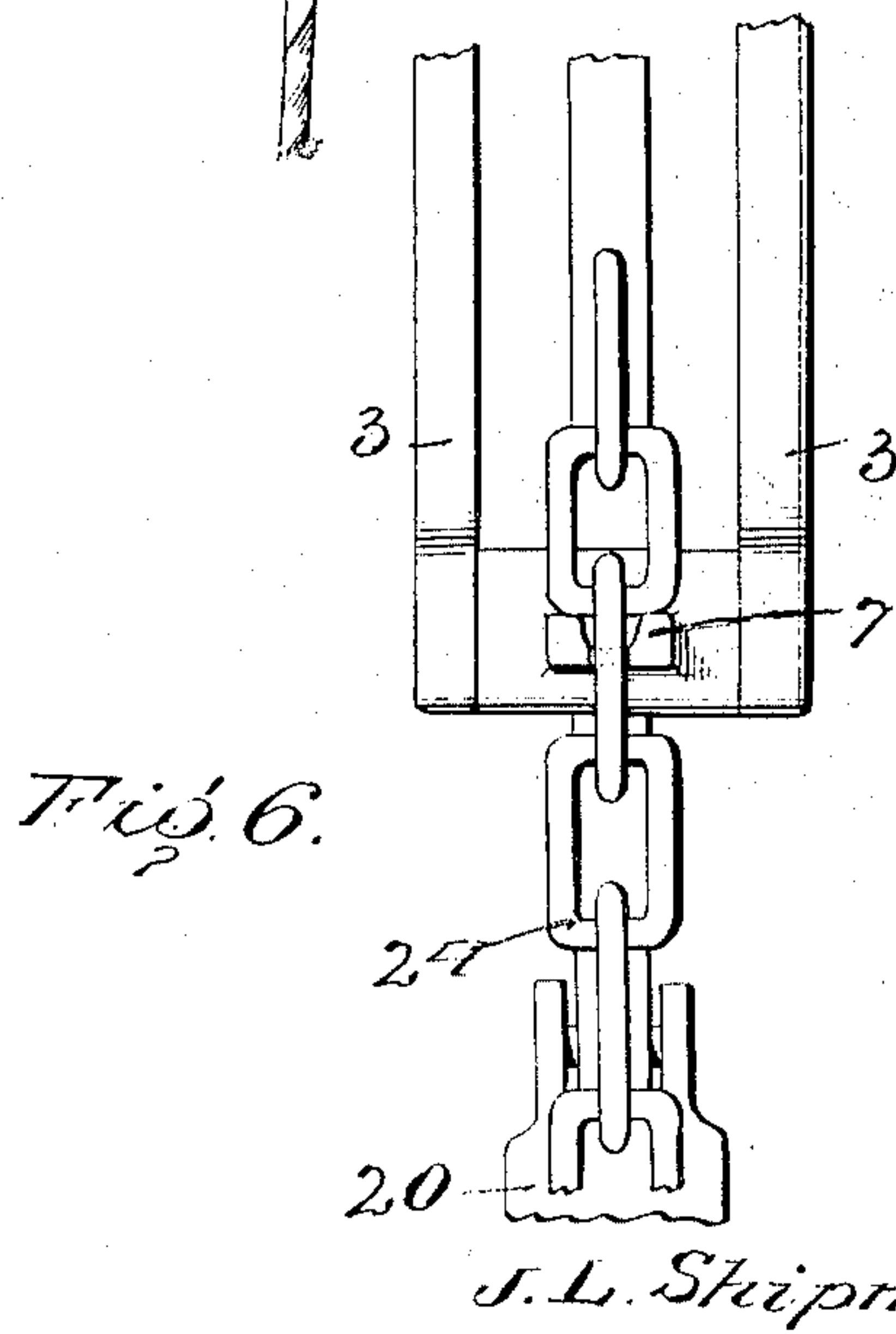
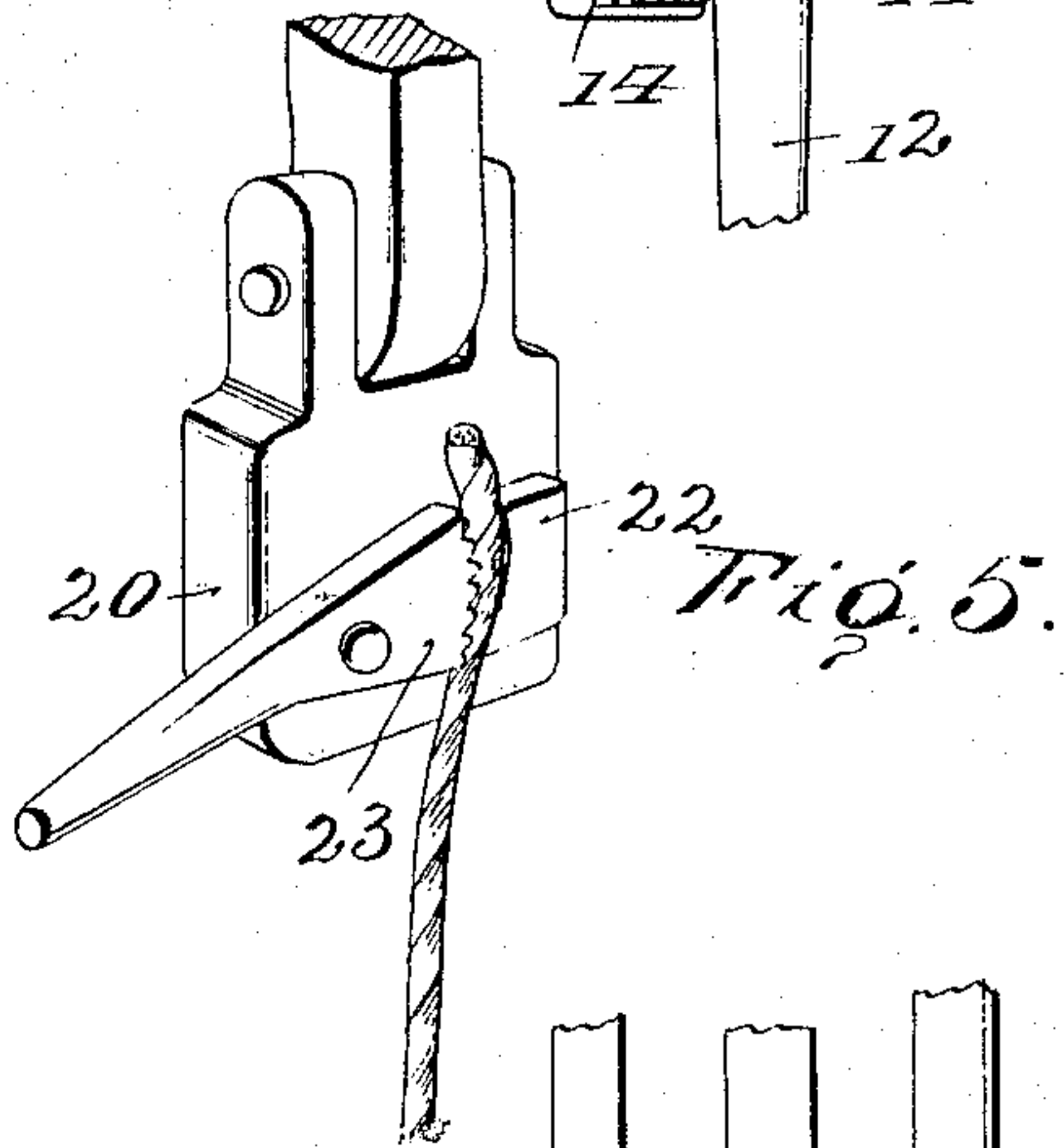
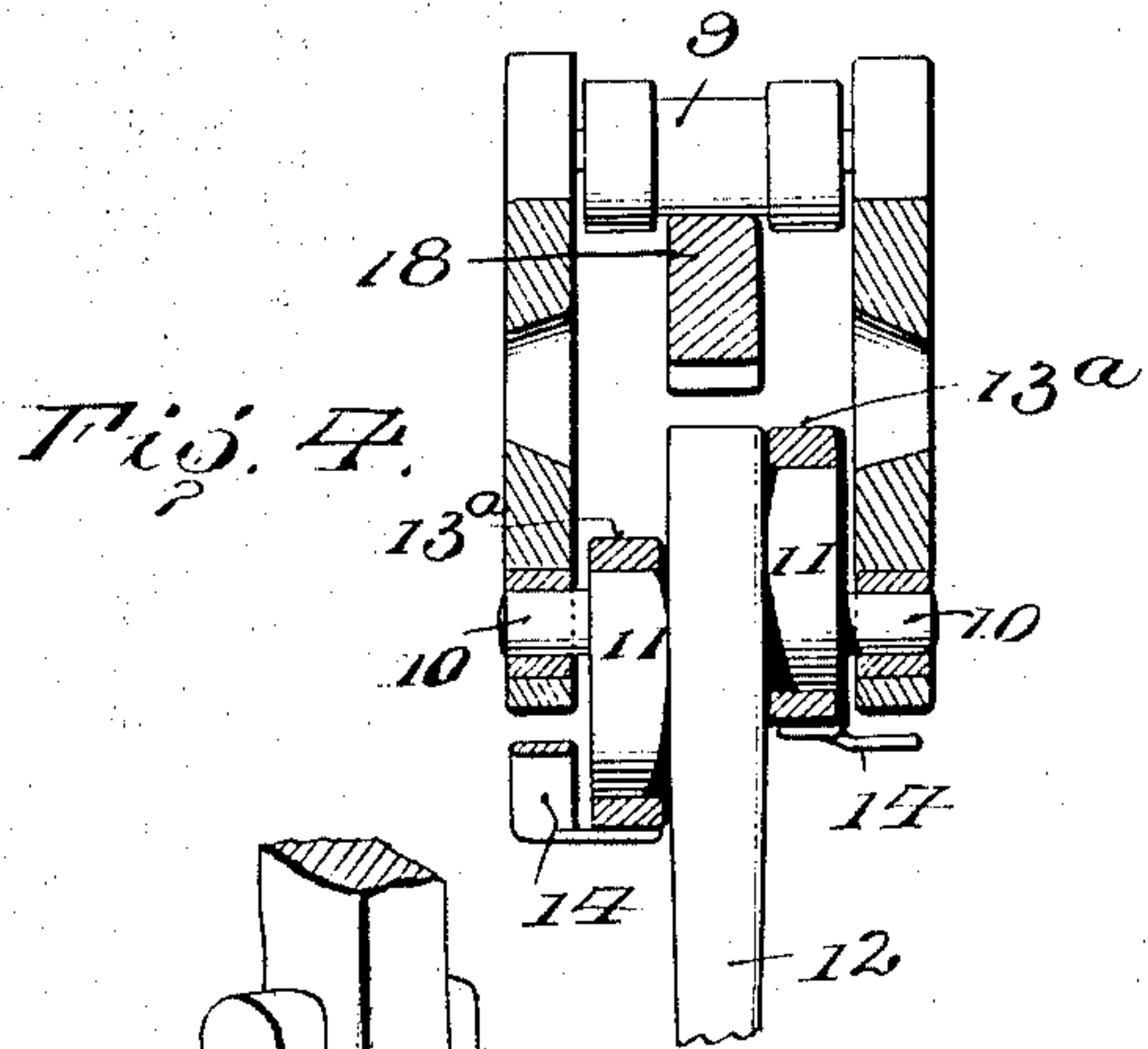
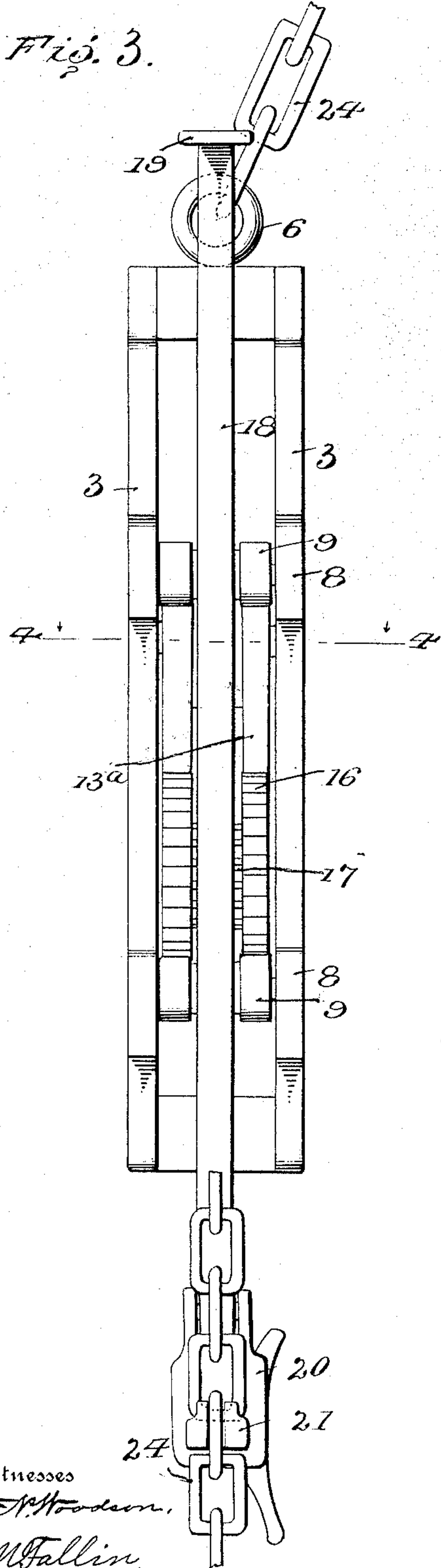
W. A. Macy, Attorneys.

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# UNITED STATES PATENT OFFICE.

JAMES L. SHIPMAN, OF MOUNDS, OKLAHOMA.

LOAD-BINDER, WIRE-TIGHTENER, AND LIFTING-JACK.

958,777.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed April 22, 1909. Serial No. 491,520.

*To all whom it may concern:*

Be it known that I, JAMES L. SHIPMAN, a citizen of the United States, residing at Mounds, in the county of Creek and State of Oklahoma, have invented certain new and useful Improvements in Load-Binders, Wire-Tighteners, and Lifting-Jacks, of which the following is a specification.

This invention relates to devices used for the purpose of tightening wires or chains around loads and which also are capable of being used as lifting jacks, and particularly it relates to a device of this character wherein one end of the binding wire or chain is attached to a rack and the other end is attached to the frame wherein the rack moves, this frame being provided with a gear wheel engaging with the rack and with a stub mechanism whereby the gear wheel may be operated.

In the drawings, I show an embodiment of my invention and therein:

Figure 1 is a perspective view of my device; Fig. 2 is a longitudinal section thereof; Fig. 3 is a front view showing the same attached to a chain for tightening the latter; Fig. 4 is a transverse section on the line 4—4 of Fig. 3; Fig. 5 is a detail perspective view of the shackle on one end of the rack bar, with a wire in place between the clamping jaws; and, Fig. 6 shows the manner in which a chain is held upon the end of the frame while the rack is shifted.

Referring to these figures, 2 designates generally a frame of metal preferably made in one piece and consisting of two side pieces 3 and two opposed end pieces 4—5, the end piece 5 being provided with a ring 6 and the end piece 4 with a projecting slotted lug 7. Preferably the side pieces of the frame are slotted as shown, so as to add to the lightness of the construction without decreasing the strength. The rear edges of the frame are formed with the upper and lower projecting lugs or ears 8 in which are mounted the grooved rollers 9. Mounted in the side pieces of the frame is the shaft 10 formed with opposed eccentrics 11. This shaft and the eccentrics are preferably cast in one piece. Mounted between the eccentrics and attached to the shaft is a handle 12 by which the shaft is partially rotated. Surrounding or mounted on the eccentrics are opposed pawls 13, these pawls having enlarged eyes 13<sup>a</sup> at their rear ends which surround the eccentrics. Springs 14 are attached to the

edges of the side pieces and have inwardly turned extremities which bear against the pawls and force them inward.

Mounted in the side pieces of the frame 60 is the shaft 15 and made in one piece with the shaft are the opposed ratchet wheels 16 and the gear wheel 17 which is interposed between the two ratchet wheels 16 and is preferably formed in one piece with them 65 and with the shaft. The pawls 13 engage with the ratchet wheel 16. It will be seen that the teeth of the ratchet wheels have a staggered relation to each other thereby allowing both pawls to seat in the notches 70 in the ratchet wheels at the same time. The wheels are so proportioned that the pawls will engage in the notches thereof in three different positions, namely, when the handle 15 is parallel with the frame, in either its 75 upper or lower position or when the lever is perpendicular to the frame. It will be seen that the springs 14 are pivoted to the side pieces of the frame and therefore may be moved out laterally from engagement with 80 the pawls thereby keeping the pawls from being turned backward and out of engagement with the ratchet wheels. Carried between the side pieces of the frame and between the opposed ratchet wheels 16 is the 85 rack bar 18 whose teeth engage with the teeth of the gear wheel 17. The rear edge of the rack bar bears against and is supported by the rollers the grooves in the rollers holding the rack bar parallel with the frame. 90 One extremity of the rack bar is formed with a head 19 and the other extremity is provided with a pivoted shackle 20. One side of this shackle is formed with opposed hook shaped studs 21 and the other face is 95 provided with a wire clamp consisting of a fixed jaw 22 having a pivoted edge 23 having a handle whereby it may be operated.

It will be obvious from the description above given that the reciprocation of the 100 lever handle 12 will cause the eccentrics to alternately lift and depress the pawls 13, and that they will engage with the ratchet wheels. This reciprocation will give a continuous rotation in one direction to the gear 105 wheel 17 which engages the rack bar and will force the rack bar in one direction. By removing these springs from engagement with the pawls and turning the pawls rearwardly the rack bar is free to be drawn out 110 of the frame or in a reverse direction to that in which it is ordinarily moved.



The operation of my device as a load binder or as a means of tightening a wire or chain around a load or mass of material is as follows: A rope or chain 24 is attached to the ring upon one end of the frame. The chain or other connection is then passed over or around the load and the chain is attached to the studs projecting from the shackle on the lower end of the rack bar, the rack bar having been lowered to its lowest position before the chain is attached. By operating the lever handle 12 the rack bar will be drawn into the frame and the wire will of course be tightened to the degree required. If the load is not bound tightly when the rack bar has been moved to the full extent the chain or other flexible connection is attached to the bifurcated stud 21 on the lower end of the frame. This will hold the chain or connection in its tightened condition and the rack bar may then be removed outward and again engaged with the chain or connection. The operation is then repeated until the load has been bound as tightly as desired. If wire is used in place of chains, the operation is precisely the same as that above described except that the end of the wire is gripped between the jaws on the outer face of the shackle.

My device is also capable of use as a lifting jack in which case the enlarged head of the rack bar is placed on the ground or other support and the shoulders formed by the uppermost projecting ears 8 are adjusted to the wagon axle or any other projecting portion of the weight desired to be raised. The lever handle is then operated as before described which will act to lift the frame upon the rack bar, the pawls of course engaging with the ratchets to hold the rack bar in place as it is elevated. The device is also capable of use as a means of lifting or pulling out fence posts or like constructions. For this use, the enlarged head of the rack bar is placed against the ground at the foot of the post and a chain is wrapped around the post close to the ground. The frame is then forced against the post until the rollers 9 contact therewith and the end of the chain is fastened over the end of the frame which is above the bifurcated stud on the upper end thereof. The lever handle is then operated whereupon the frame will be lifted, drawing upward on the post as before described. It will be seen that my invention is very simple, contains no parts which are liable to get out of order, that all parts are exposed to view so that repairs may be easily made, and that the construction affords a device of great usefulness in many different emergencies.

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

1. A device of the character described having two members, one shiftable longi-

tudinally relatively to the other, mechanism mounted on one of the members engaging with the other and adapted to move one member relative to the other, an actuating handle mounted on said member for operating said mechanism, means located at opposite ends of one of the members for engaging with a flexible connection, and a clamp on the other member for engaging with said flexible connection.

2. In a device of the character described, a frame having means thereon for the attachment of a chain or other connection, a rack bar movable in the frame and having means whereby it may be attached to a chain or other connection, a gear wheel engaging with the rack bar, opposed ratchet wheels rigid with the gear wheel, the teeth of which have a staggered relation to each other, a shaft mounted in the frame, eccentrics attached to the shaft angularly set with relation to each other, a handle attached to the shaft for operating the shaft, opposed pawls engaging with the ratchet wheels, said pawls having enlarged eyes each surrounding an eccentric, and springs mounted on the frame and forcing said pawls inward for engagement with the eccentrics.

3. In a device of the character described, a frame having opposed side pieces, grooved rollers mounted between these side pieces at one edge thereof, a rack bar moving between the side pieces and engaging in the grooved rollers, one end of said rack bar being provided with a head and the other with means for engaging with the flexible connection, a bifurcated lug projecting from the frame and adapted to engage the flexible connection; a shaft mounted in the frame and having thereon opposed ratchet wheels engaging on each side of the rack bar, a gear wheel mounted between the ratchet wheels and engaging the teeth of the rack bar, a shaft mounted in the side pieces and having opposed eccentrics formed thereon, said eccentrics being angularly seated with relation to each other, opposed pawls having enlarged eyes surrounding the eccentrics, said pawls engaging the ratchet wheels, and pivoted springs mounted on the frame and adapted to force the pawls into engagement with the ratchet wheels.

4. In a device of the character described, opposed side pieces each having upper and lower ears projecting therefrom, grooved rollers mounted between said ears, an eye formed at one end of the frame, a bifurcated stud at the other end of the frame, a shaft passing through the side pieces, a gear wheel mounted on the shaft, ratchet wheels mounted on the shaft on each side of the gear wheel, and rigid therewith, opposed pawls engaging with the ratchet wheels, an eccentric shaft having angularly set eccentrics engaging with the pawls to move them in re-



verse directions, as the shaft is reciprocated, a lever projecting from the shaft and rigid therewith, pivoted springs for forcing the pawls into engagement with the ratchet, 5 a rack bar movable between the side pieces of the frame, the teeth of which engage the teeth of the gear wheel, said rack bar being held in position by the grooved rollers on the frame, an enlarged head formed at one end 10 of the rack bar and a shackle pivoted at the other end, a pair of hooked studs projecting from one face of the shackle, and means for attachment of a chain and wire gripping jaws formed upon the other face of said 15 shackle.

5. A device of the character described having two members, one shiftable longitudinally with relation to the other, mechanism mounted on one of the members and engaging with the other and adapted to move one 20 member relative to the other, an actuating handle adapted to operate the moving mechanism, an eye at one end of one of the members for attachment to a flexible connection,

a bifurcated lug at the other end of said 25 member, a clamp at that end of the other of said members opposed to the eye of the first named member and a hook upon said end of the last named member.

6. A device of the character described, having a frame provided with projecting shoulders, said frame at one end having an eye for the attachment of a flexible connection, the other end of the frame being provided with a bifurcated lug, a bar longitudinally 35 movable in said frame and provided with a head at one end, the other end of the bar being provided with a means for engaging said flexible connection, mechanism mounted on the frame engageable with said bar to raise 40 or lower the same, and a handle for actuating said mechanism.

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

JAMES L. SHIPMAN.

Witnesses:

J. P. SHIPMAN,

C. I. THATCHER.