

(No Model.)

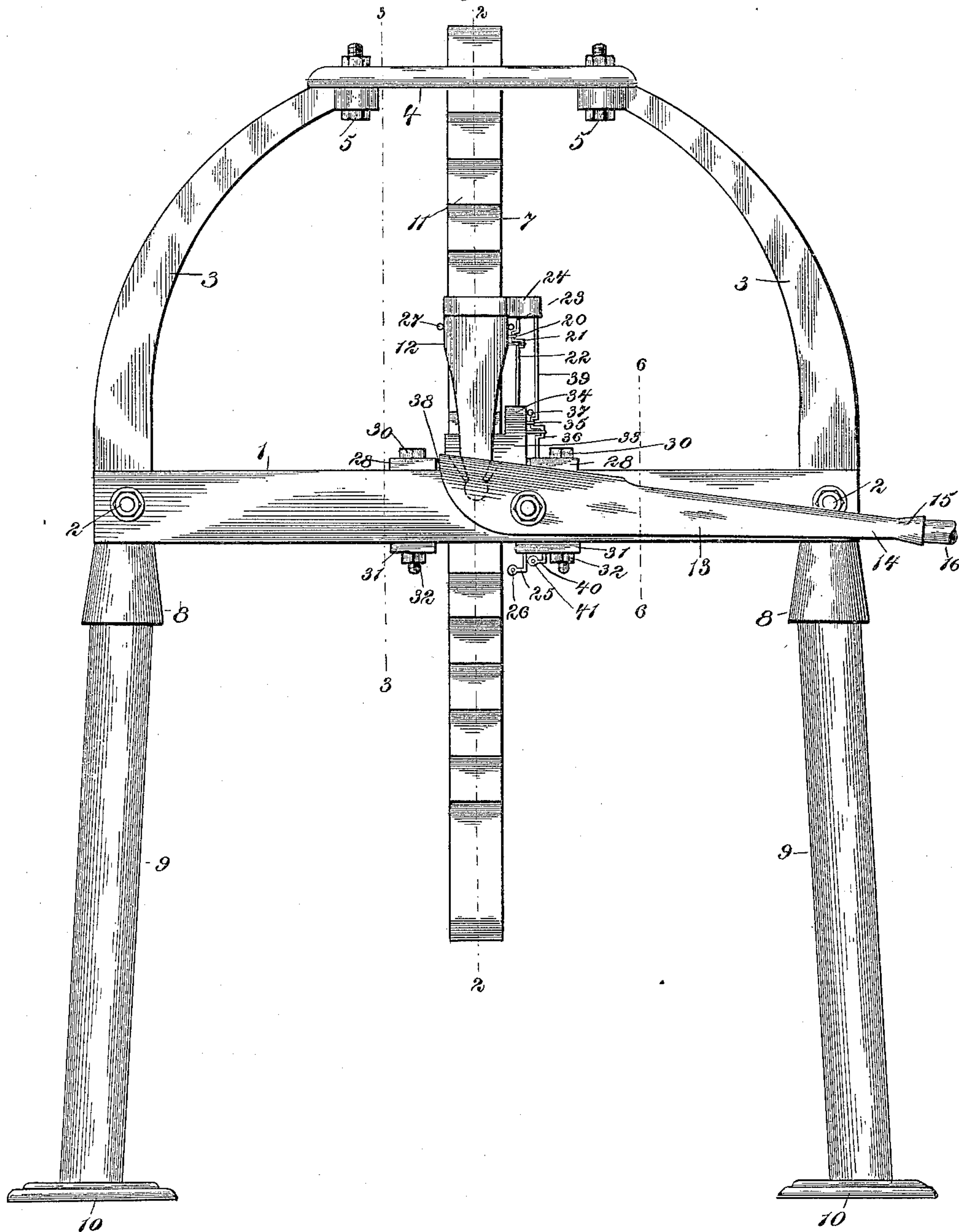
3 Sheets—Sheet 1.

F. A. UPTEGROVE.
LIFTING JACK.

No. 604,808.

Patented May 31, 1898.

Fig. 1.



WITNESSES

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Fig. 2.

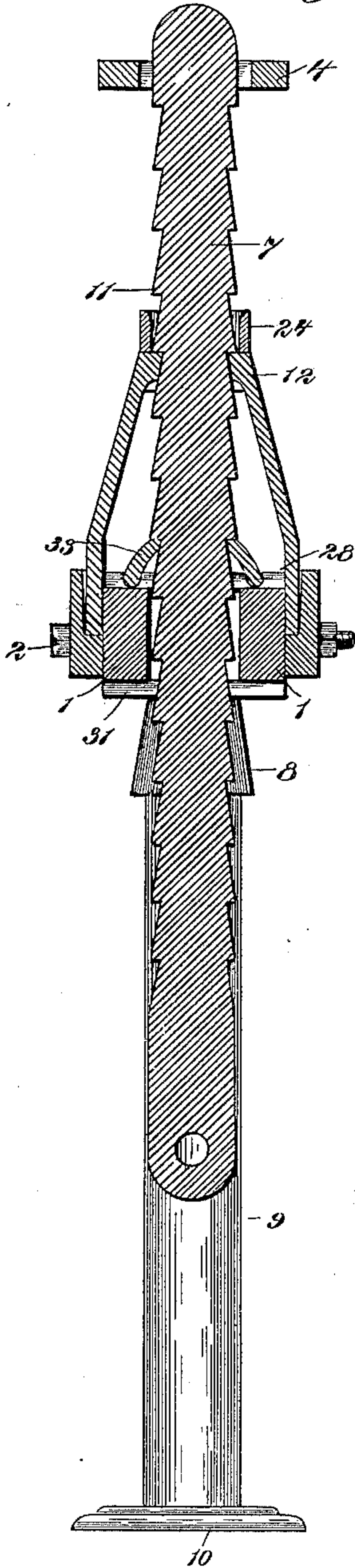


Fig. 3.

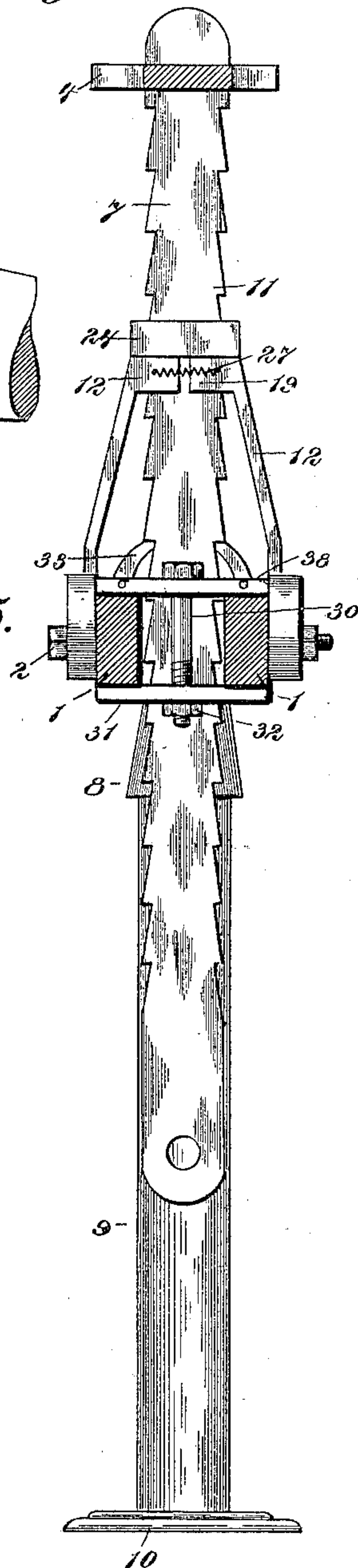


Fig. 4.

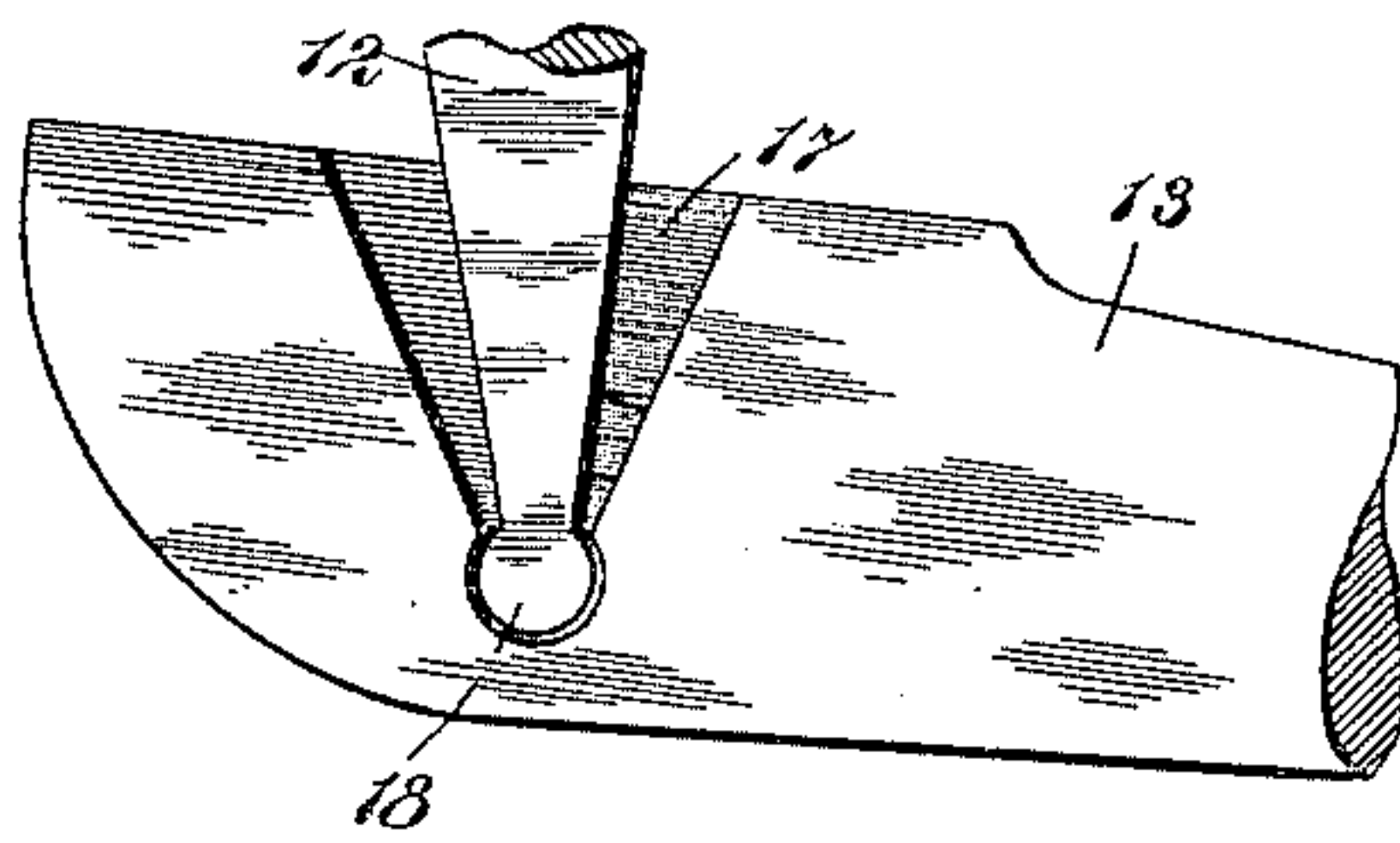


Fig. 5.

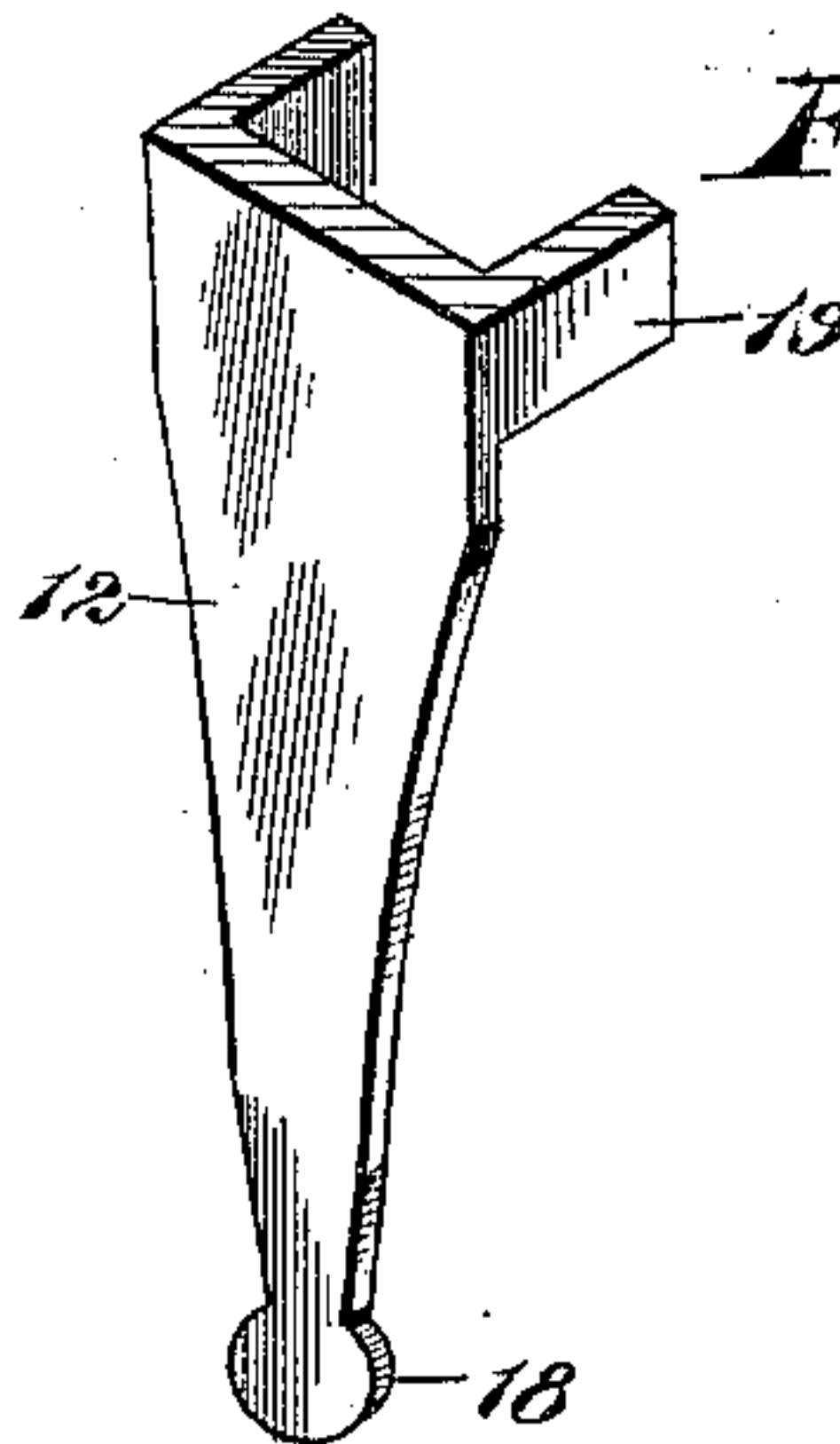
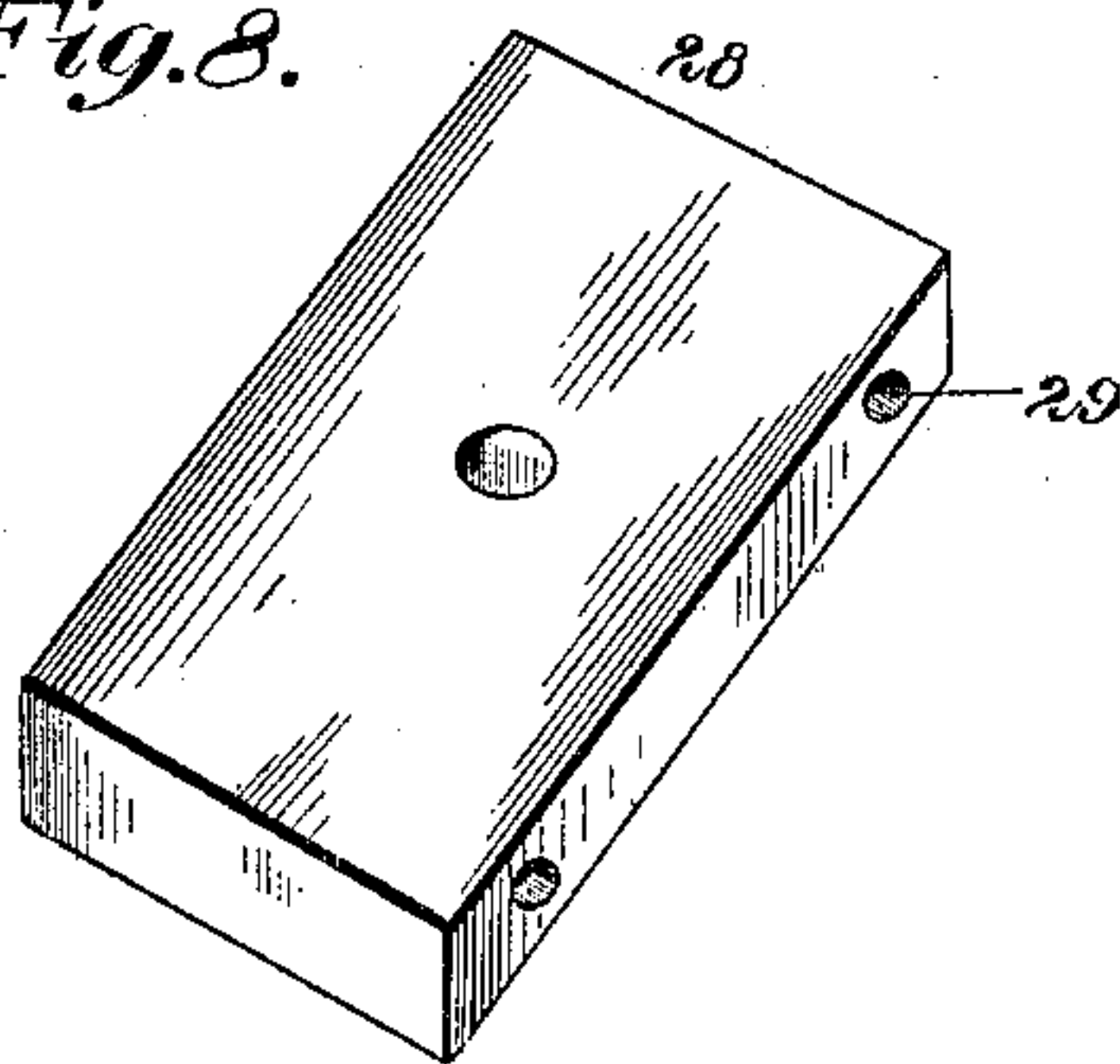


Fig. 8.



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Fig. 6.

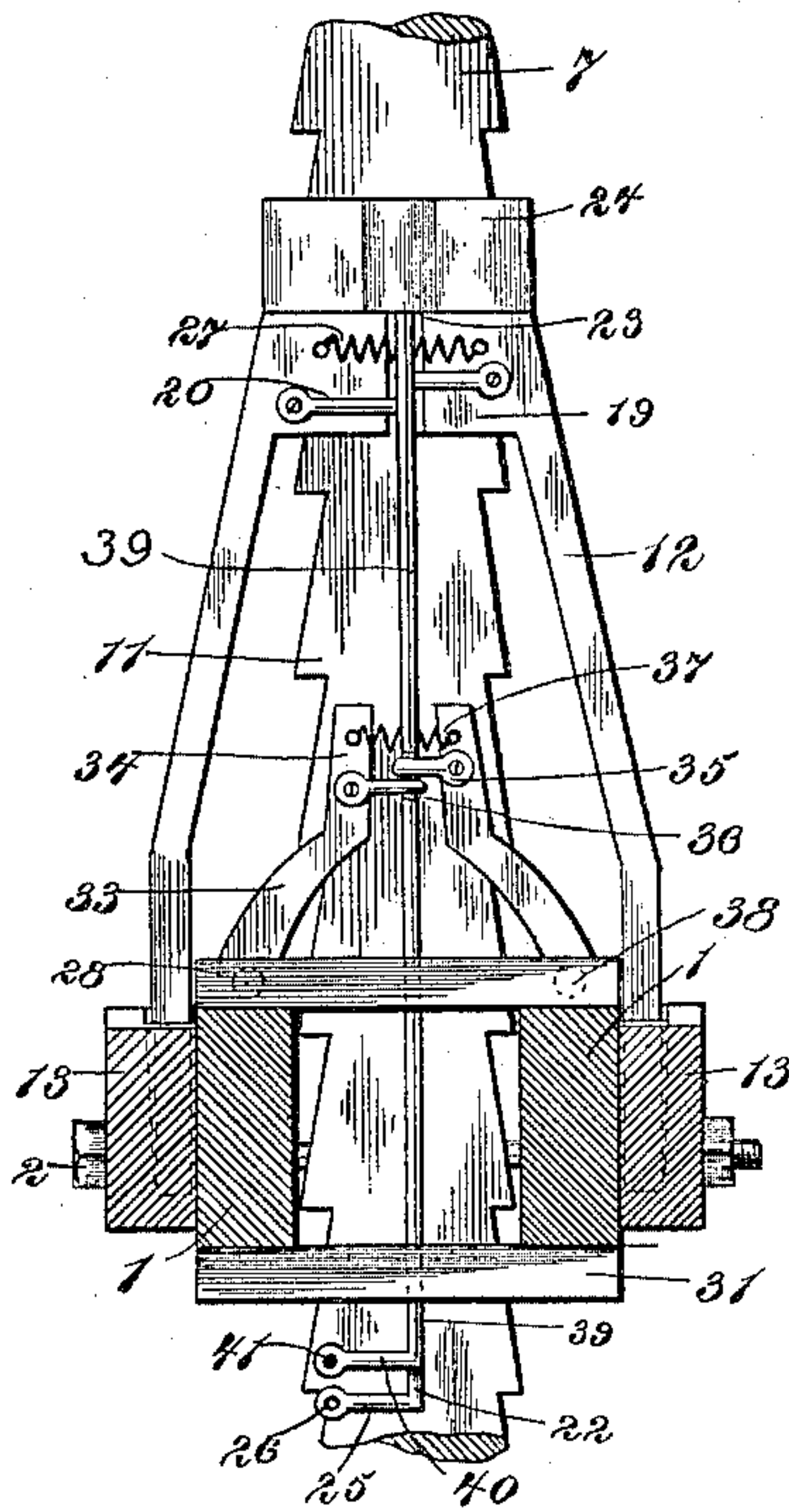


Fig. 2.

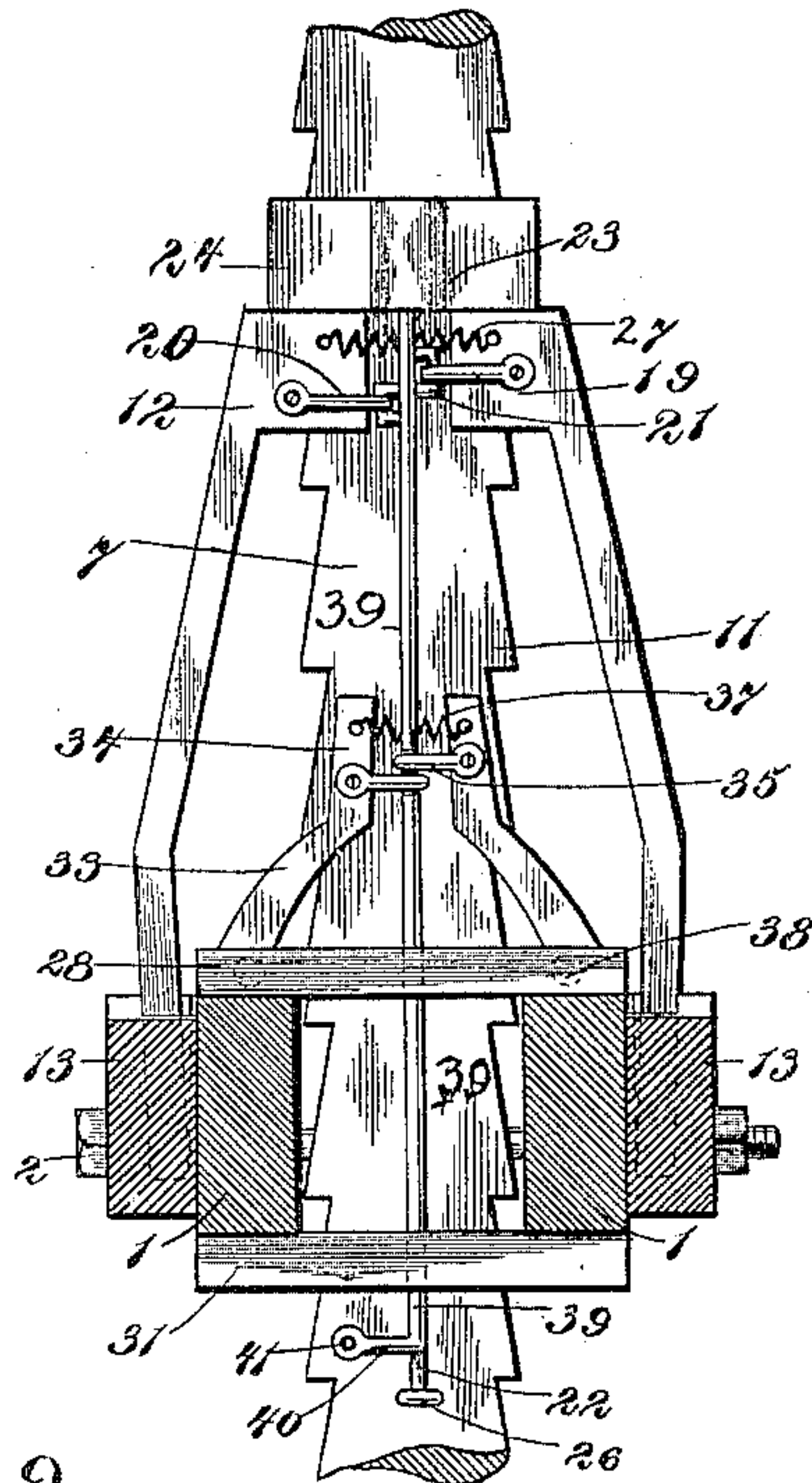


Fig. 9.

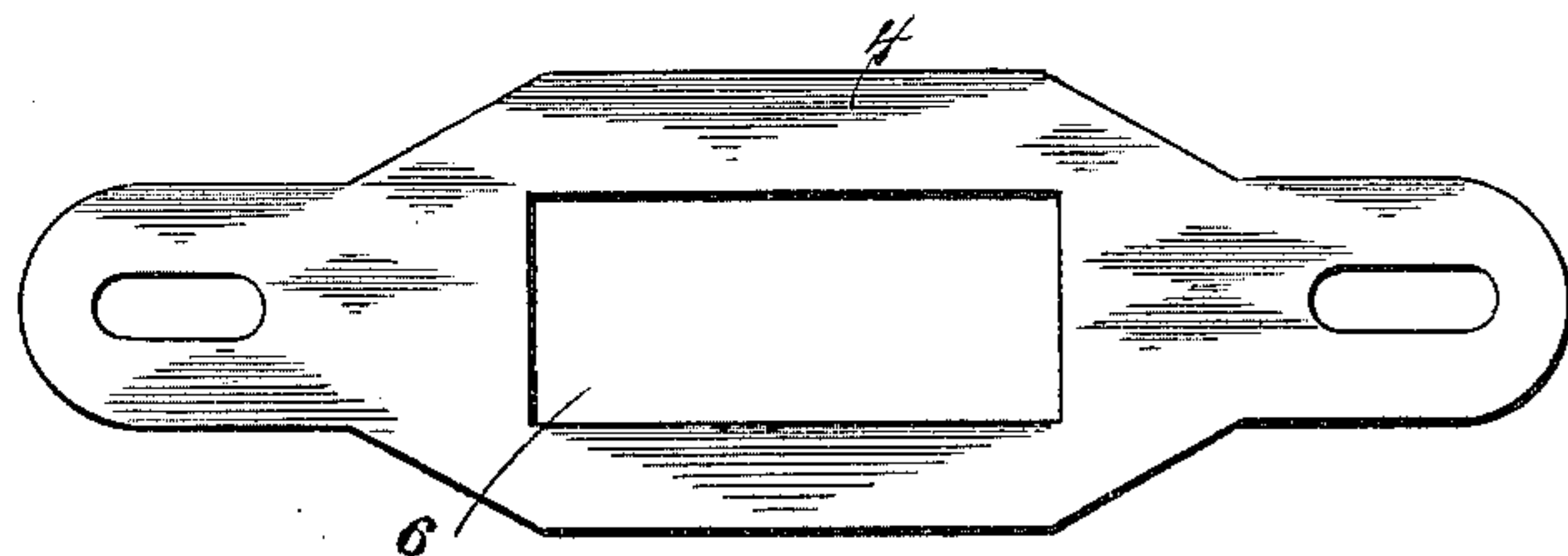
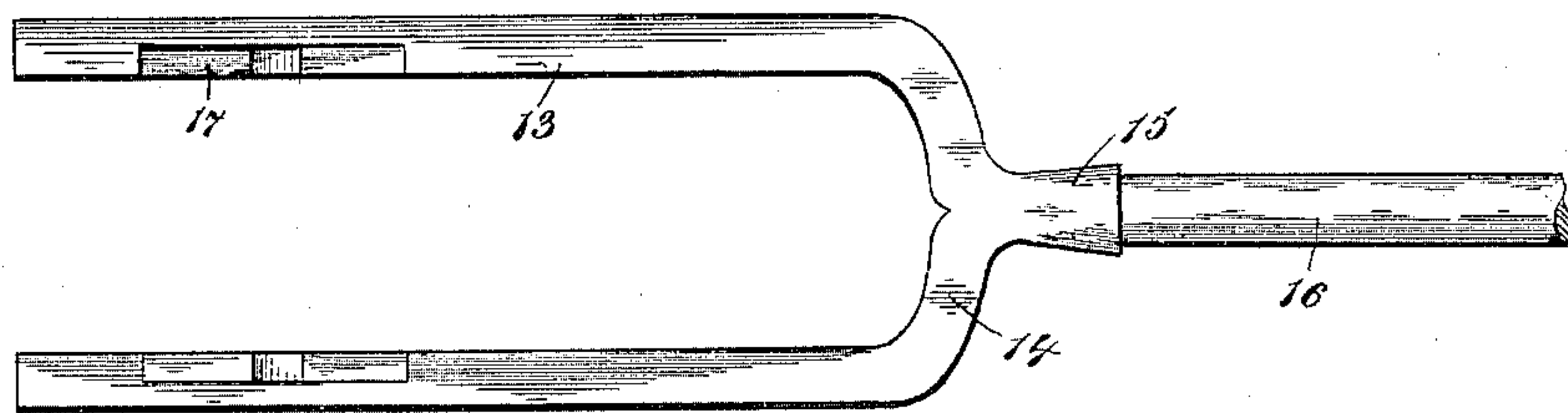


Fig. 10.



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UNITED STATES PATENT OFFICE.

FRANK A. UPTEGROVE, OF CANEY, KANSAS.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 604,808, dated May 31, 1898.

Application filed February 20, 1897. Serial No. 624,401. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. UPTEGROVE, a citizen of the United States, residing at Caney, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to lifting-jacks, and while especially designed for loading logs and other heavy objects is adapted to be used for various purposes.

The invention consists in an improved lifting-jack embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a lifting-jack constructed in accordance with the present invention. Fig. 2 is a transverse vertical section through the same on line 2 2 of Fig. 1. Fig. 3 is a detail transverse section taken on the line 3 3 of Fig. 1. Fig. 4 is a detail view of the inner face of one end portion of the operating-lever, showing the connection between said lever and one of the upper dogs. Fig. 5 is a detail perspective view of one of the upper dogs. Fig. 6 is a detail cross-section taken on the line 6 6 of Fig. 1 and showing the dogs and their tripping mechanism, the dogs being shown in engagement with the lifting-bar. Fig. 7 is a similar view showing the dog thrown out of engagement with the lifting-bar. Fig. 8 is a detail perspective view of one of the bearing-blocks for the trunnions of the lower dog. Fig. 9 is a plan view of the upper yoke. Fig. 10 is a plan view of the operating-lever, showing the manner of attaching the handle.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates a pair of horizontal beams spaced a suitable distance apart and rigidly connected at their ends by bolts 2, which pass also through the

lower extremities of an oppositely-disposed pair of upwardly-extending and inwardly-curving arms 3, which are connected at their upper ends by means of a yoke 4. The yoke 4 is provided at its ends with longitudinal slots for the reception of bolts 5, which pass through the ends of the arms 3, thus providing for adjusting the upper ends of the arms 3 toward or away from each other to suit the requirements. The yoke 4 is also provided with a longitudinal slot or aperture 6, through which the lifting-bar 7 is adapted to reciprocate. The lower ends of the arms 3 are enlarged and formed with sockets 8, into which are removably fitted the tapered or pointed upper ends of a pair of standards 9, having at their lower ends feet 10 for giving to the lifting-jack the necessary bearing-surface upon the ground.

The lifting-bar 7 is provided upon opposite sides with ratchet-teeth 11, adapted to be engaged by the oppositely-located dogs 12. These dogs are pivotally connected at their lower ends to the side bars or portions 13 of a double operating-lever 14, having a socket for the reception of a handle extension of any suitable length to give the desired leverage. Each side portion or bar 13 of the operating-lever is recessed or mortised upon its inner side and near its end, as indicated at 17, said recess or mortise being made flaring toward its upper end to allow the necessary relative movement between the lever and the dog 12. The lower end of each dog 12 is pivotally mounted at 18 in the lower portion of its recess 17, and thus the lever may be vibrated without affecting the verticality of the dogs. Each of the dogs 12 is provided at its free end where it engages with the lifting-bar 7 with opposing cheeks or flanges 19, embracing the lifting-bar 7 upon opposite sides and maintaining the dogs in proper relation to the lifting-bar. The dogs 12 are connected near their upper ends to links 20, and these links connect pivotally at their inner adjacent ends with a double crank 21 on a rock-shaft 22, extending longitudinally of the lifting-bar 7, said rock-shaft being journaled at its upper end in an eye 23 of a collar or sleeve 24, which surrounds the lifting-bar 7 above

the dogs 12. The rock-shaft 22 also passes through one of the clamping-plates on the beams 1, hereinafter described, and is provided at its lower end with an angular extension 25, forming a lever by means of which the rock-shaft may be turned. The extremity of the lever 25 is provided with an eye 26 to receive a rope or connecting-rod by means of which the shaft may be operated and the dogs 12 tripped for lowering the lifting-bar 7. The dogs 12 are connected at one or both sides of the lifting-bar 7 by coiled springs 27, which serve to hold the dogs in engagement with said lifting-bar, while at the same time yielding to permit the operation of the tripping mechanism.

28 designates a pair of bearing blocks or plates supported on the beams 1 and spaced a suitable distance apart and also located on opposite sides of the lifting-bar 7, the said bearing-plates being provided with spaced openings 29 and also being held in place by means of pendent bolts 30, which extend downward between the beams 1 and through clamping-plates 31, bearing against the under edges of said beams, said bolts having nuts 32 applied to their lower ends.

33 designates a pair of lower dogs which engage the lifting-bar 7 on opposite sides and which are of elbow shape or provided with arms 34, which extend upon one side of the lifting-bar 7, the extremities of said arms having pivotally connected thereto links 35, which connect at their inner adjacent ends to a double crank 36 on a second trip or rock shaft 39. The arms 34 are connected by means of one or more coiled springs 37, which operate to maintain the dogs 33 in engagement with the lifting-bar 7, while yielding to permit said dogs to be thrown out of engagement therewith. Thus in the operation of the rock-shaft 22 both the upper dogs are thrown out of engagement with the lifting-bar, and upon releasing the pressure on said rock-shaft the springs will act to move the dogs inward again. Both of the lower dogs 33 are provided with oppositely-extending trunnions 38, which enter the openings 29 of the bearing-blocks 28 and form the fulcrums upon which the lower dogs rock.

The lower end of the lifting-bar 7 may be provided with a chain adapted to encircle a log or other object and provided at both ends with hooks, by means of which it may be detachably connected to said lifting-bar.

From the foregoing description it will be seen that by lowering the outer end of operating-lever the upper dogs 12 will be lifted, thereby causing a corresponding lifting of the bar 7. By reversing the operating-lever the upper dogs slide downward past some of the teeth of the lifting-bar, the latter being prevented from lowering by reason of the engagement of the lower dogs therewith. By repeating this operation the lifting-bar may

be hoisted to any desired height for lifting the object attached thereto. When it is desired to lower the lifting-bar, the rock-shafts 22 and 39 are turned, thus throwing the upper and lower dogs out of engagement with the lifting-bar and lifting the latter free to move downward. The lifting-jack is extremely simple in construction and particularly effective and durable. The lifting-bar is engaged upon both sides, the strain being thus distributed equally. The lifting-bar may also oscillate or change its angle to accommodate it to the positions of the objects to be lifted, and as the bar 7 oscillates the upper dogs 12 are free to oscillate therewith.

It will be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a lifting-jack, the combination with a supporting-frame comprising parallel separated horizontal beams, of an operating-lever having its side portions arranged outside of said beams, a lifting-bar mounted to operate between said beams and provided on opposite sides with teeth, dogs pivotally connected to said lever on axes at right angles to the fulcrum of said lever and engaging said lifting-bar on opposite sides, and a spring connecting said dogs for holding the same in yielding engagement with said lifting-bar, substantially as described.

2. In a lifting-jack, the combination with a suitable supporting-frame comprising parallel beams, of a lifting-bar movable between said beams and provided on opposite sides with teeth, a lifting-lever embodying side portions which embrace said beams, dogs pivotally connected to said lever and engaging the lifting-bar on opposite sides, a spring for holding said dogs in yielding engagement with said lifting-bar, a rock-shaft, and links interposed between said shaft and dogs for tripping the latter, substantially as described.

3. In a lifting-jack, the combination with a suitable frame, of a toothed lifting-bar movable in said frame, an operating-lever fulcrumed on the frame, dogs pivotally connected to said lever and engaging the lifting-bar, means for holding said dogs in yielding engagement with said bar, a rock-shaft extending longitudinally of the lifting-bar and journaled thereon and also provided with a double crank, and links interposed between said crank and dogs for throwing the latter out of engagement with the lifting-bar, substantially as described.

4. In a lifting-jack, the combination with a suitable supporting-frame, of a toothed lifting-bar slidably mounted therein, an operating-lever fulcrumed on said frame, dogs pivotally connected to said lever and engag-

ing said lifting-bar, a second set of dogs ful-
crumed on the frame and engaging said bar,
means for holding said dogs in yielding en-
gagement with said bar, and a pair of rock-
5 shafts for independently moving said dogs
out of engagement with the bar, substantially
as described.

In testimony whereof I have signed this
specification in the presence of two subscrib-
ing witnesses.

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Witnesses:

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