

No. 898,215.

PATENTED SEPT. 8, 1908.

F. L. GORMLEY.  
SCREW JACK.

APPLICATION FILED APR. 23, 1908.

Fig. 2.

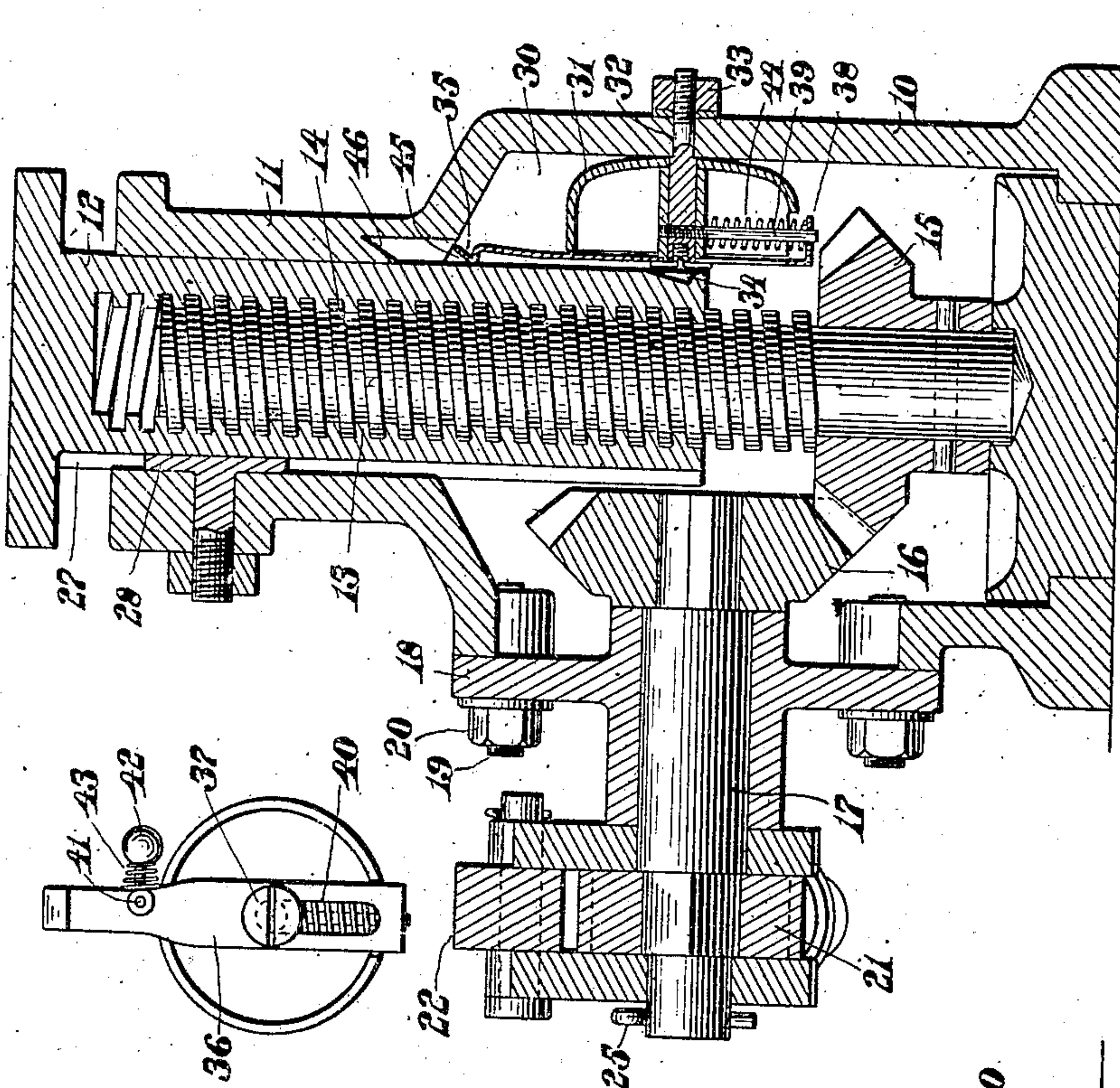


Fig. 3.

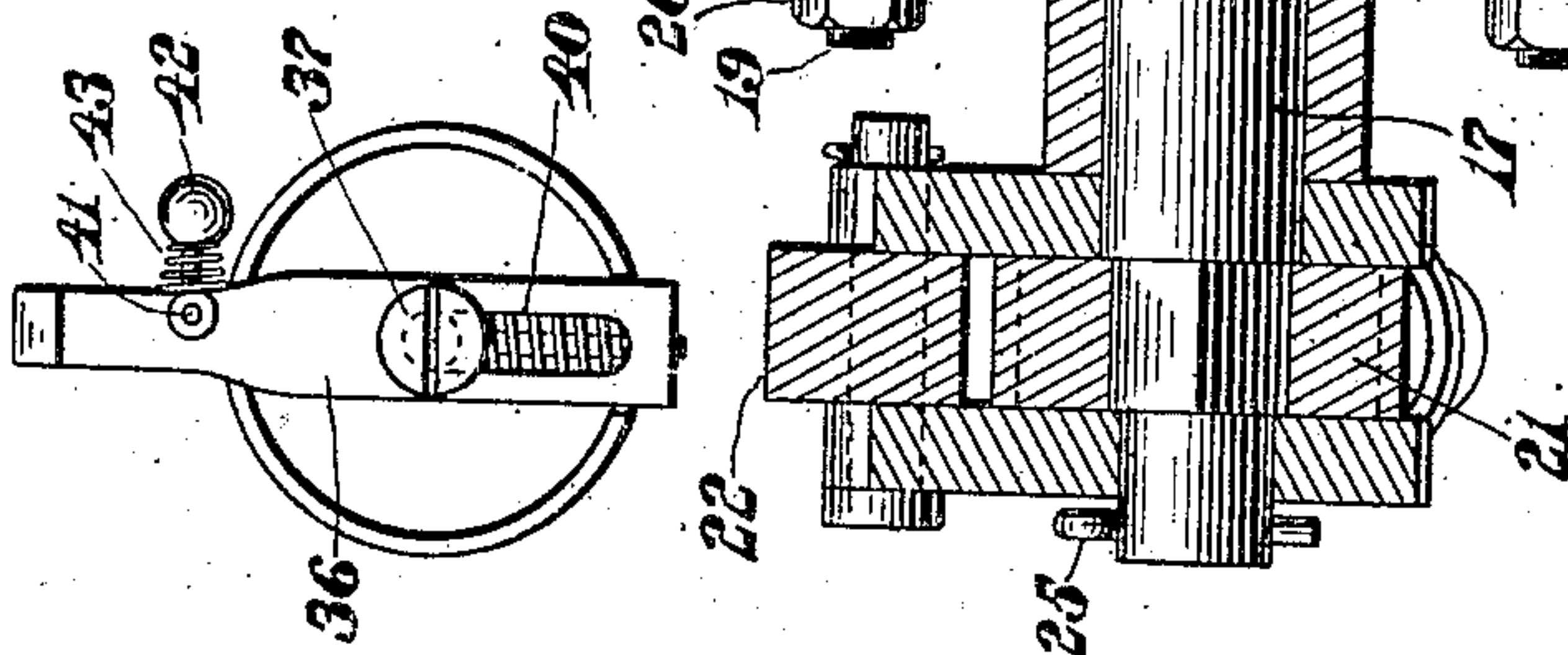
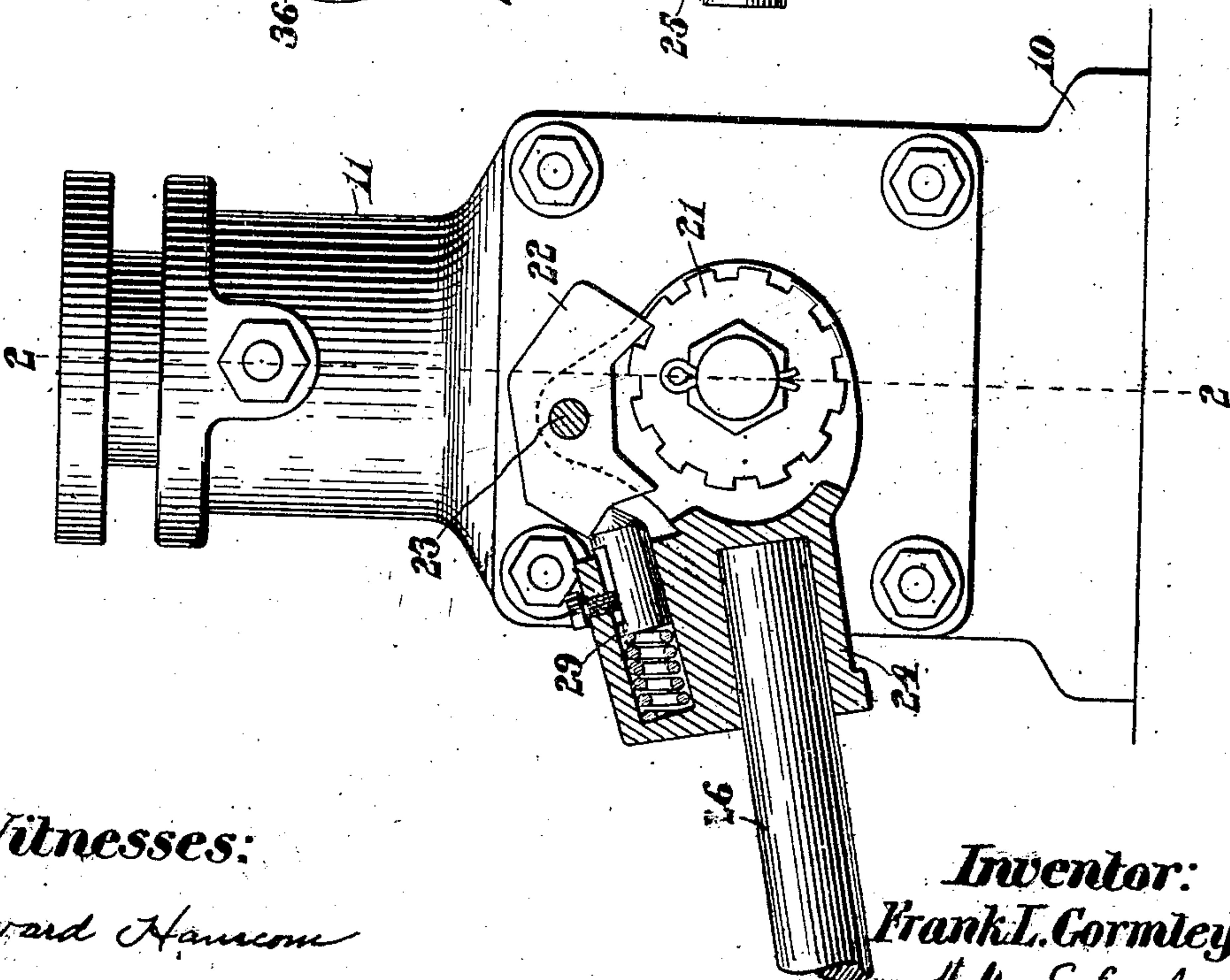


Fig. 1.



Witnesses:

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# UNITED STATES PATENT OFFICE.

FRANK L. GORMLEY, OF BOSTON, MASSACHUSETTS.

## SCREW-JACK.

No. 898,215.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed April 23, 1908. Serial No. 429,076.

*To all whom it may concern:*

Be it known that I, FRANK L. GORMLEY, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Screw-Jacks, of which the following is a specification.

This invention relates to lifting jacks and has for its object the production of a device by which an audible signal may be given when the ram has reached the upper limit of safety in order that the operator may be warned to desist in the further elevation of the ram.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents an elevation of a jack embodying the features of this invention, the pawl-carrying member being shown in section. Fig. 2 represents a vertical section of the same, the cutting plane being on line 2—2 on Fig. 1, and Fig. 3 represents an elevation of the signal device.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 represents a hollow base section provided at its top with a cylindrical extension 11 in which is mounted the ram 12 provided with a female thread 13 adapted to be operated by the threaded male member 14 having secured to its lower end a bevel gear 15 adapted to mesh with a similar gear 16 keyed to a shaft 17 mounted in a suitable bearing in the plate 18 secured by suitable studs 19 and nuts 20 to the base section 10. Secured to the outer end of the shaft 17 is the ratchet 21 with which engages a pawl 22 pivoted at 23 to the forked member 24 mounted upon the end of said shaft 17 and held in position thereon by the cotter pin 25.

A handle 26 secured about the axis of the shaft 17 causes a rotation of the gears 16 and 15 and by means of the screw member 14 the raising of the ram 12. The ram 12 is provided with a groove 27 in which a member 28 secured to the cylindrical extension 11 cooperates to prevent the ram from turning within said cylinder during the raising and lowering of the same.

The member 24 is provided with a spring-

pressed bolt 29, which co-acts with the pawl 22 to cause its engagement with the ratchet 21 as desired.

The lifting jack as described is of well-known construction and embodies no features of the present invention. Heretofore in the use of jacks of this class, accidents are liable to occur on account of the operator continuing to raise the ram until the screw thread 13 has become disengaged entirely from the male member or screw 14, much damage resulting from such carelessness both to the jack itself and to the article being lifted thereby. The aim of the present invention is to prevent such accidents and to avoid injury to the jack and the weight being lifted thereby. This result is accomplished by providing within the hollow chamber 30 of the base 10 a bell 31 mounted upon a shank 32 secured to the base portion by means of the nut 33, which bell will be struck to give an audible signal whenever the ram has nearly reached its full extreme of upward movement. The striking of the bell 31 at such predetermined time is accomplished by means of an operating shoulder 34 formed upon the lower end of the ram 12, this shoulder 34 in its upward movement engaging a spring projection 35 in the upper end of a slotted member 36 secured by means of a threaded stud 37 to the inner end of the shank 32. The lower end of the member 36 is provided with an outwardly extending ear 38 through a hole in which extends a rod 39 secured to the shank 33, this rod 39 and the stud 37 extending through the slot 40 in the member 36 serving as a guide for this member to cause it to be moved at right angles to the shank 32 and in a vertical direction.

Pivoted at 41 to the member 36 is a striker 42 normally held in the position shown in Fig. 3 by means of the spring 43. As the operator raises the ram 12 in the usual manner when the shoulder 34 reaches a point in the same plane with the projection 35, this projection will spring into engagement with the shoulder 34 and a continuous movement of the ram 12 will cause the member 36 to be raised thereby against the tension of the spring 44 surrounding the rod 39 and interposed between the ear 38 and the shank 32. The projection 35 will continue in engagement with the shoulder 34 and the member 36 will continue to be raised against the tension of the spring 44 until the inclined por-



tion 45 of the projection 35 comes into contact with the inclined face 46 formed within the cylindrical extension 11, which will cause the projection 35 to be moved outwardly from engagement with the shoulder 34, thereby permitting the spring 44 to retract the member 36 and return it to its normal position, such movement causing the striker 42 to contact with the bell 31 and give an audible signal to the operator to warn him that the safety limit of the upward movement of the ram has been reached.

While the signal is given at a predetermined point there is nothing to prevent the ram from being lifted slightly beyond this point in case there should be any necessity for raising the weight a short distance above this point before returning the parts to their normal positions.

While a particular form of signal 31 is shown it is obvious that other forms may be used equally as well and that the signal may be applied to the jack in other ways, the invention consisting primarily in a signal which in some manner will be operated at a predetermined time to warn the operator that the ram has reached the upward limit of safety.

It is believed that from the foregoing the operation and many advantages of the invention will be thoroughly understood without any further description.

Having thus described my invention, I claim:

1. In a lifting jack, the combination of a cylinder; a ram therein provided with an operating shoulder; and an audible signal adapted to be operated by said shoulder.

2. In a lifting jack, the combination of a cylinder; a ram therein provided with an operating shoulder; and a bell adapted to be operated by said shoulder.

3. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; and an audible signal within said base adapted to be operated by said shoulder.

4. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; a bell within said hollow base; and a spring retracted member adapted to be operated by said shoulder to strike said bell.

5. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; a shank within said base; a bell thereon; a member movable at right angles to said shank provided with a striker and a projection adapted to engage said shoulder; and a spring adapted to retract

said member when released from said shoulder.

6. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; a shank within said base; a bell thereon; a member movable at right angles to said shank provided with a striker and a spring projection adapted to engage said shoulder; and a spring adapted to retract said member when released from said shoulder.

7. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; a shank within said base; a bell thereon; a member movable at right angles to said shank provided with a striker and a spring projection adapted to engage said shoulder; a rod secured to said shank and extending through an ear on said movable member; and a spring surrounding said rod between said ear and shank.

8. In a lifting jack, the combination of a hollow base provided with a cylindrical extension; a ram therein provided with an operating shoulder; a shank within said base; a bell thereon; a slotted member provided with a spring projection at one end adapted to co-act with said shoulder and at the other with an ear having a hole therein; means extending through said slot for retaining said member on the inner end of said shank; a rod secured to said shank and extending through the hole in said ear; a spring surrounding said rod between said ear and shank; and a bell striker on said slotted member.

9. In a lifting jack, the combination of a cylinder; a ram therein; an audible signal; within said cylinder and means on said ram for operating said signal.

10. In a lifting jack, the combination of a cylinder; a ram therein; a bell; within said cylinder and means on said ram for operating said bell.

11. In a lifting jack, the combination of a cylinder; a ram therein; a signal; and manually operated means for raising said ram and operating said signal at a predetermined time.

12. In a lifting jack, the combination of a cylinder; a ram therein; a signal; manually operated means for raising said ram; and means operable by the movement of said ram for operating said signal at a predetermined time.

Signed by me at 7 Water St., Boston, Mass., this 18th day of April, 1908.

FRANK L. GORMLEY.

Witnesses:

WALTER E. LOMBARD,  
EDNA C. CLEVELAND.