

H. A. SCHATZ.

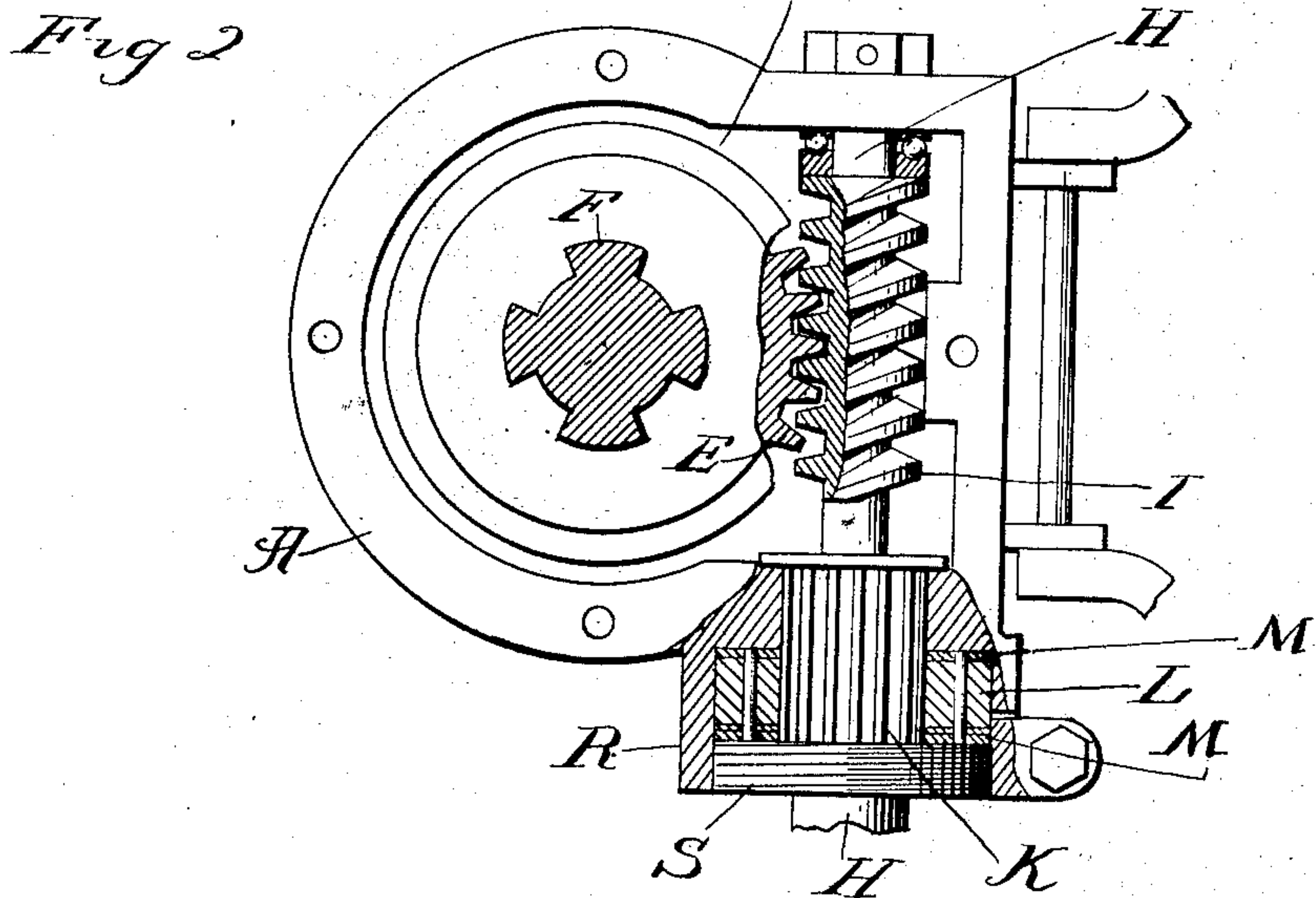
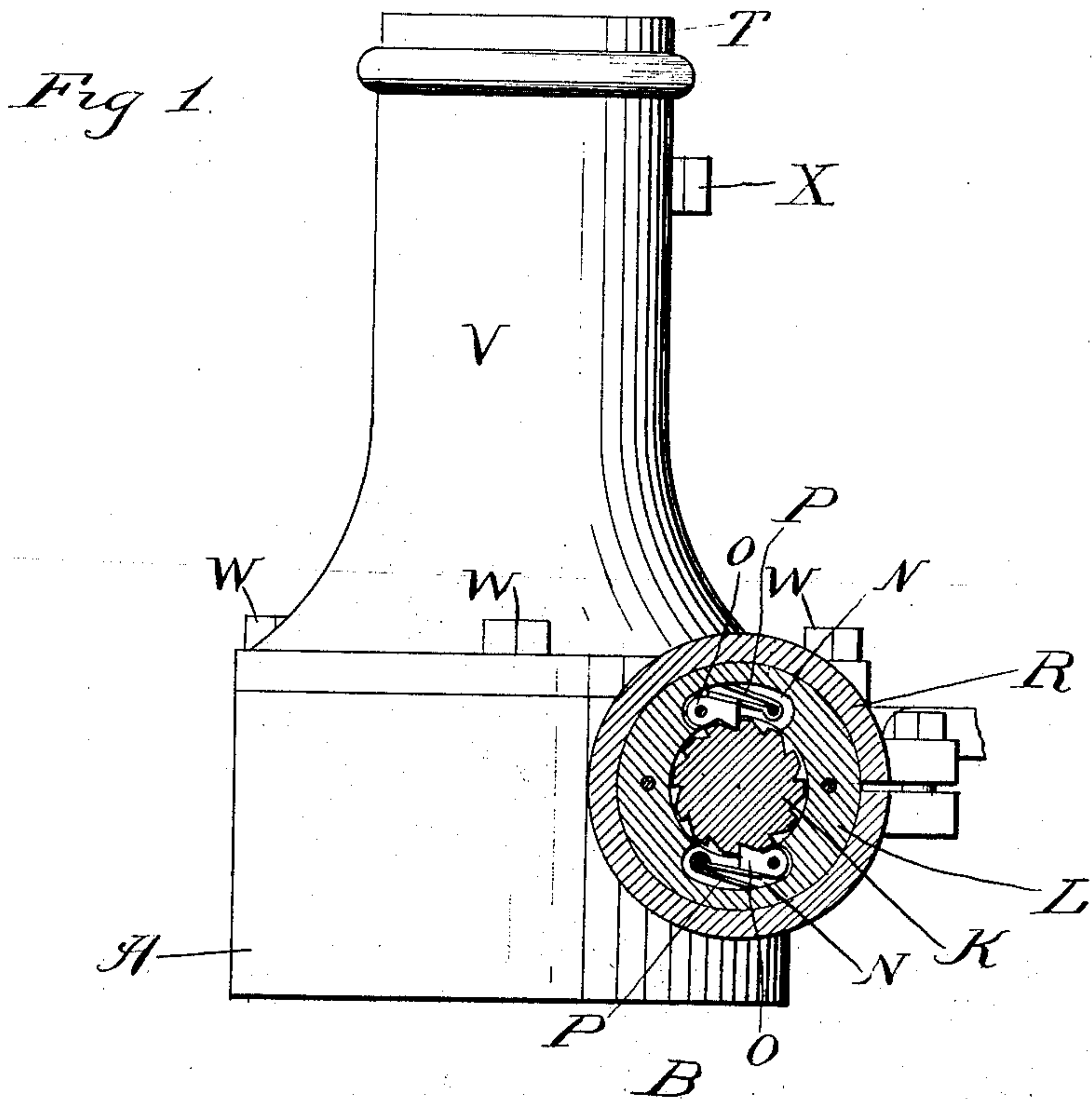
LIFTING JACK.

APPLICATION FILED AUG. 23, 1907.

924,692.

Patented June 15, 1909.

2 SHEETS—SHEET 1.



WITNESSES.

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2 SHEETS—SHEET 2.

Fig. 3

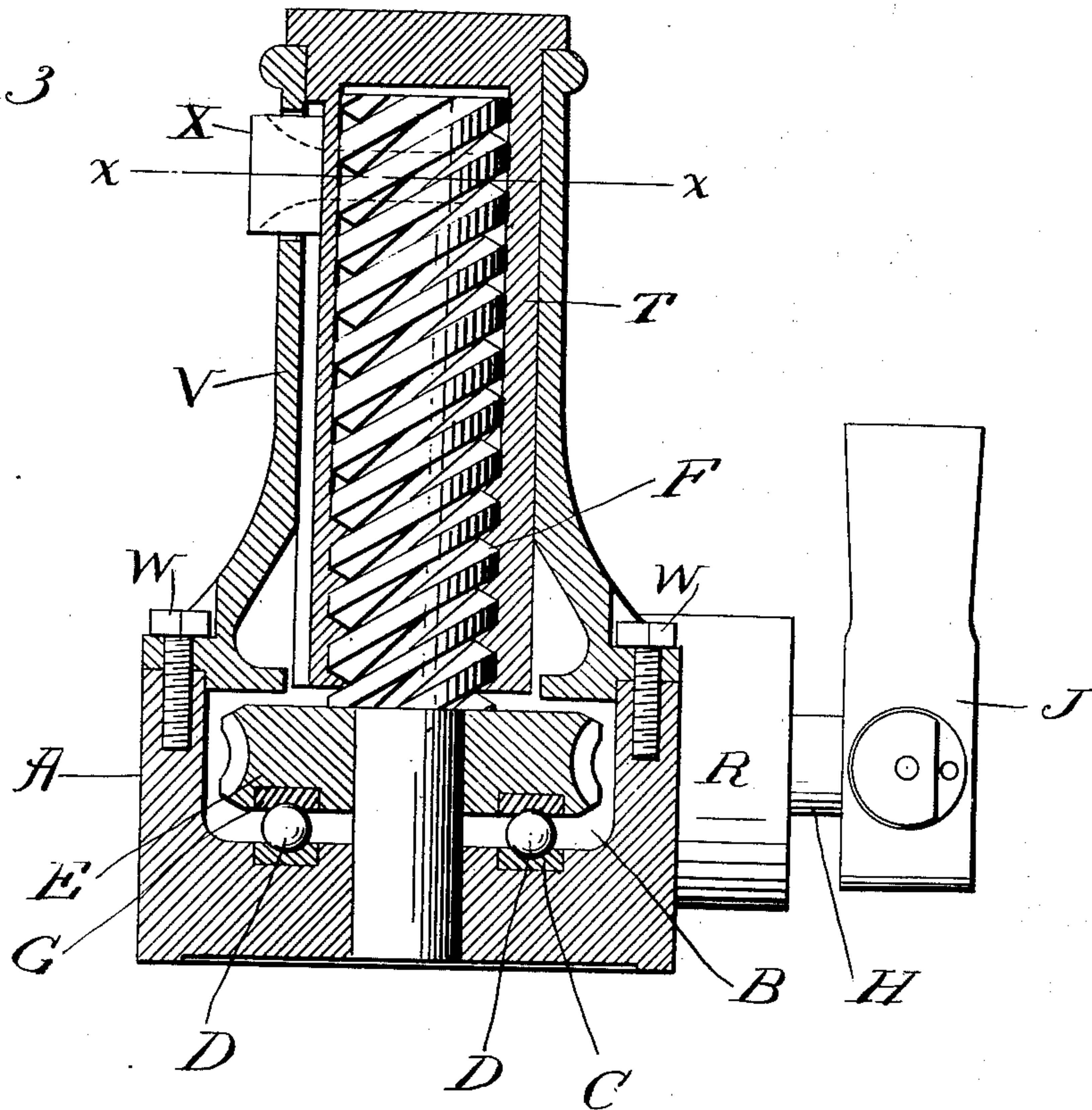
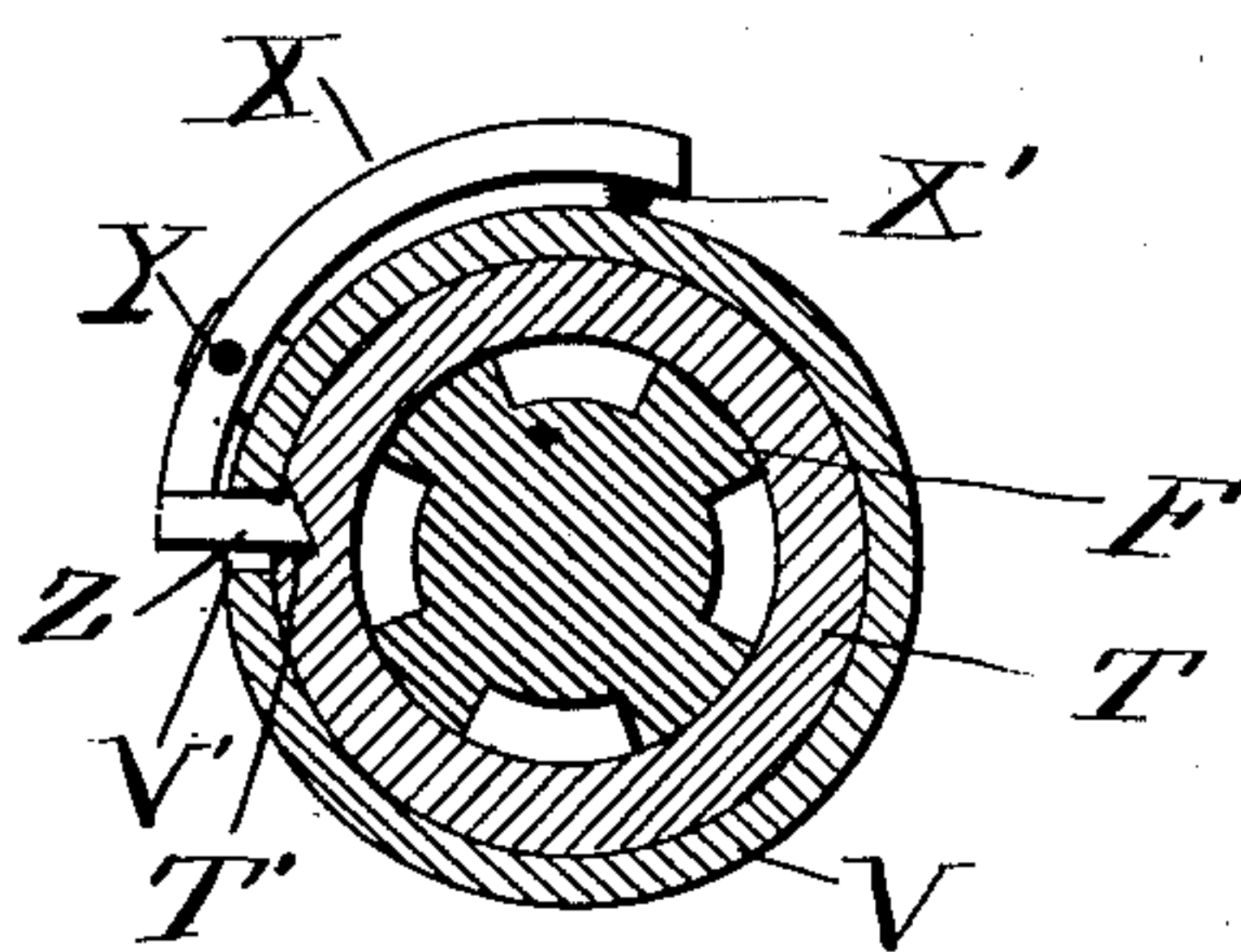


Fig. 4



WITNESSES.

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UNITED STATES PATENT OFFICE.

HERRMAN A. SCHATZ, OF CHAPPAQUA, NEW YORK, ASSIGNOR TO HIMSELF AND JOHN WILLIAM SCHATZ, JOINTLY, OF CHAPPAQUA, NEW YORK.

LIFTING-JACK.

No. 924,692.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed August 23, 1907. Serial No. 389,845.

To all whom it may concern:

Be it known that I, HERRMAN A. SCHATZ, of the village of Chappaqua, town of New Castle, county of Westchester, and State of New York, have invented new and useful Improvements in Lifting-Jacks, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof.

This invention relates to lifting jacks, and more particularly to that class of jacks having a vertically arranged lifting screw intermeshing with internal screw threading on a lifting cylinder, which is thereby projected or lowered vertically.

The invention has for its object the production of a novel form of friction device for use in this type of jacks to retard the downward movement of the cylinder on the screw and means for checking the rotary movement of the cylinder in the direction which tends to lower it on the screw.

To these and other ends the invention consists of the several improvements and combinations of parts set forth and claimed hereinafter.

Referring to the drawings for a more particular description, Figure 1 represents an elevation of a jack embodying the invention, partly shown in vertical section through the friction device, Fig. 2, a plan view of the jack with the outer standard and lifting cylinder removed, the worm and worm gear being partly shown in section. Fig. 3, a vertical section through the jack, and Fig. 4, a transverse horizontal section on line 4—4 of Fig. 3.

In all figures, similar letters of reference represent like parts.

In the drawings, the parts designated by the letter A represent the body or casing of the jack, which is provided with a hollow recess B, in the bottom of which is a circular channel C for balls D. Within the recess B is located a worm gear E rigidly connected with a vertical lifting screw F. The worm gear or wheel E is provided on its under side with a circular channel G for the balls D.

Through one side of the recess B projects a shaft H carrying a worm I adapted to mesh with the worm gear or wheel E, so that upon the rotation of the shaft H, the worm gear E and screw F are rotated. At the

outer end of the shaft H is a handle or crank arm J of well known construction.

Between the crank arm J and the worm I, rigidly mounted on the shaft H, is a ratchet wheel or gear K. Loosely mounted on the ratchet gear K is a ring L, to the sides of which are secured friction plates M of fiber or other suitable material. The ring L is provided with oppositely disposed recesses N, in which are pivoted pawls O held by springs P against the ratchet gear K. The gear K and ring L and associated parts fit within a friction box R, so that the ring L has its bearing or is journaled in the box R. The box is closed on the outer side by means of a screw cap S, the inner face of which bears against one of the friction plates M as tightly as may be desired, by the adjustment of the cap S in the friction box. By this means, when the shaft H is rotated by the crank arm J in the direction of the movement of the hands of the clock (Fig. 1), the pawls will slip over the teeth of the ratchet gear. When the shaft is rotated in the reverse direction, the pawls will engage the teeth of the ratchet gear K, so that the ring L will move with the ratchet gear and the friction plates will rub against the cap S and inner end of the friction box.

Mounted on the lifting screw F is a cylinder T internally screw threaded to intermesh with the screw F, so that as the screw is turned in one direction the cylinder T will be projected upward, and when the screw is turned in the reverse direction the cylinder T will be drawn downward.

Above the casing A and surrounding the lifting cylinder T is a standard or cylinder V secured to the casing A by screws W, or other suitable means. A stop dog X is pivoted at Y to a projection on the standard V, and has an engaging nose Z, which projects through a perforation V' in the standard to engage a slot T' in the lifting cylinder T. The stop dog X is held normally by a spring X', so that its nose Z will automatically enter the slot T'. Moreover the dog is so constructed that when pressure is exerted thereon its nose Z will bear on one side of the perforation V' and the standard takes the strain direct, instead of through the pivot Y. By this means, when the stop dog X is in engagement with slot T', any tendency of the screw F to rotate under excess-

ive weight, or of the lifting cylinder T to slip when in contact with a steel or other hard smooth surface, is eliminated. The screw F is prevented from rotation so as to lower the lifting cylinder T by means of the friction plates M and ratchet K already described.

The operation of the jack is as follows: To lift a weight the shaft H is rotated by the crank arm J in the direction of the movement of the hands of a clock (Fig. 1) so that the pawls O will slip over the teeth of the ratchet gear K. Consequently, in this movement of the shaft H there will be no engagement between the ratchet gear K, the ring L and friction plates M. When, however, the shaft H is rotated in the reverse direction, the pawls will engage the ratchet gear K and the ring L and friction plates M will be rotated with the shaft so that there will be a friction exerted through the ratchet gear K and plates M during any tendency of the shaft to rotate in this reverse direction under pressure of a load upon the lifting screw. The friction plates are as stated mounted on the shaft between the crank arm J and the worm I, or, in other words, near the point

where the power is applied by the operator. Consequently, the retarding tendency of this friction device is more easily overcome when the power is applied through the crank arm of the operator than when it is exerted by a load through the lifting screw, worm wheel and worm.

Having now described my invention, what I claim and desire to secure by Letters Patent, is:—

In a lifting jack, the combination with a vertically disposed lifting screw; of a worm wheel rigidly secured thereto; a lifting cylinder operated by said screw; a horizontally disposed worm; a crank shaft operating said worm; a ring surrounding said shaft; a friction device operated by said ring; and a connection between said ring and shaft affected only when the shaft is rotated in one direction, substantially as described.

In witness whereof, I have hereunto set my hand on the 27th day of July, 1907.

H. A. SCHATZ.

Witnesses:

ADOLF SCHATZ,
GEO. W. HAIGHT, Jr.