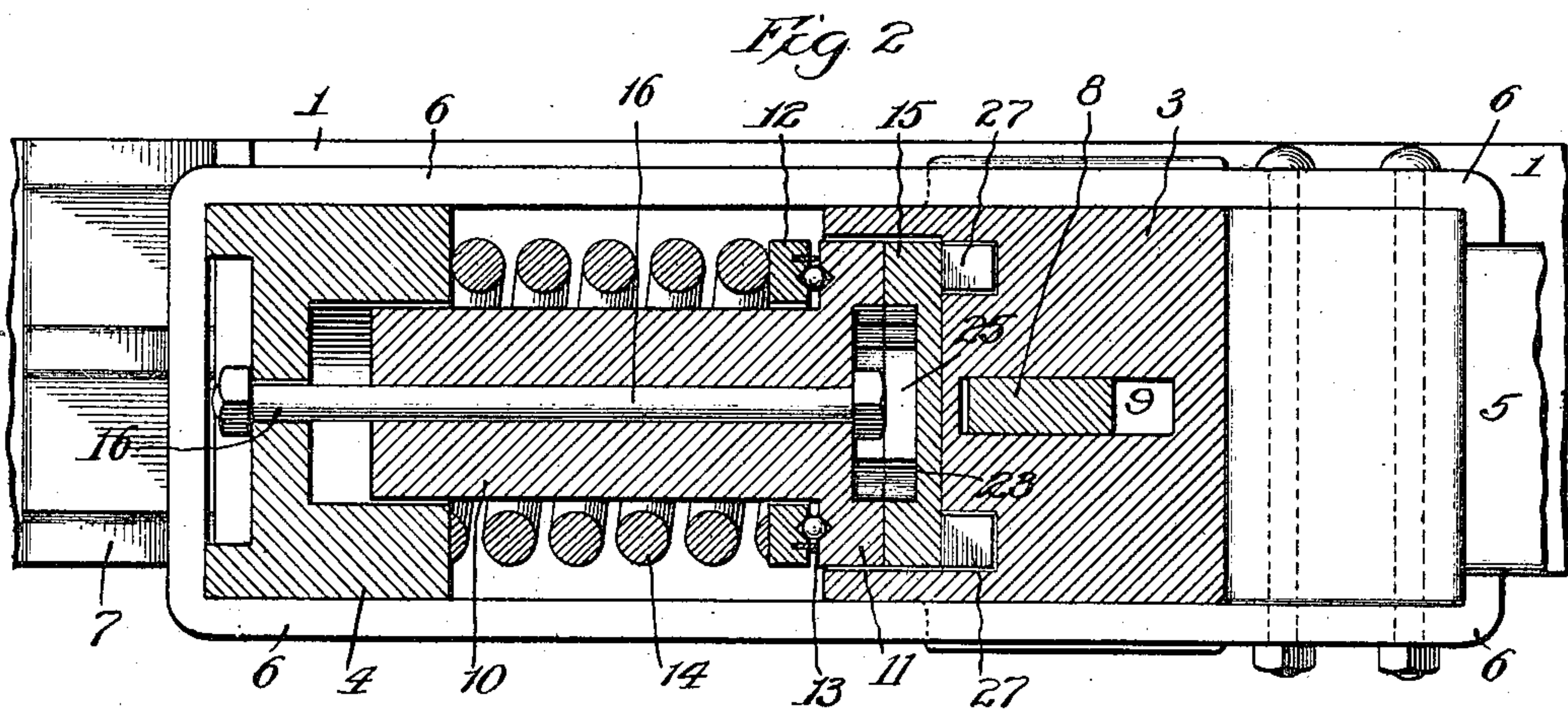
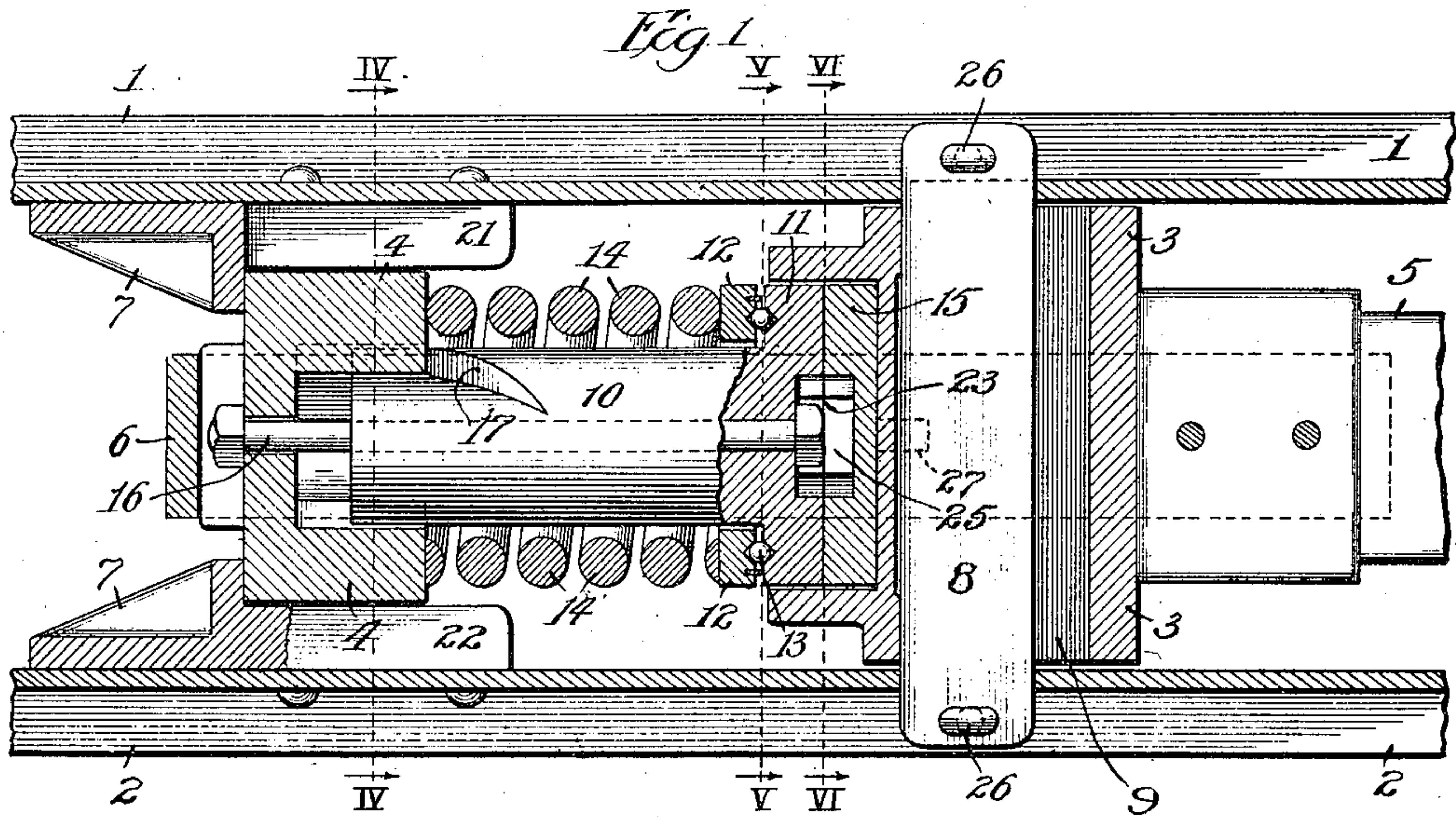


J. A. JACKSON.
 FRICTION DRAFT GEAR.
 APPLICATION FILED JAN. 13, 1909.

952,672.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.



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Fig. 3

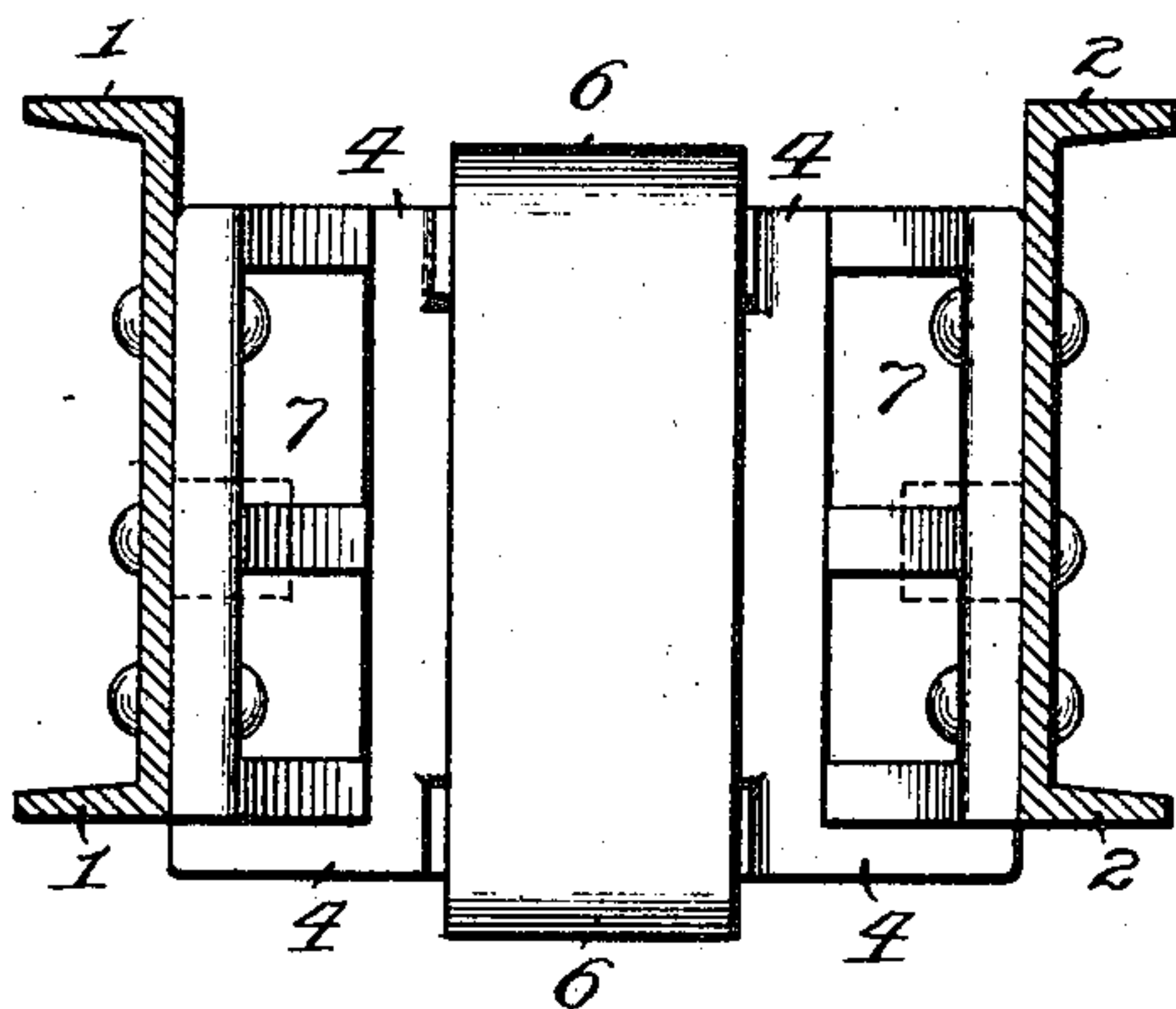


Fig. 4

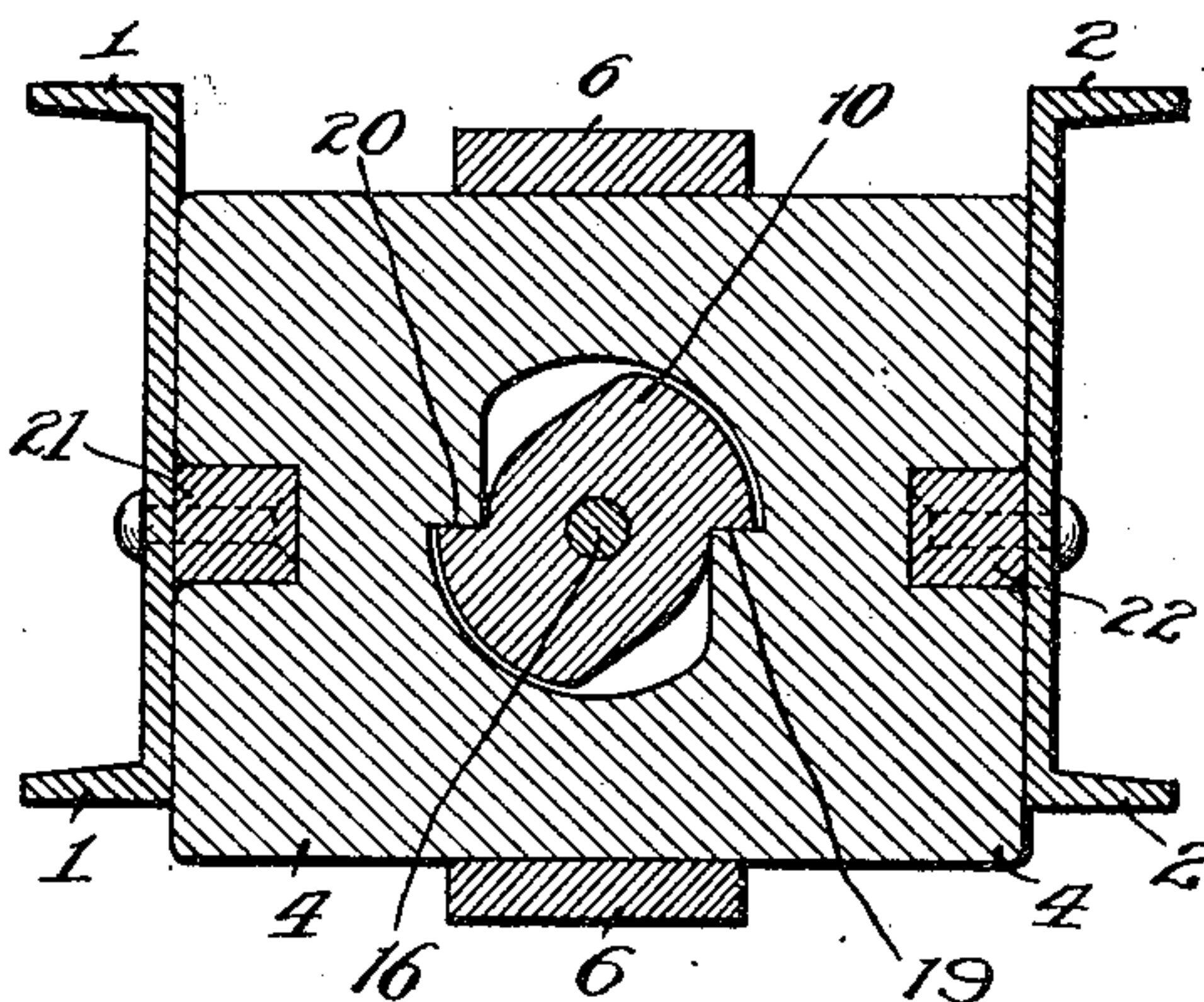


Fig. 5

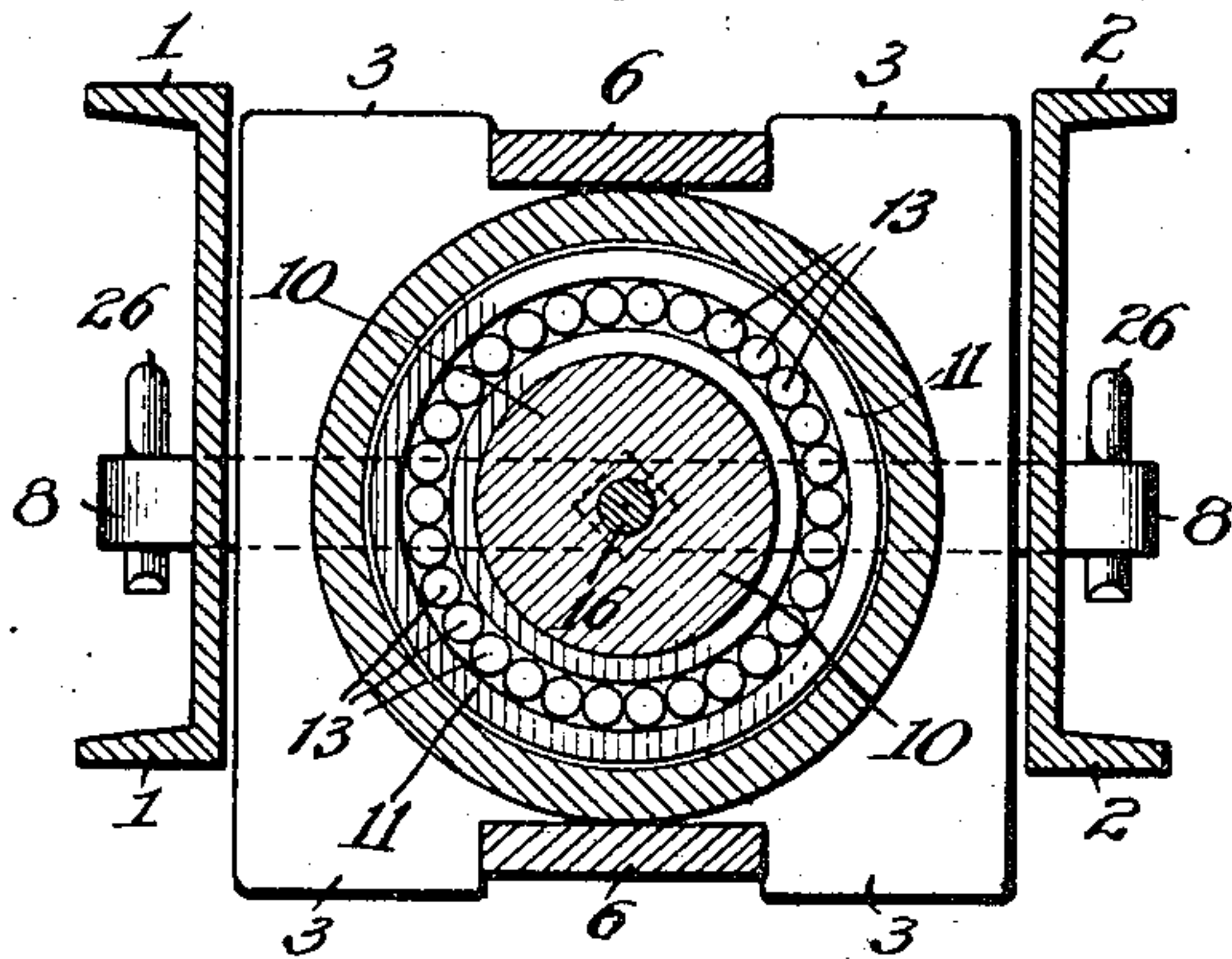


Fig. 6

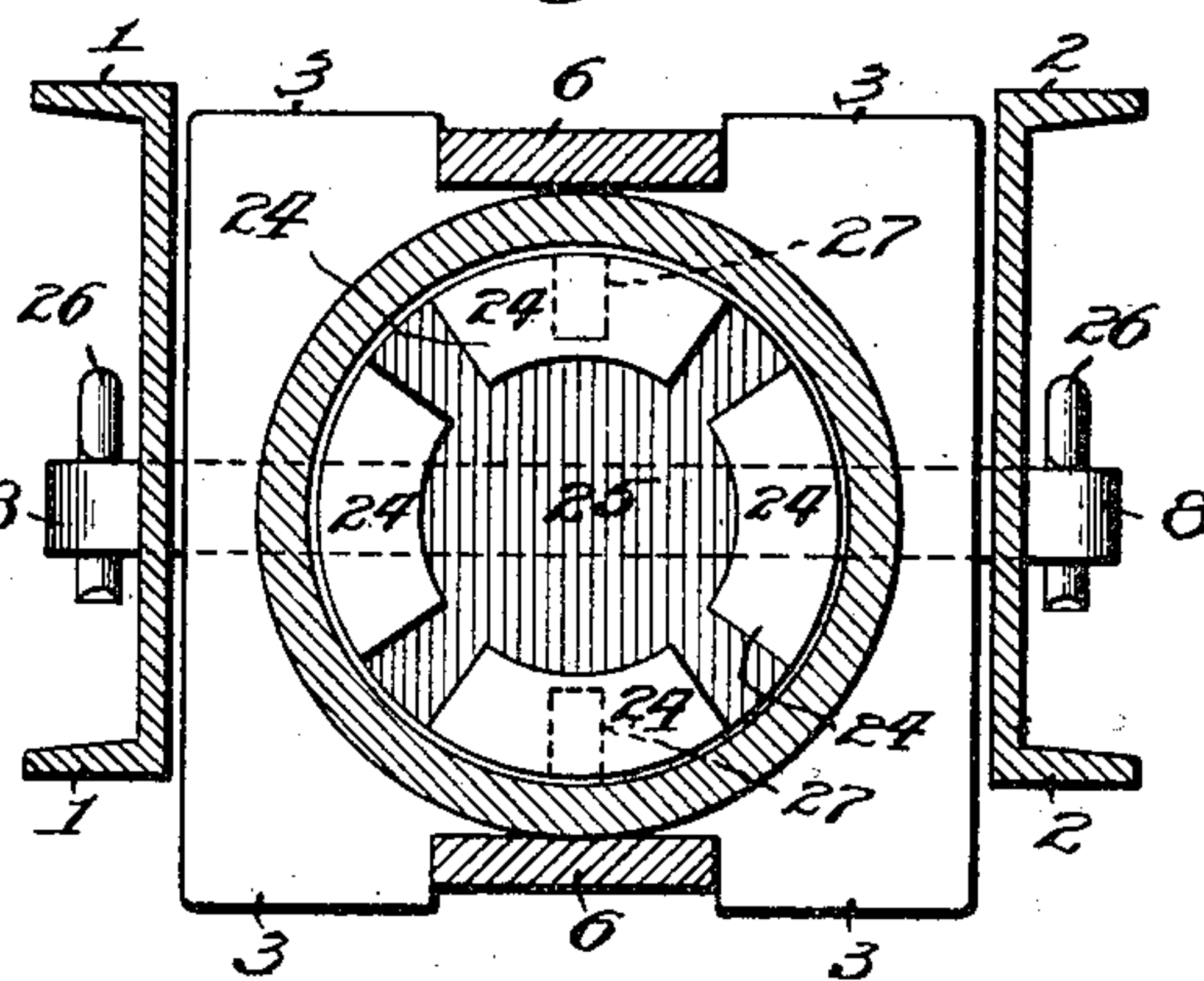


Fig. 7

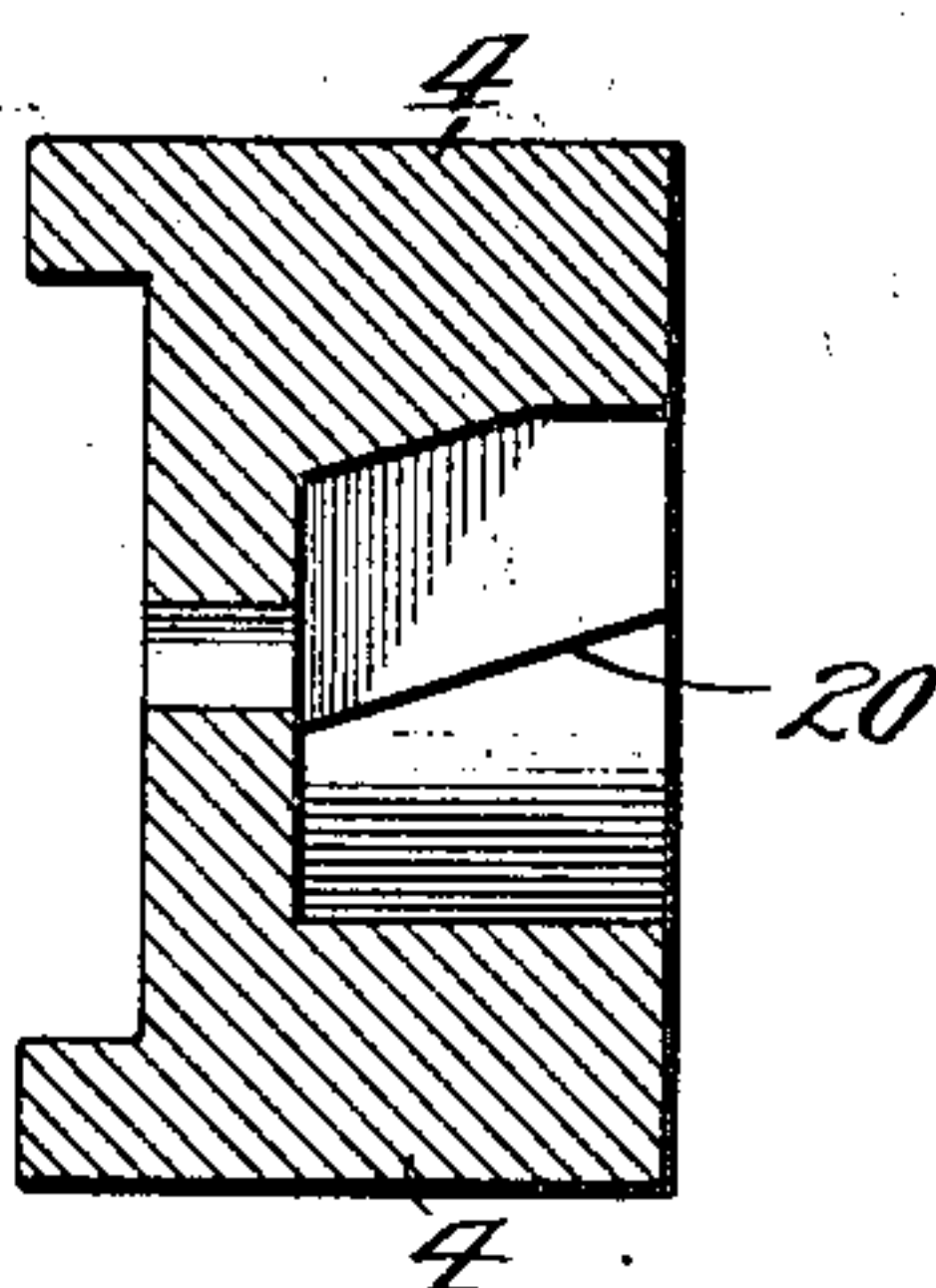
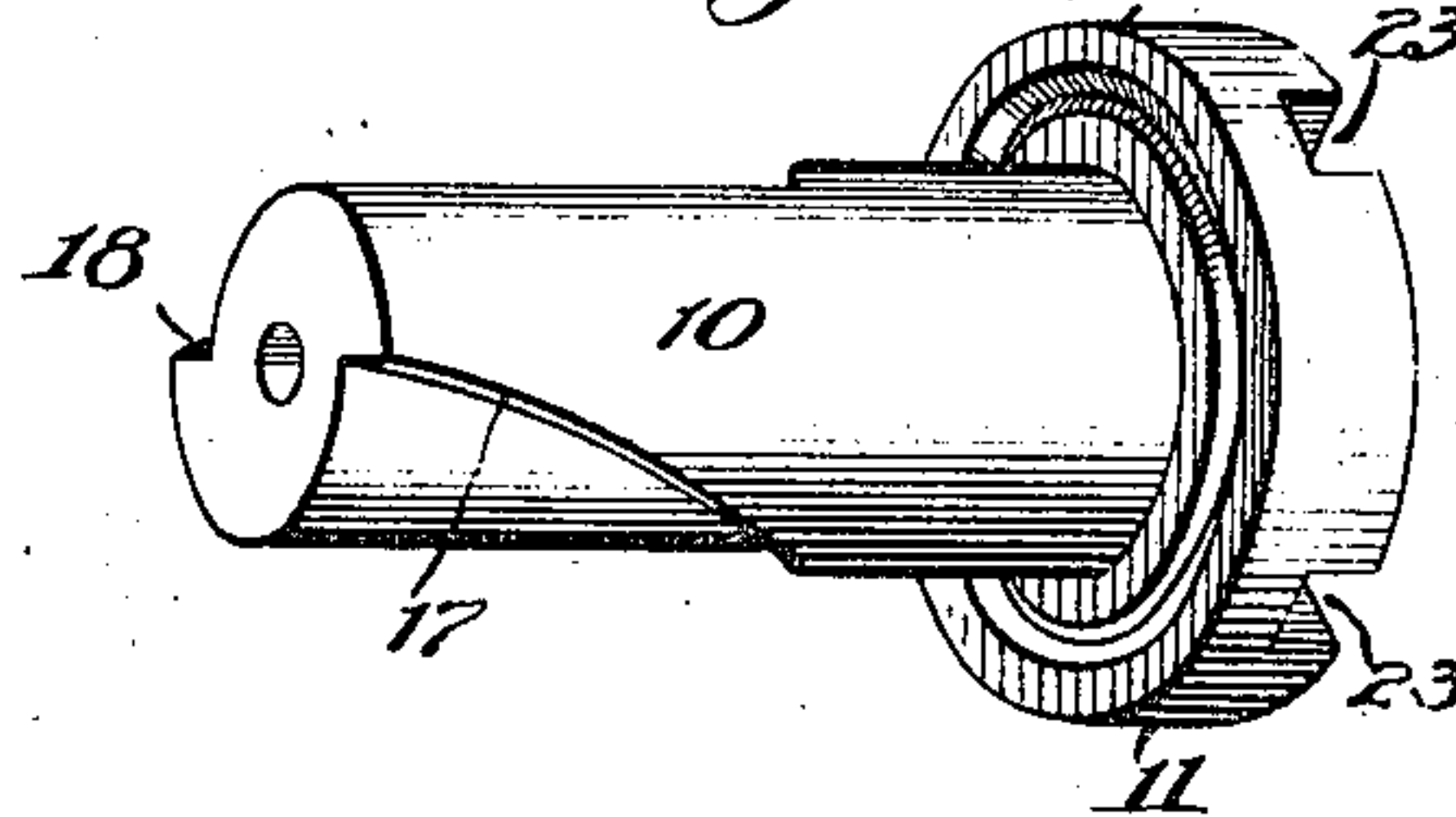


Fig. 8



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UNITED STATES PATENT OFFICE.

JOHN A. JACKSON, OF CHICAGO, ILLINOIS.

FRICTION DRAFT-GEAR.

952,672.

Specification of Letters Patent.

Patented Mar. 22, 1910.

Application filed January 13, 1909. Serial No. 472,035.

To all whom it may concern:

Be it known that I, JOHN A. JACKSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Friction Draft-Gears, of which the following is a specification.

The invention relates to friction draft gears and has for its principal objects; the provision of an improved form of draft gear wherein the necessary amount of frictional resistance is secured during a limited travel; the provision of a compact and simple gear in which the number of wearing parts is reduced to a minimum, and in which such parts are readily replaceable; the provision of a gear wherein the resistance increases directly as the travel, and in which a proper release occurs regardless of the load imposed upon the gear. One embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figures 1 and 2 are longitudinal sections through the gear taken at right angles to each other.

Figure 3 is a rear end view of the gear.

Figures 4, 5 and 6 are sections on the lines IV—IV, V—V and VI—VI of Figure 1.

Figure 7 is a longitudinal section through the rear follower, and

Figure 8 is a perspective view of what may be termed the plunger.

Referring first to the general arrangement of parts as illustrated in Figures 1 and 2, the principal parts may be enumerated as follows. 1 and 2 are the center sills between which the gear is mounted; 3 and 4 are respectively the front and rear followers mounted for reciprocation between the center sills 1 and 2; 5 is the rear end of the draw bar which is bolted to the usual strap 6 encircling the followers as indicated in Figure 2; 7 are stops bolted to the center sills for limiting the rearward movement of the rear follower 4; 8 is a stop bar for limiting the movement of the front follower 3, which stop bar is mounted in the center sills 1 and 2, and extends through a slot 9 in the front follower 3; 10 is a plunger whose rear end has what may be termed screw threaded engagement with a recess in the rear follower 4, and whose front end is provided with a head 11; 12 is a collar to the rear of the head 11, antifriction balls 13 being interposed between such collar and the head 11; 14 is a spring for forcing the plunger 10

forward; 15 is a bearing face or plate detachably secured to the head 11 in a manner to be hereinafter described; which bearing plate bears at its front side against the follower 3; and 16 is a tension rod extending through the plunger 10 and the rear follower 4 for maintaining the spring 14 under tension.

As indicated in Figures 4 and 8, the rear end of the plunger 10 is provided with semi-spiral grooves 17 and 18, which are fitted by corresponding projections 19 and 20 upon the inner recess surface of the follower 4 (Figs. 4 and 7). The rear follower 4 is kept from rotary movement by means of the blocks 21 and 22 (Fig. 4) engaging grooves in the sides of the follower, so that when the follower and plunger 10 move longitudinally with respect to each other, the plunger is caused to rotate about its axis. The head 11 of the plunger 10 is provided with frictional wearing surfaces 23 (Fig. 8), and the opposing face of the wear plate 15, which is secured to the front follower 3 by means of the lugs 27, is provided with corresponding surfaces 24 (Fig. 6) opposing the surfaces 23, so that the head and plate are adapted to rotate with respect to each other. A recess 25 is formed between the head 11 and plate 15 for the reception of the head of the tension bolt 16. The stop bar 8 is maintained in position by means of the cotter pins 26 (Fig. 6).

The operation is as follows. A buffing strain being imposed upon the draw bar 5, the front follower 3 is forced to the rear, thus forcing the rear end of the plunger 10 into the recess in the follower 4. The screw engagement between the rear end of the plunger and the follower causes the plunger to rotate as it moves to the rear, which rotary or turning movement is resisted by reason of the frictional engagement between the front face of the plate 15 and the head 11 of the plunger 10 which opposes such plate 15. As the follower 3 is moved still farther to the rear this frictional resistance is increased by reason of the increased compression of the spring 14, so that a gradually increasing resistance to the movement of the follower 3 is secured. The head 11 of the plunger is permitted to turn readily without turning the spring 14 by reason of the collar 12 and the antifriction bearing interposed between such collar and the head 11. All tendency to

wear and twist the spring 14 is thus avoided. The width of the slot 9 is such that the gear reaches its maximum capacity when the front face of the slot engages the front edge of the stop bar 8. When the buffing strain is removed and the draw bar moves to the right, the tendency of the spring is to force the head 11 and follower 3 violently to the right, but this movement is resisted because of the plunger having to turn in order to move longitudinally, so that the release is made more gradual, and the strain and jar incident to the release is materially reduced. When a pulling strain is imposed upon the draw bar 5, the action of the parts as above described is substantially the same, the only difference being that the parts are actuated by reason of the forward movement of the rear follower 4, instead of by the rearward movement of the front follower 3.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following.

1. In a draft gear, the combination with a draw bar and strap carried by the bar, of a pair of non-rotatable followers operable by the strap, an operating member having a shank exteriorly shaped to make screw engagement with one follower and a head making frictional engagement with the other, and a spring between the first follower and the head of operating member.

2. In a draft gear, the combination with a draw bar, a strap carried by the draw bar, and a pair of non-rotatable followers, one of which is recessed, operable by the strap; of a plunger intermediate the followers having a head bearing against one of the followers, a spring supported by the other follower and arranged to press the plunger forward, and cooperating means in the recess of the other follower and on the exterior of the plunger whereby the plunger is made to rotate about its axis when the followers approach each other.

3. In a draft gear, the combination with

a draw bar and strap carried by the bar, of a pair of non-rotatable followers operable by the strap, a plunger intermediate the followers having a head bearing against one of the followers, a spring supported by the other follower, an anti-friction bearing between the other end of the spring and the head of the plunger, and cooperating means on the said other follower and plunger whereby the plunger is made to rotate about its axis when the followers approach each other.

4. In a draft gear, the combination with a draw bar and strap carried by the bar, of a pair of non-rotatable followers operable by the strap, a plunger intermediate the followers having a head bearing against one of the followers, an anti-friction bearing collar at the rear of the head, a spring interposed between the other follower and the head, a tension rod extending through the plunger and said other follower and maintaining the spring under compression, and cooperating means on the said other follower and plunger whereby the plunger is made to rotate about its axis when the followers approach each other.

5. In a draft gear, the combination with a draw bar and strap carried by the bar, of a pair of non-rotatable followers operable by the strap, an operating plunger having screw engagement with one follower, a toothed disk on the end of the plunger, a wearing plate for the disk provided on its rear side with teeth adapted to oppose the teeth on the disk and bearing at its front face on the other follower, a collar at the rear of the disk, anti-friction means interposed between the collar and disk, and a spring between the first follower and the collar.

In testimony whereof I have hereunder signed my name in the presence of the subscribed witnesses.

JOHN A. JACKSON.

Witnesses:

PAUL CARPENTER,
GEO. C. DAVISON.