

No. 776,107.

PATENTED NOV. 29, 1904.

H. A. BROOKS.
ACCUMULATOR.

APPLICATION FILED OCT. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 2

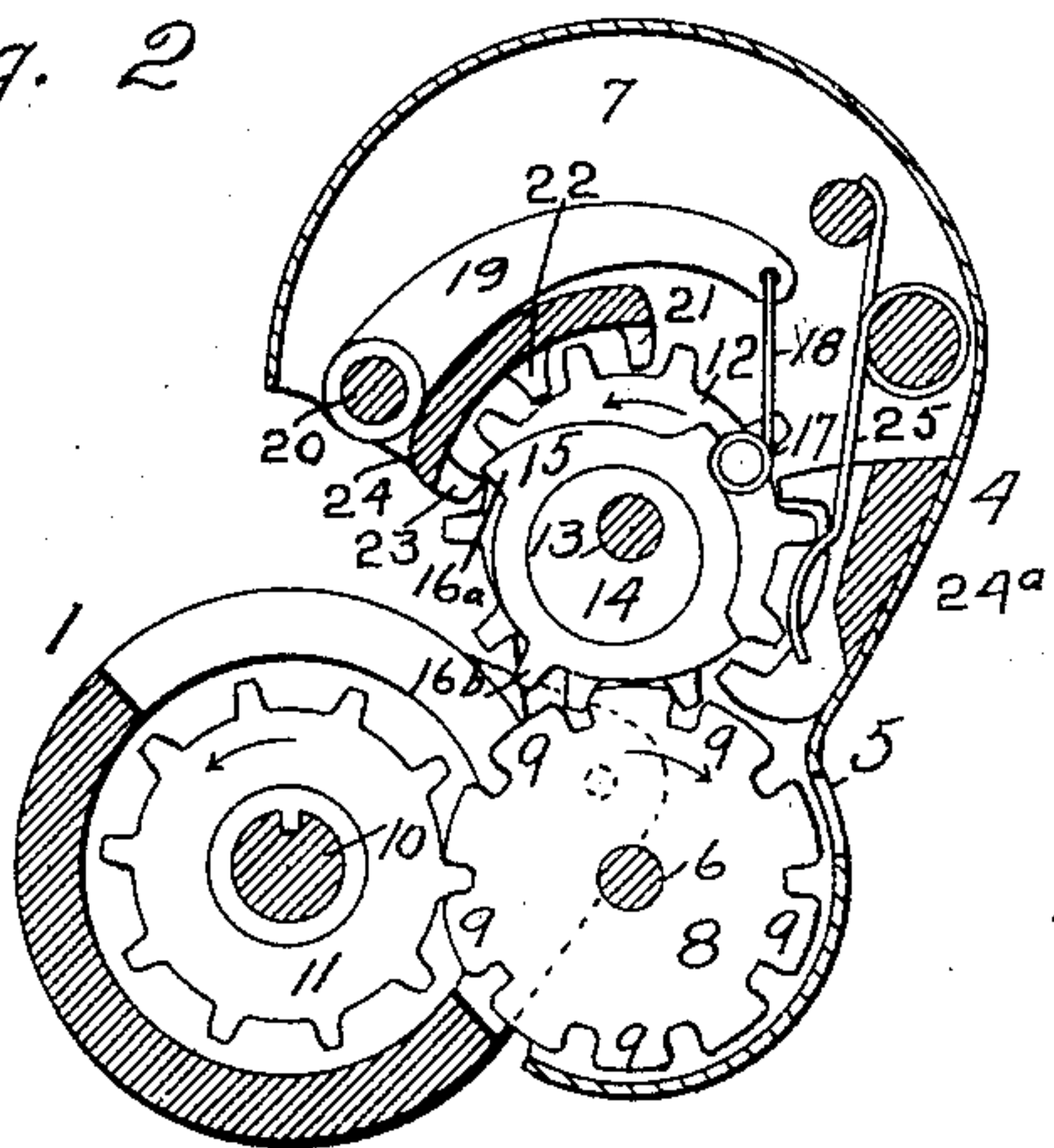
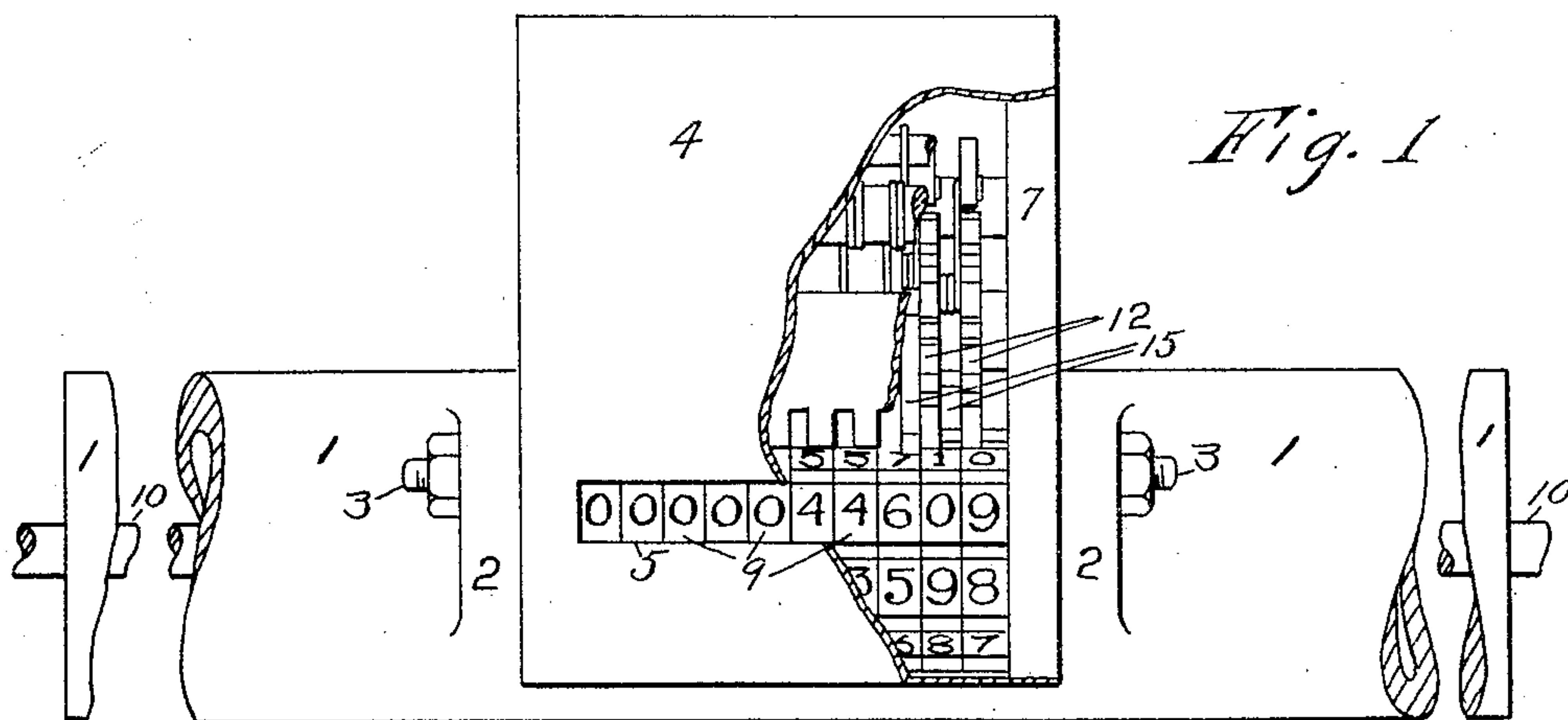
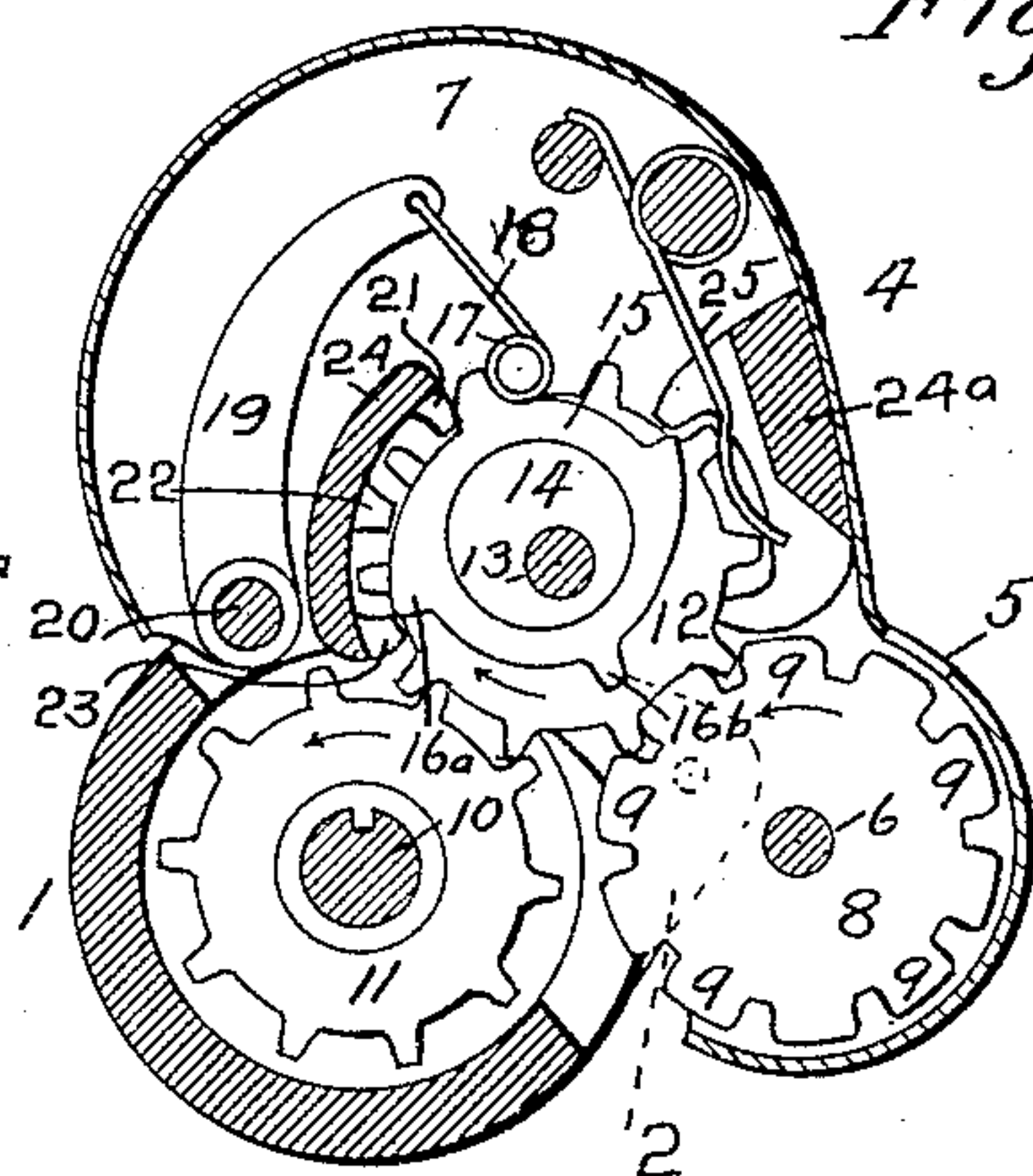


Fig. 3



Witnesses
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2 SHEETS—SHEET 2.

Fig. 4

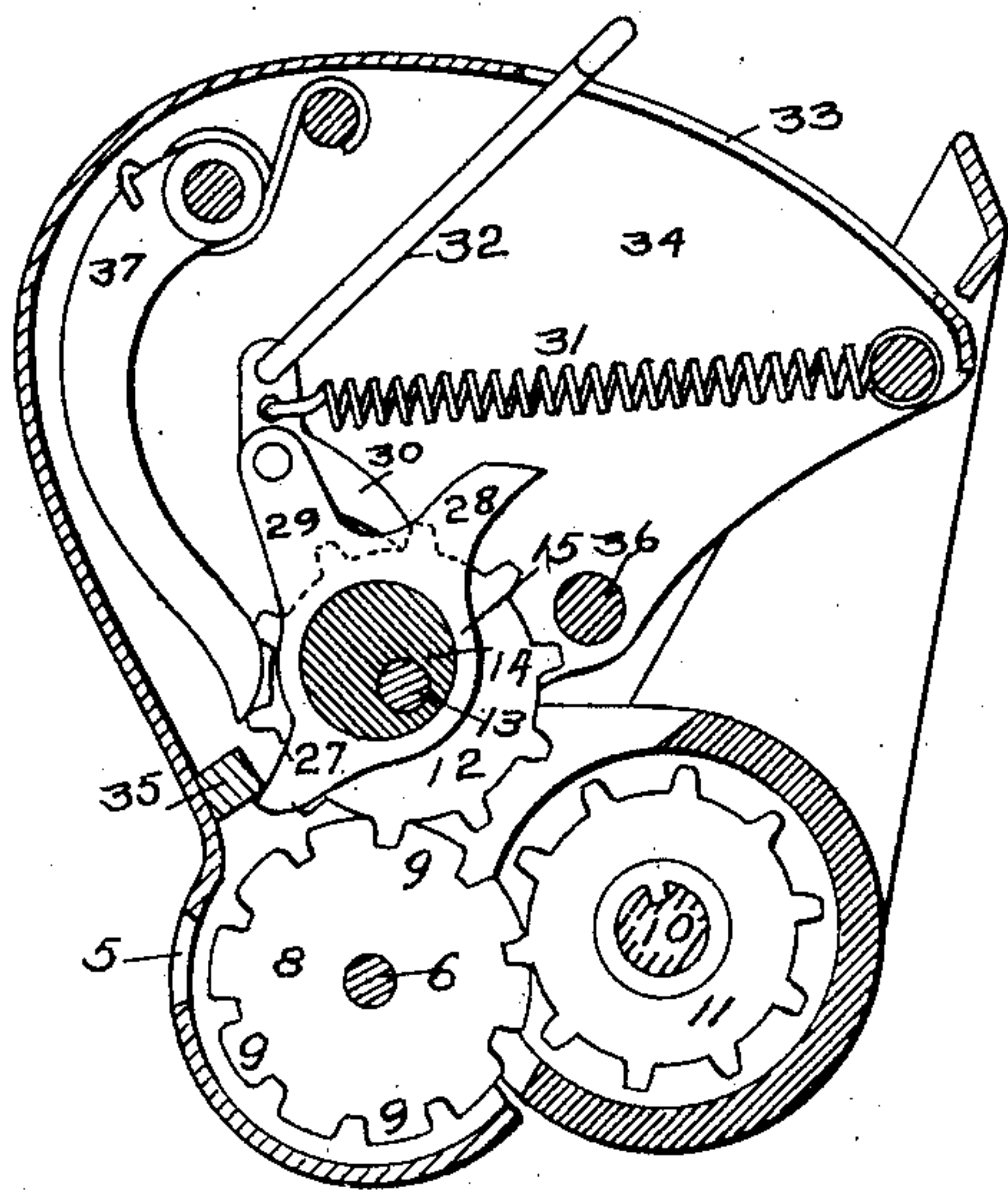


Fig. 6

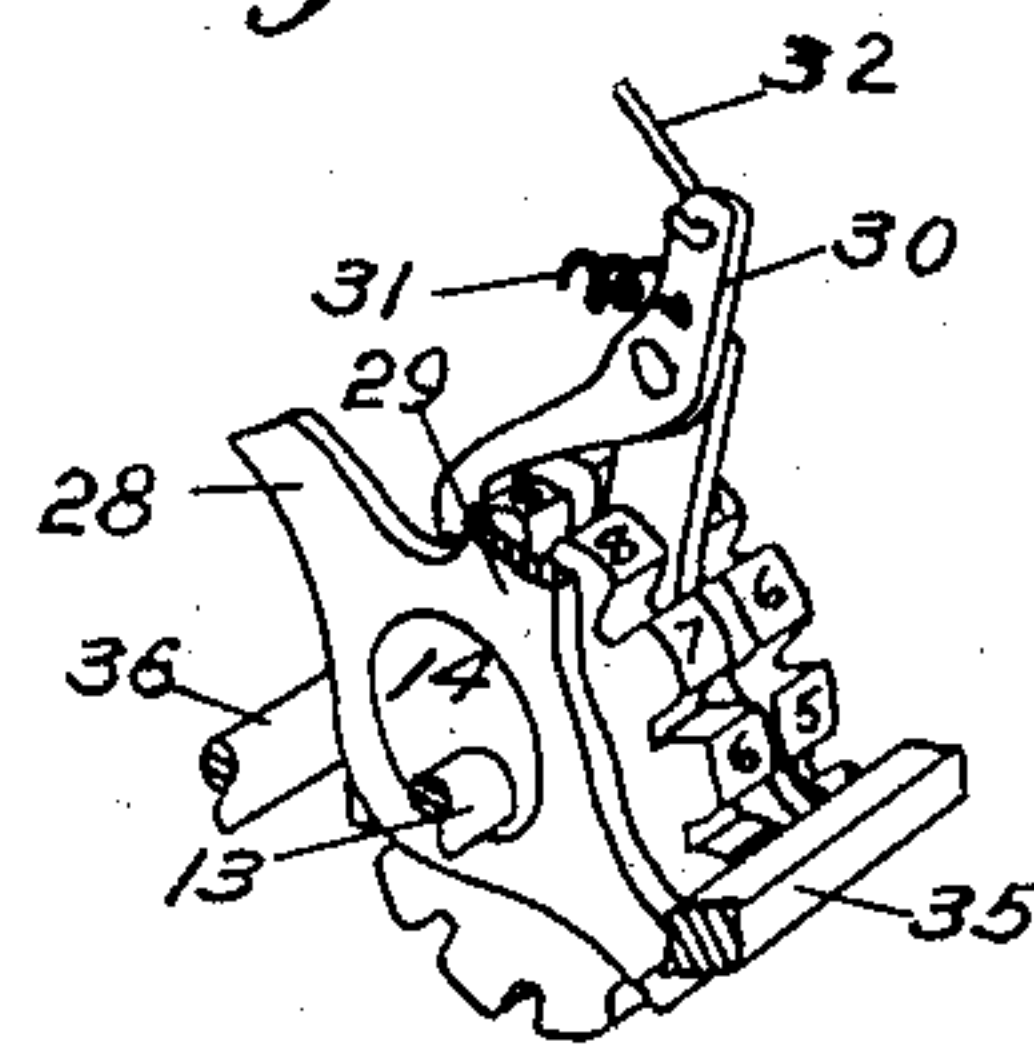
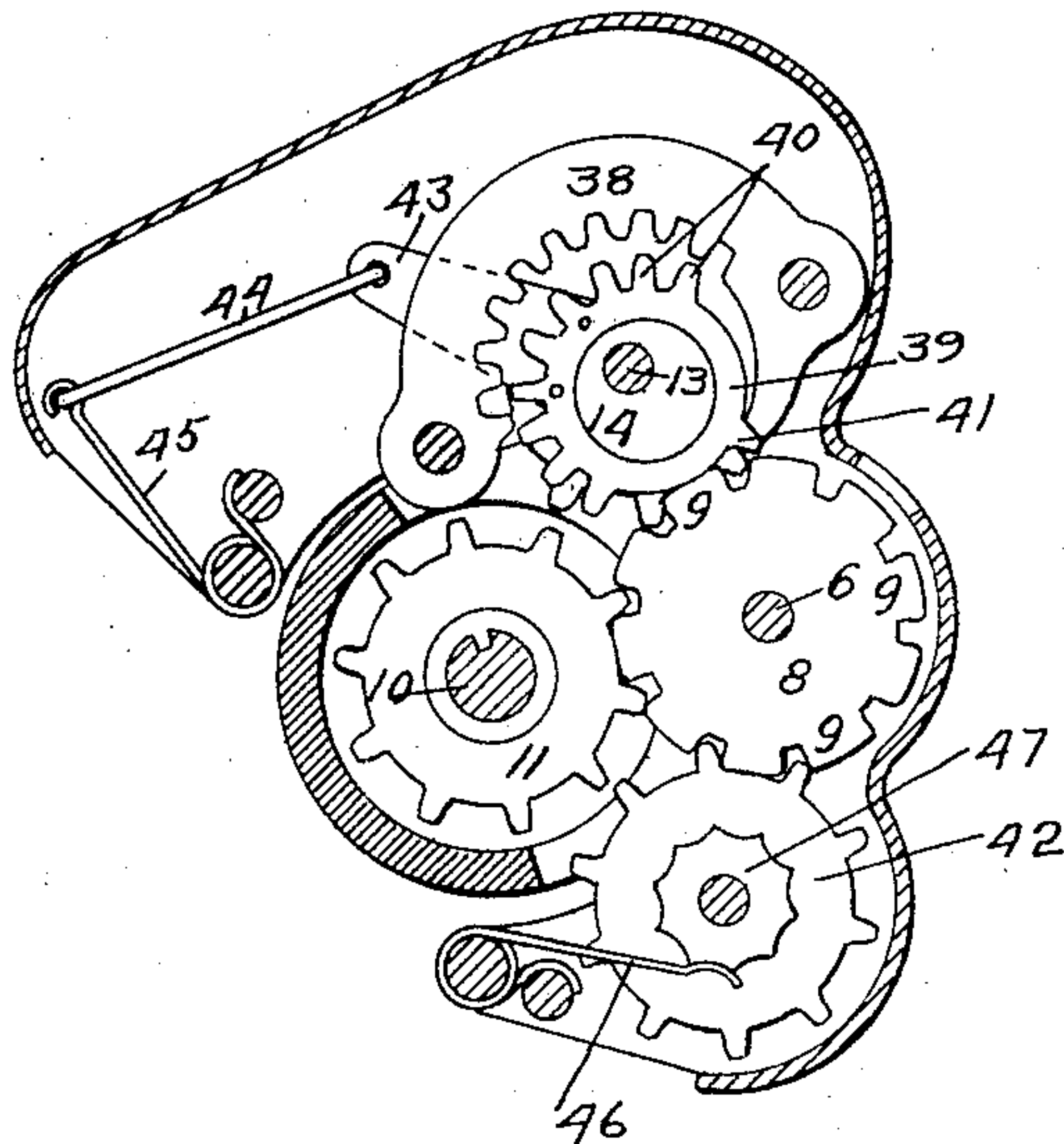


Fig. 5



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UNITED STATES PATENT OFFICE.

HARRY A. BROOKS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE ACCOUNTOGRAPH COMPANY, OF SANTA PAULA, CALIFORNIA, A CORPORATION OF CALIFORNIA.

ACCUMULATOR.

SPECIFICATION forming part of Letters Patent No. 776,107, dated November 29, 1904.

Application filed October 4, 1902. Serial No. 125,964. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. BROOKS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Accumulators; 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 calculating-machines, and particularly to accumulators for such machines; and some of the objects of this invention are to provide a device of this general character which will be simple and cheap in construction and at the same time positive and effective in operation.

It is also an object of this invention to provide an accumulator so constructed as to operate with a minimum amount of friction and one which can be run back to zero by being thrown into a reverse position.

Another object of the invention is to provide an accumulator wherein the wheels are free, so that the wheels may be rotated by the action of the drive-wheel passing from left to right.

With these and other objects in view the invention consists, essentially, in the construction, combination, and arrangement of parts substantially as more fully described in the following specification and as illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a front elevational view, partly broken away, illustrating an accumulator in position. Fig. 2 is a sectional view of the accumulator, illustrating the carrying-wheel only in engagement with the digit-wheels. Fig. 3 is a view similar to Fig. 2, showing the carrying-wheel in engagement with both the digit and driving wheels. Fig. 4 illustrates a sectional view of a modified form of construction wherein a pawl or dog is employed. Fig. 5 shows still another modification wherein an internal gear is employed, and Fig. 6 shows the carrying-wheel omitted.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawings, and particularly to Figs. 1 to 3 thereof, the reference character 1 designates a portion of a supporting frame or structure, which may be constructed with ears or lateral extensions 2, adapted to receive pivot-bolts 3, whereby the accumulator-frame 4 is pivotally mounted, said frame being preferably constructed with a transverse slot or vision-opening 5 to afford means to inspect the numbers on a certain portion of the digit-wheels, as will be readily understood. Mounted on a shaft 6, located in the ends 7 of the accumulator-frame, is a plurality of digit-wheels 8, having wide teeth 9, carrying numbers or characters, as shown in Fig. 1 of the drawings, which numbers register with the vision-opening 5. A shaft 10 is suitably mounted in the ends of the supporting-frame 1, and splined on said shaft are one or more driving-wheels 11, having teeth constructed to engage the digit-wheels 8 and the carrier-wheels 12, according to the position of the parts, as shown in Figs. 2 and 3 of the drawings. The shaft 13, whereon the carrier-wheels are mounted, also passes through an eccentric 14, formed on or connected with each of the carrier-wheels 12, and on the eccentric 14 is mounted an eccentric-strap 15, having teeth, and on said strap is mounted the helix or coil 17, attached to one end of a curved arm 19, pivotally mounted at the other end thereof on a shaft 20, and a segmental plate 24 is rigidly mounted within the accumulator-frame 4 and is preferably provided with teeth 21, 22, and 23, substantially as shown. It will be understood that there is a plurality of wheels on each of the shafts and that each set of wheels occupies the same transverse plane of the shaft, so as to intermesh by the operation of the parts, and that any number of wheels may be employed and that any characters may be placed upon the teeth of the digit-wheels; also, that the entire construction may be inclosed in a partially transparent casing,

only enough of the oscillating case being retained to hold the working parts in position. The carrier-wheels 12 and the digit-wheels 8 mesh, and the digit-wheels are driven by the driving-wheels 11, as in Fig. 2, except in reversing position, when the carrier-wheels 12 are driven directly by the driving-wheels 11, and the carrying-wheels operate the digit-wheels substantially as shown in Fig. 3, and every rotation of the carrier-wheels 12 moves a succeeding digit-wheel to the left one space through the mediation of the eccentric 14, the eccentric-strap 15, and the teeth.

The operation of the construction illustrated in Figs. 1, 2, and 3 will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following explanation thereof. The accumulator-frame is oscillated so that the driving-wheel 11 meshes with the digit-wheel 8, which in turn is in mesh with the carrying-wheel 12, and when in this position the shaft 10 of the driving-wheel is operated in any suitable manner, (not shown,) so that the driving-wheel 11 is turned to the left, as indicated by the arrow on said wheel in Fig. 2 of the drawings, thereby turning the digit-wheel 8 to the right, which in turn rotates the carrying-wheel 12 to the left, the latter wheel being retained against accidental movement by a spring-brake 25. By the rotation of the carrier-wheel to the left the teeth of the eccentric-strap 15 being opposed by the teeth on the segmental pieces, the eccentric-strap 15 is rotated around its axis to the right, thereby tensionizing or winding the spring 17 until the rotation of the eccentric 14 draws the tooth 16^a out of engagement with the tooth 23 of the segmental plate 24, permitting the spring 17 to rotate the eccentric-strap 15 to the left, when the tooth 16^b thereon, engaging the teeth of the digit-wheel of the next higher order, rotates such digit-wheel one place. When it is desired to return the digit-wheel to zero, the accumulator-frame 4 is thrown into the position indicated in Fig. 3, whereby the digit-wheel is thrown out of mesh with the driving-wheel 11, and the carrier-wheel 12 is thrown into engagement therewith. The driving-wheel 11 being rotated as before to correspond to the number indicated by the digit, the latter is rotated in a contrary direction to the normal one, thereby bringing the zero character to the opening 5 in the accumulator-frame. Should a greater rotation be given than required to bring the digit-wheel to zero, the tooth 16^a of the eccentric-strap will be carried under the tooth 22 on the segmental plate 24, and a further rotation to the right of the carrier-wheel will bring these two teeth into contact, thereby preventing further rotation of the digit-wheel to the left.

Referring now to the construction illustrated

in Fig. 4, there is shown the eccentric-strap 15, carrying arms or projections 27, 28, and 29, the latter supporting a dog 30, normally projected by a spring 31 and being connected with a releasing-rod 32, extending through a slot 33 in the casing 34 of the accumulator, and the arms 27 and 28 are constructed to abut, respectively, against stop-bars 35 and 36 during the rotation of the eccentric 14, and the dog 30 being in engagement with the teeth of the carrying-wheel 12 will rotate said wheel one notch or progression upon every revolution of the eccentric 14. In order to prevent the carrier-wheel 12 from rotating too far, a spring-actuated brake-arm 37 may be suitably mounted within the casing, so that the extremity thereof bears against the carrier-wheels. The construction of the accumulator-casing 34 is similar to that before described and shown in that it is pivotally mounted, so as to oscillate in relation to the driving-shaft 10. The operation of this construction is substantially similar to that before described, and further explanation thereof will not be required.

In Fig. 5 of the drawings there is illustrated still another construction, embodying an interrupted internal segment-gear 38, with which operates an eccentric-strap 39, having a plurality of teeth 40, constructed to mesh with the teeth on the internal gear, and the eccentric-strap 39 is desirably provided with a tooth 41, adapted to perform the same function as the tooth 16^a on the eccentric-strap 15 in the construction first described. The eccentric-strap 39 is desirably provided with an arm 43, connected by a link 44 with a spring 45, whereby said strap is retracted upon every rotation of the eccentric 14, as will be readily understood. The function of the wheel 42 is to rotate the digit-wheel in the contrary direction when the accumulator-frame is oscillated to bring it into mesh with the driving-wheel 11, and the spring 46 bears against the brake-wheel 47 for the same purpose as before described in relation to the spring 25.

It is not desired to confine this invention to the specific construction, combination, and arrangement of parts herein shown and described, and the right is reserved to make all such changes in and modifications of the same as come within the spirit and scope of this invention.

I claim—

1. An accumulator provided with digit and carrying wheels, eccentrics on the shaft of the latter wheels, eccentric-straps on said eccentrics having separate teeth to respectively engage and progress the digit-wheels and to engage stops.

2. An accumulator provided with a shaft carrying an eccentric, straps mounted on said eccentric, projections on said strap, whereby said eccentric-strap is given a partial rotation

in a contrary direction to that of said eccentric
to tensionize the spring and is released by
further rotation of said eccentric, teeth or
pawls on said strap, whereby digit of next
5 higher order is progressed on said release.

In testimony whereof I have signed my name
to this specification, in the presence of two sub-

scribing witnesses, at Los Angeles, in the
county of Los Angeles and State of California,
this 22d day of September, 1902.

HARRY A. BROOKS.

Witnesses:

J. W. KEMP,

L. B. ALDERETE.