

(No Model.)

2 Sheets—Sheet 1.

C. SNYDER.

TALLY REGISTER FOR GRAIN MEASURERS.

No. 528,817.

Patented Nov. 6, 1894.

Fig. 1.

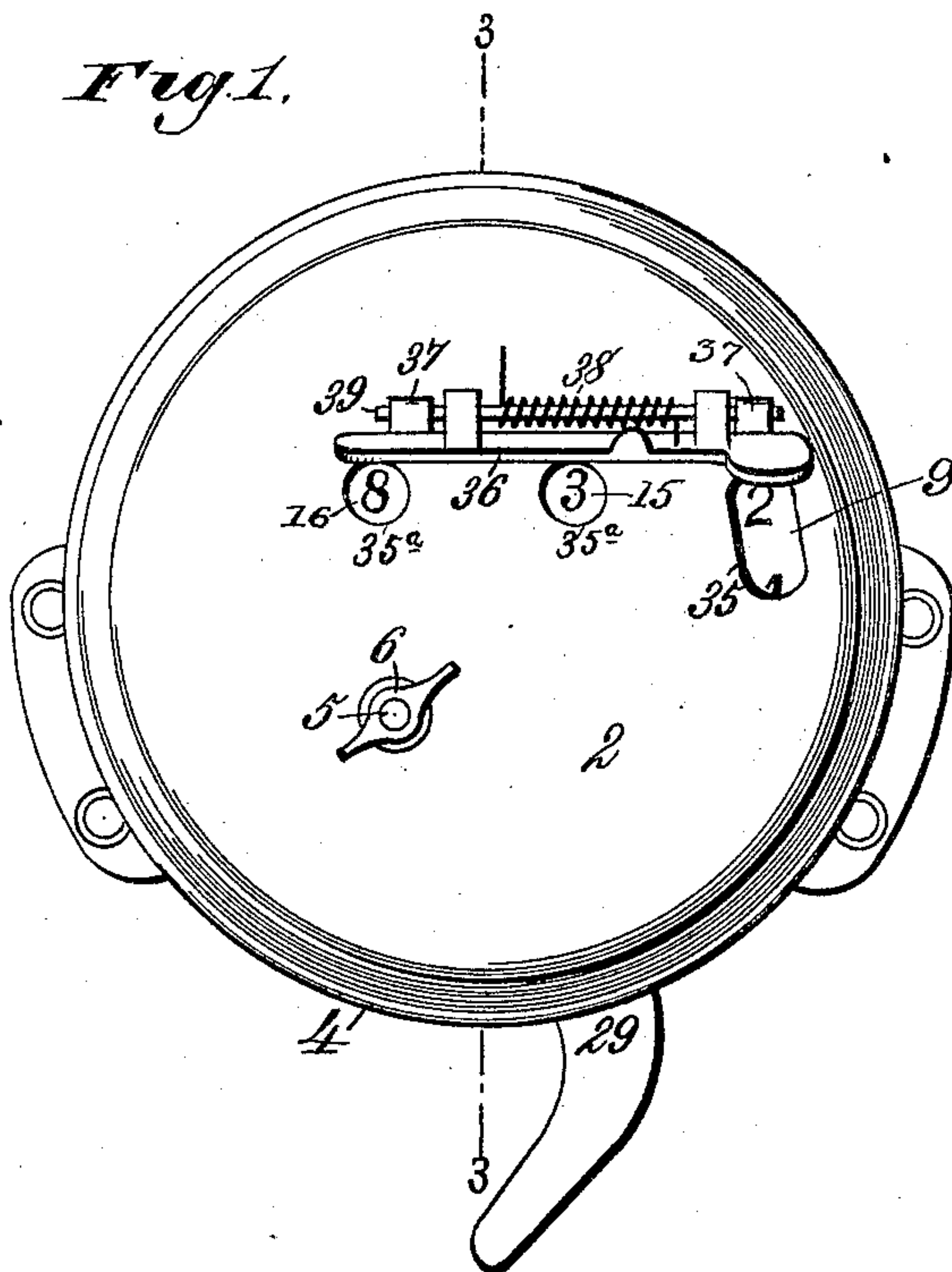
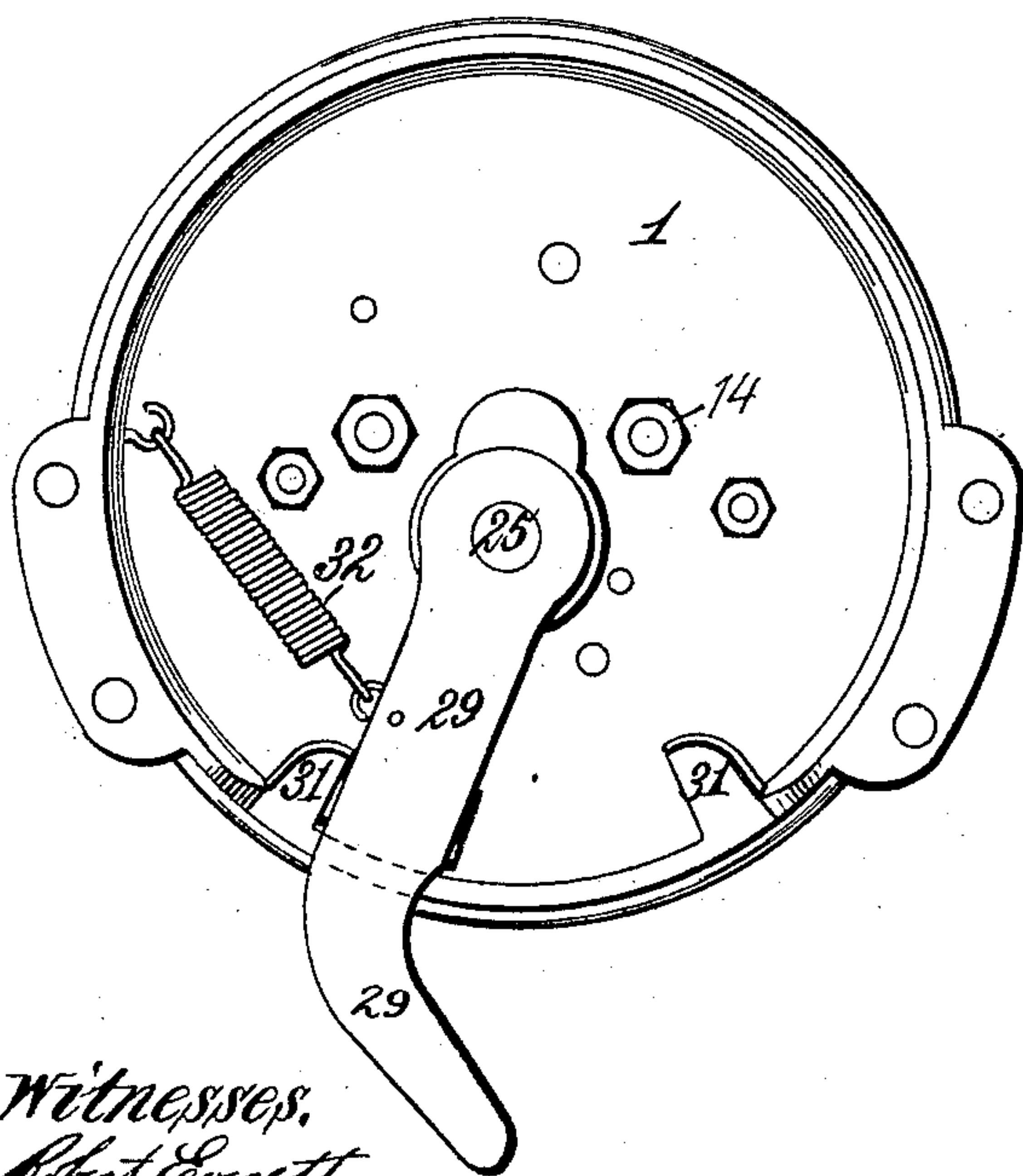
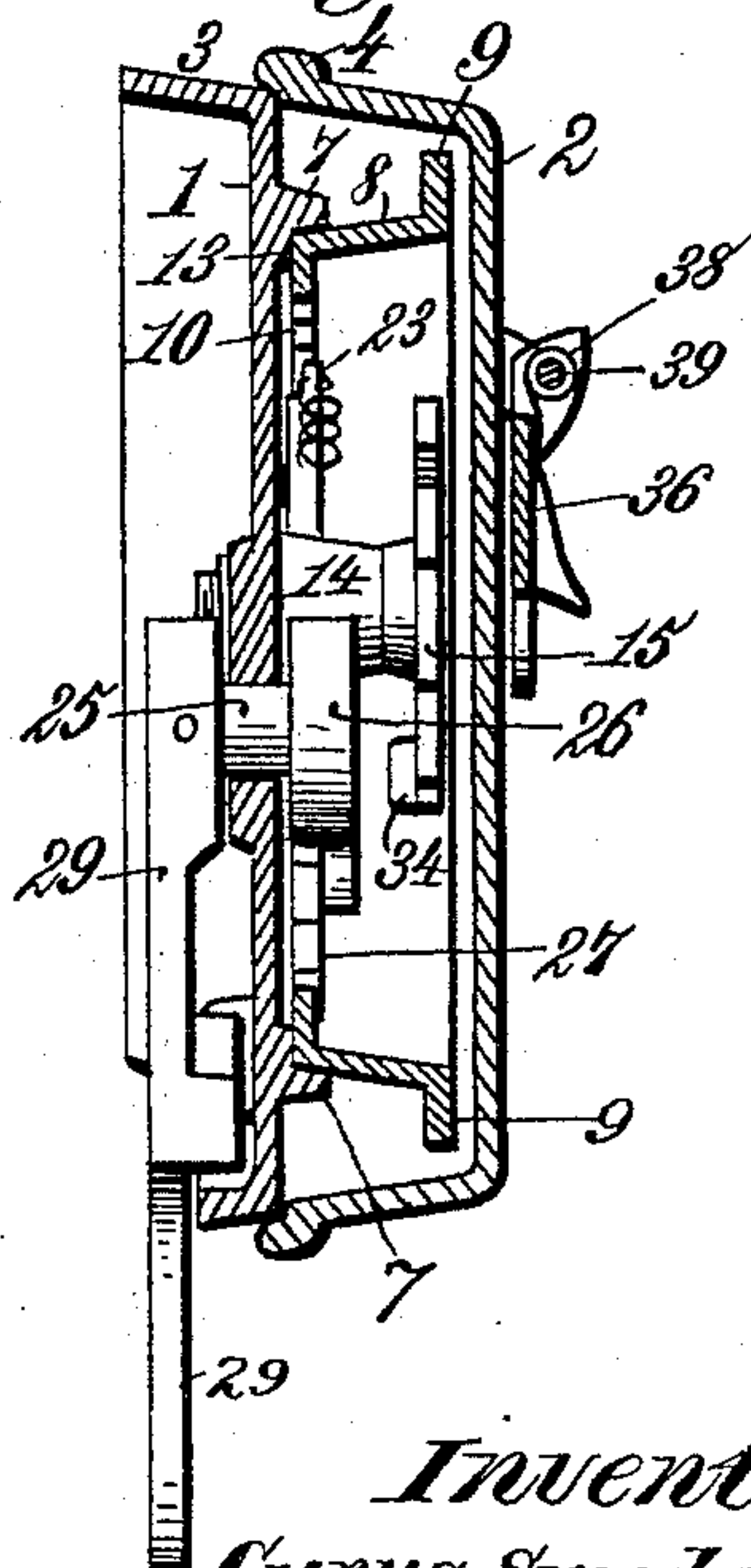


Fig. 2.



Witnesses,
Robert Everett,
Thos. A. Green

Fig. 3.



Inventor:
Cyrus Snyder.
By *James L. Norris.*
Atty.

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2 Sheets—Sheet 2.

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Fig. 4.

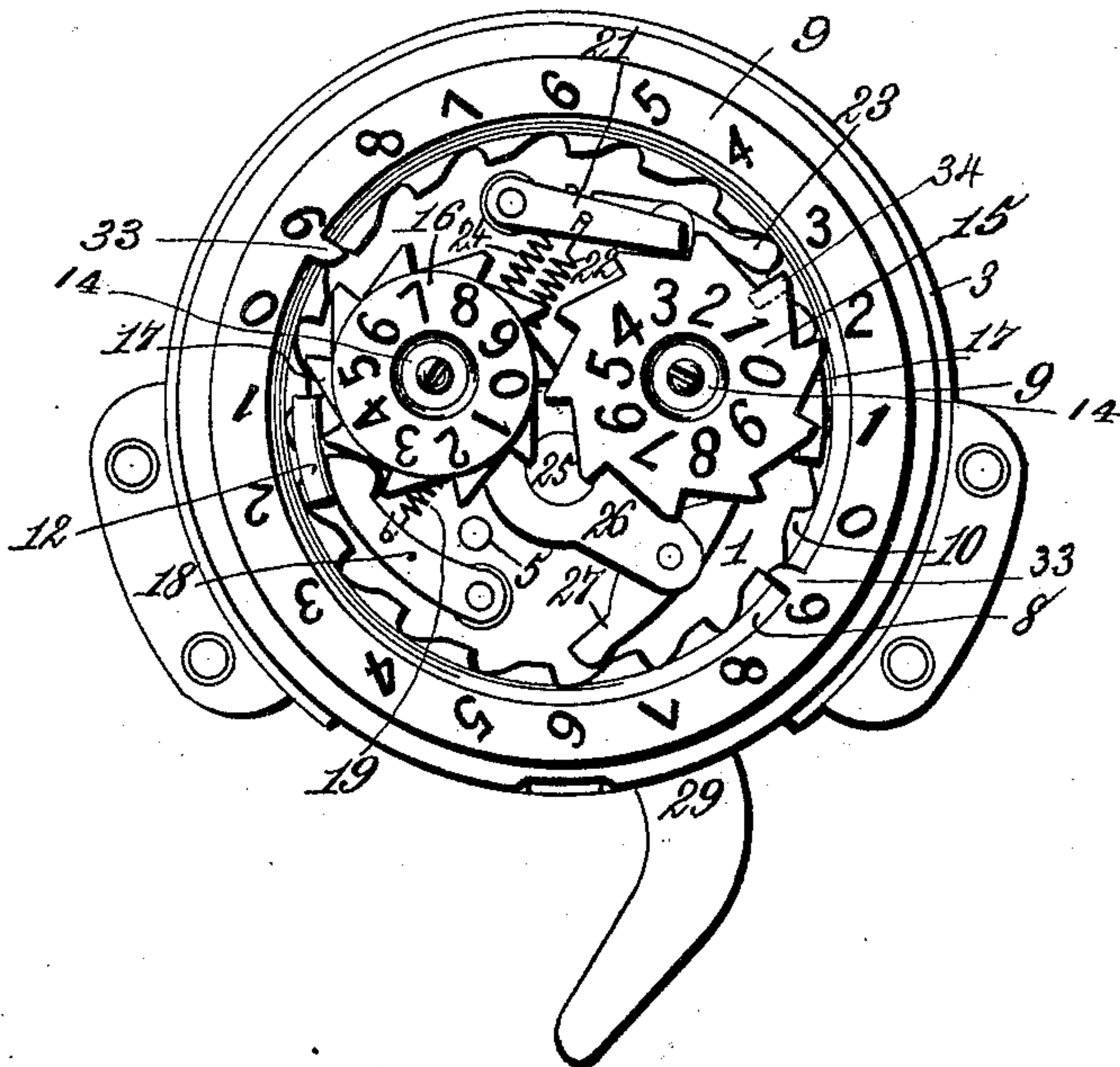
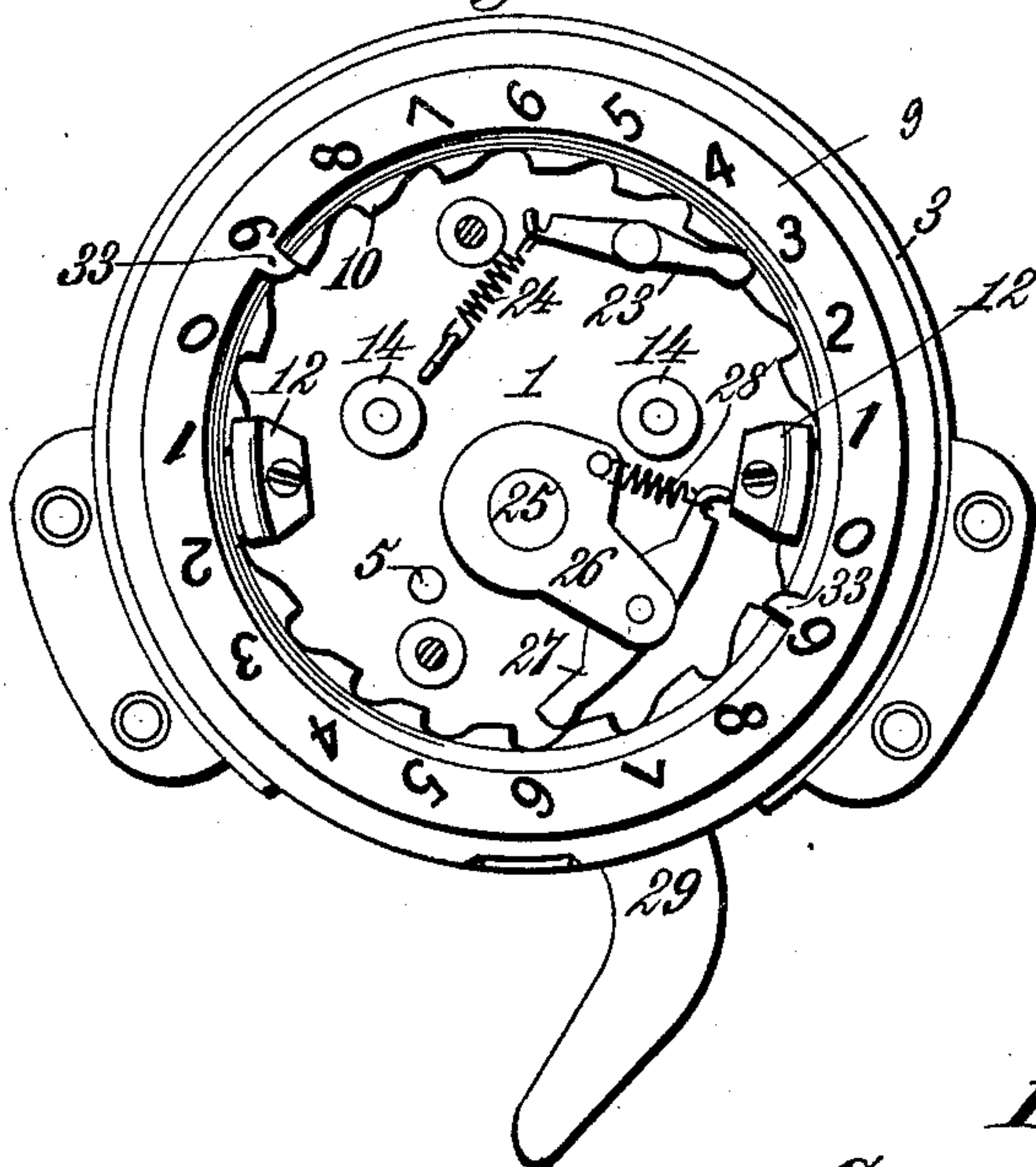


Fig. 5.



Witnesses.

Robert Everett,

Thos. A. Green

Inventor:

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By

James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

CYRUS SNYDER, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE ADVANCE
THRESHER COMPANY, OF SAME PLACE.

TALLY-REGISTER FOR GRAIN-MEASURERS.

SPECIFICATION forming part of Letters Patent No. 528,817, dated November 6, 1894.

Application filed November 15, 1893. Renewed October 1, 1894. Serial No. 524,678. (No model.)

To all whom it may concern:

Be it known that I, CYRUS SNYDER, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented new and useful Improvements in Tally-Registers for Grain-Measurers, of which the following is a specification.

My invention relates to tally-registers for grain-measurers and other mechanism.

It is the purpose of said invention to provide a registering apparatus of this type which shall be simple and inexpensive in construction, require the minimum number of operative parts, and have accurate operation automatically produced by the discharge of the filled measure.

It is my purpose, also, to simplify and improve the construction and operation of this class of registers and to provide an apparatus which shall be capable of use with grain measures of different kinds, or other mechanism of an analogous character.

My invention consists in the novel features of construction and in the new combinations of parts hereinafter fully described and then more particularly pointed out in the claims.

To enable others skilled in the art to which my said invention pertains to fully understand and to make, construct, and use the same, I will describe said invention in detail, reference being had to the accompanying drawings, in which—

Figure 1, is a front view, or face elevation of a tally-register constructed in accordance with my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a diametrical section of Fig. 1, upon the line 3—3. Fig. 4 is a face view of the same, the cap-plate being removed to show the interior mechanism. Fig. 5 is a similar view, certain portions of the mechanism being removed.

In the said drawings the reference numeral 1 indicates the base, and 2 the cap or covering plate, which parts constitute a shell or casing, within which the operative parts are contained.

The base 1 consists essentially of a flat disk having an outwardly turned flange 3, while the cap 2 is dish-shaped, the edge of its flange 4 seating upon the base at the circumferen-

tial angle formed by the flange 3. It is held in place by a post 5 which projects from the inner, or front face, of the base 1 and passes through an aperture in the cap, or covering plate, and receives a nut 6 upon its outer end.

Projecting from the flat front face of the base 1, at a point a little within its margin, is a concentric rib 7, within which is arranged an annulus 8, its form approximating that of a hollow cone, truncated near its base, the truncated end being seated within the circular rib 7. Upon the outer edge of said annulus is formed, or mounted, an outwardly turned, narrow flange 9, the flat, outward face of which is substantially parallel with the front face of the base 1. Upon the truncated end of the annulus is formed a narrow flange which is turned inward and serrated, to form ratchet-teeth 10. The annulus 8 is held in place by angular keepers 12, screwed to the base 1 and overlying the serrated flange as shown in Fig. 5. To diminish friction and permit said annulus to turn freely in its seat within the rib 7 the front face of the base is countersunk, or removed, leaving a narrow circular shoulder 13 upon which the annulus has its seat.

Within the annulus 8 are arranged two posts, or studs 14 lying within a chord of the circle described by said annulus. Upon these posts are journaled two register-disks, or wheels, 15 and 16, their flat, outer faces lying in or substantially in the same plane with the corresponding face of the flange 9 of the annulus 8. Upon each of the register-disks are formed ratchet-teeth 17, those upon the disk 15 being arranged in a different plane from those upon the other disk, in order that they may turn independently and without the teeth colliding. The ratchet-teeth upon one disk are cut in the opposite direction to those upon the other. Back-lash, or retrograde motion, is prevented by means of a hook-pawl 18, which is held by a spring 19 in engagement with the teeth of the disk 16, and a straight pawl 21, thrown by a spring 22 into mesh with the oppositely cut teeth of the disk 15. A similar holding-pawl 23, actuated by a spring 24 (Fig. 5) prevents the annulus from movement, save in one direction only.

Intermittent rotary movement is imparted

to the annulus 8 by the following means. Upon a wrist, or pivot 25, slightly removed from the center of the base 1, is fulcrumed a lever 26, upon the end of which is pivotally mounted a push-pawl 26 (Fig. 5) which is thrown by a spring 28 into mesh with the ratchet-teeth 10 of the annulus 8. The wrist, or pivot 25, projects through the base 1 and upon its rearward end receives an actuating lever 29, rigidly mounted upon said wrist and having its free end projected beyond the periphery of the casing. The swing of this actuating lever is limited by two lugs 31, (Fig. 2) formed upon the rearward face of the base 1, the flange 3 thereof being cut away, or removed, to permit the movement of the lever. The latter is returned to normal position, after each operative movement, by a spring 32, of suitable strength. The size of the teeth 10 of the annulus 8 and the swing of the lever 26 are so adjusted, relatively to each other, that at each movement of the said lever the annulus is advanced a distance corresponding to a single tooth thereon.

Upon the inner edge of the flange 9 of the annulus 8 is formed a projecting lug, or tooth 33, which, at stated intervals, engages one of the ratchet-teeth 17 upon the register disk 15, thereby advancing the latter far enough to bring the next tooth 17 into the path of the lug 33 when it again arrives at the point of engagement. Upon the register-disk 15 is formed or mounted a projecting tooth, or lug 34, in such position that, at each complete rotation of said disk 15, it will engage one of the ratchet teeth upon the disk 16, and advance the latter.

Upon the flat outer face of the flange 9, on the annulus 8, are formed, mounted, or otherwise represented, two series of figures, each series comprising the nine digits, from 1 to 9, inclusive, in their order, together with a cipher following the last figure of each series. The figures in both series are separated by substantially equal intervals, corresponding to the interval of separation between the successive ratchet teeth 10 on the annulus. In the cap, or covering-plate 2 is formed an opening 35, which is constructed to exhibit one or more of the figures upon the flange 9 of the annulus. If the opening is elongated as shown it is possible to inspect two of the figures, thus placing the unit of the preceding registration in view, but the particular shape of the opening 35 is immaterial. At suitable intervals, also, apertures 35^a are cut, or otherwise formed in the covering-plate 2, in a line parallel with the chord passing through the centers of the disks 15 and 16, whereby the separate figures upon said disks are displayed as they are turned.

Inasmuch as two series of digits are placed upon the flange 9, two lugs, or teeth 33, are provided arranged diametrically opposite each other upon the inner edge of the said flange 9, whereby two separate, successive

movements of the register-disk 15 are produced during a single rotation of the annulus 8. By thus duplicating the series of digits upon the flange 9, the intermittent movements of the annulus may be largely reduced in extent, and the register can be made very compact securing ample room for large and conspicuous digits. It is evident that, in the same manner, I may employ more than two series of digits, by merely reducing the interval between the ratchet-teeth to correspond with that between the said figures, and providing a lug, or tooth 33, at the end of each series of digits.

The figures upon the flange 9 of the annulus occupy the place of units, in the numerical notation. Those upon the disk 15 occupy the place of tens, and those upon the disk 16 stand in the place of hundreds.

The apertures in the covering-plate 2 are normally concealed by a blind 36, pivoted upon lugs 37 and closed down by a spring 38, coiled upon the pivot-pin 39.

The particular form of the projecting end of the actuating lever 29 may, and preferably will, be changed to adapt the register to be used with different forms of grain, or other measures.

In operation the register is suitably arranged with the extremity of the lever 29 in the path of some part of a grain measuring machine which is moved by the discharging movement of the measure or vessel, thereby swinging the lever 29 in one direction against the tension or power of the spring 32. This causes the pawl 27 to turn the dished annulus 8 one step, whereupon the spring 32 restores the lever 29 to its normal position. The operation is repeated each time the measure or vessel is discharged, and at every half rotation of the dished annulus, one of the lugs or teeth 33 turns the register disk 15 one step to register tens. At each complete rotation of the register disk 15 the lug 34 turns the register disk 16 to register hundreds. The two sets of digits on the flange 9 of the annulus 8 registers the units.

What I claim is—

1. In a register, the combination with a suitable base, of a dished annulus having diametrically opposite lugs, and a flange provided with two sets of digits, the tens and hundreds ratchet-toothed register disks arranged within said annulus and one rotated by a lug on the other, a wrist or pivot pin journaled in the said base, a lever arranged on the inner end of the wrist or pivot pin and provided with a push pawl acting on the dished annulus, and an actuating lever secured to the outer end of the wrist or pivot-pin and adapted to be actuated at intervals, substantially as described.

2. In a register, the combination with a suitable base, of a dished annulus having an annular series of teeth, and two sets of digits, ratchet-toothed register disks arranged at one

side of the annulus, and one rotated by a lug on the other, a wrist or pivot pin journaled in the said base, a lever arranged on the inner end of the wrist or pivot pin and provided with a pivoted, spring pressed push-pawl acting on the teeth of the annulus, and a spring-pressed lever secured to the outer end of the wrist or pivot pin and adapted to be actuated at intervals, substantially as described.

10 3. In a tally-register, the combination with a base having a circular rib, of an annulus seated within said rib and provided with an inwardly turned toothed flange engaged by angular keepers screwed to the base, a lever
15 carried by a wrist passing through said base, a spring-impelled pawl pivoted on said lever and meshing with the toothed flange of the annulus, and a plurality of register-disks journaled within said annulus and provided
20 with ratchet teeth lying in different planes, one of said disks being provided with a lug lying in the plane of the teeth on the adjacent disk, and the annulus being provided with a flange displaying the nine digits and
25 a cipher and having a lug lying in the plane of the ratchet-teeth of the first register-disk, substantially as described.

4. In a tally-register, the combination with a base having a circular rib, of an annulus having an outwardly turned flange on one 30 edge on which are displayed a plurality of series of digits, and an inwardly turned toothed flange upon its other edge engaged by angular keepers screwed to the base, a plurality of register-disks journaled upon studs arranged 35 within said annulus in the line of a chord of the circle described by said annulus, a lever fulcrumed upon a wrist passing through the base, and a spring-impelled pawl pivoted upon said lever and meshing with the toothed 40 flange of the annulus, the latter being provided with inwardly projecting lugs to give an intermittent movement to the first disk, and the latter having a lug communicating a similar movement to the second disk, sub- 45 stantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CYRUS SNYDER.

Witnesses:

H. W. KYTE,
S. S. GILBERT.