

(No Model.)

3 Sheets—Sheet 1.

E. FUCHS.
FARE REGISTER.

No. 602,700.

Patented Apr. 19, 1898.

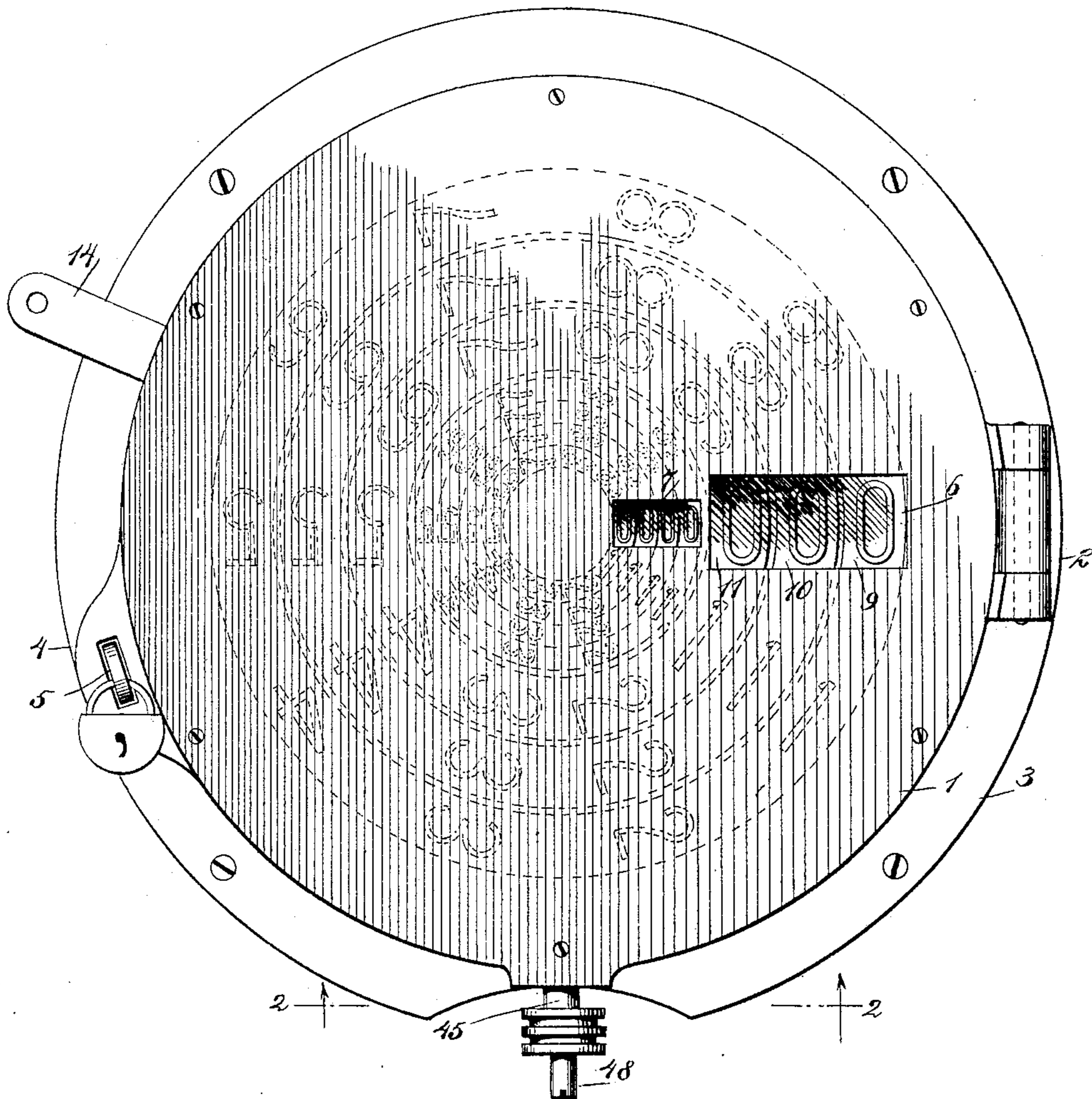


Fig. 1

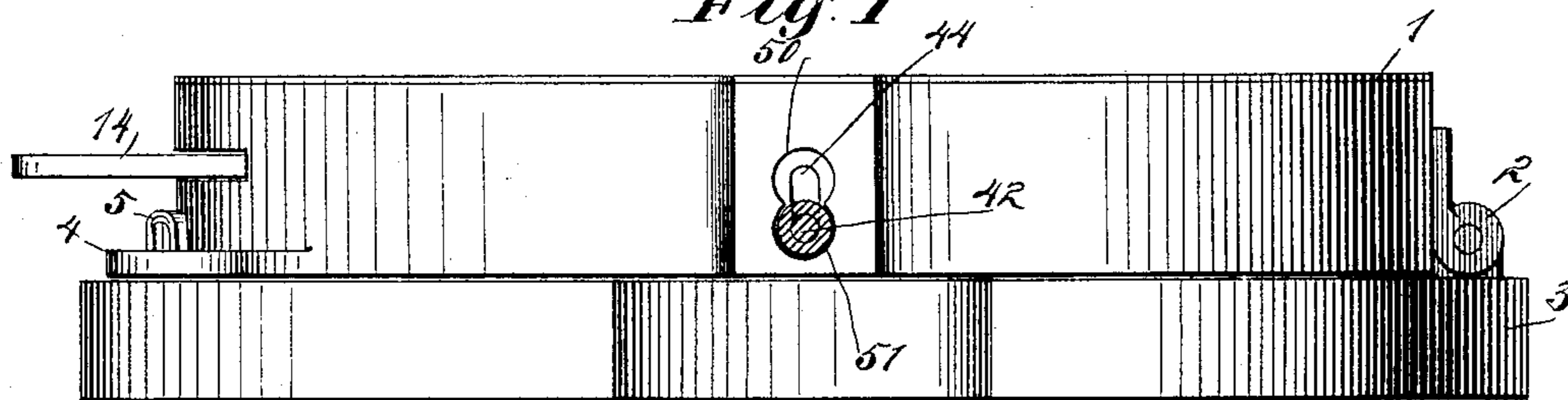


Fig. 2

WITNESSES:

John A. Simpson
C. R. Ferguson

INVENTOR

E. Fuchs

BY

Munn & Co.

ATTORNEYS.

(No Model.)

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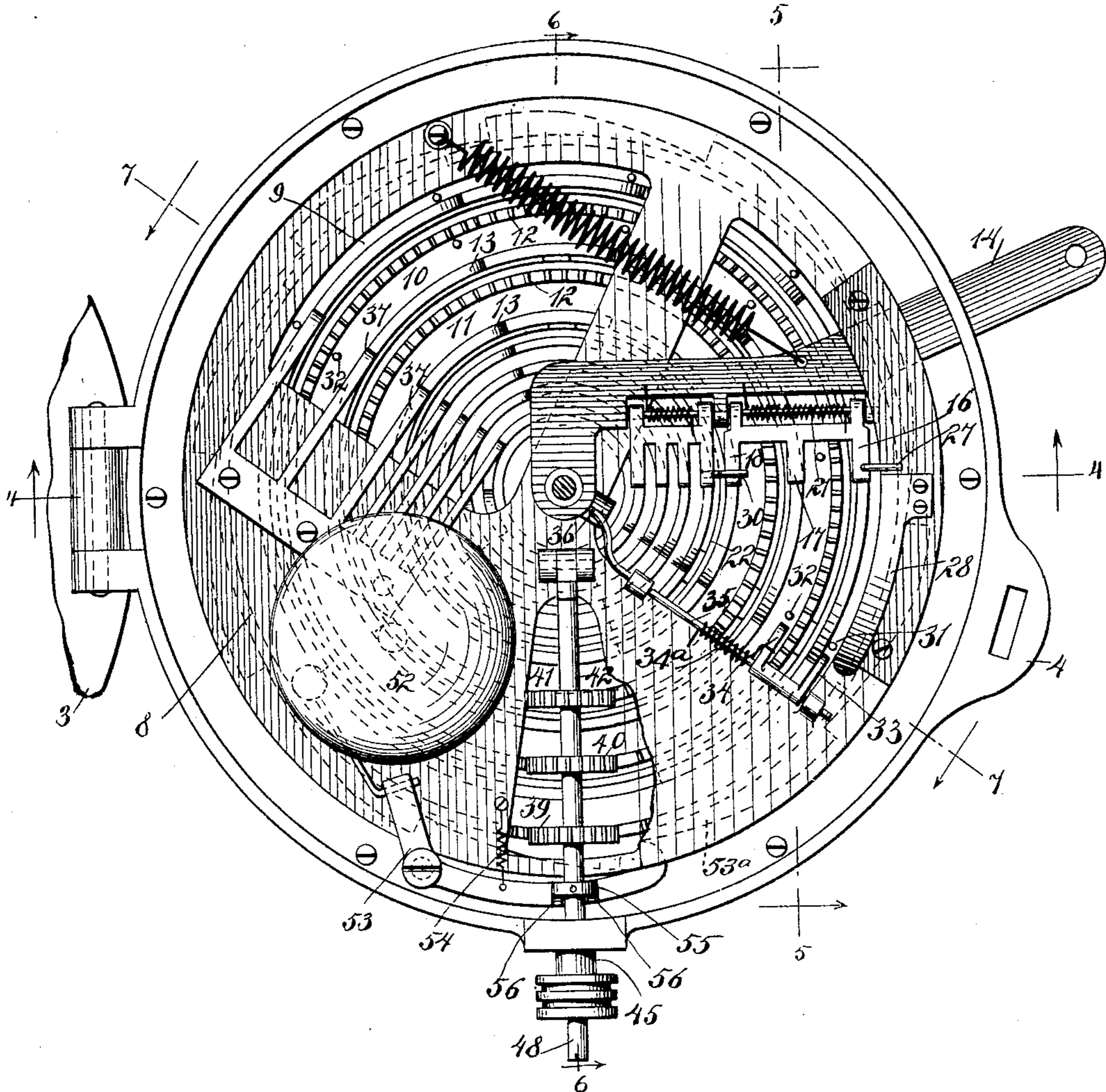


Fig. 3

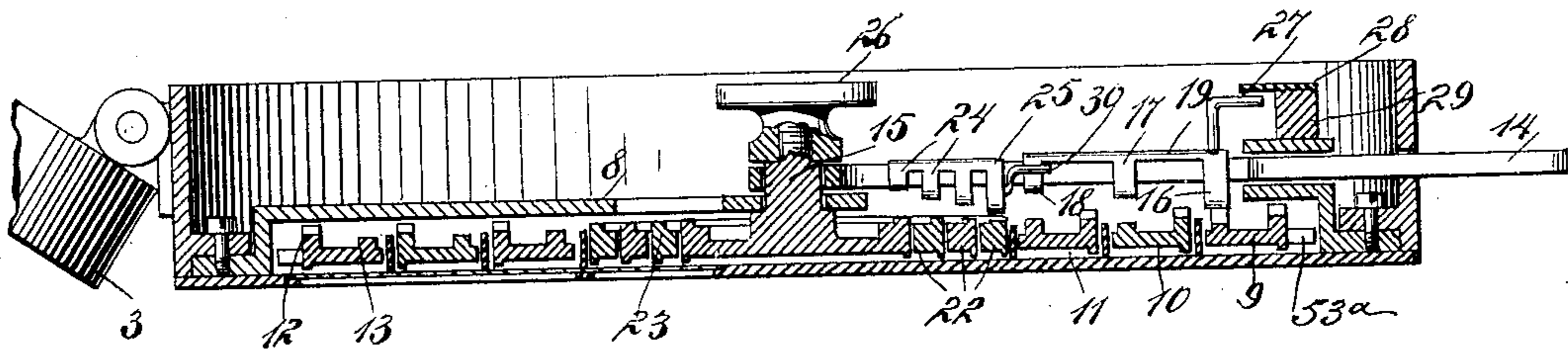


Fig. 4

WITNESSES:

John A. B. Thompson
C. R. Ferguson

INVENTOR

E. Fuchs

BY

Munn & Co.

ATTORNEYS.

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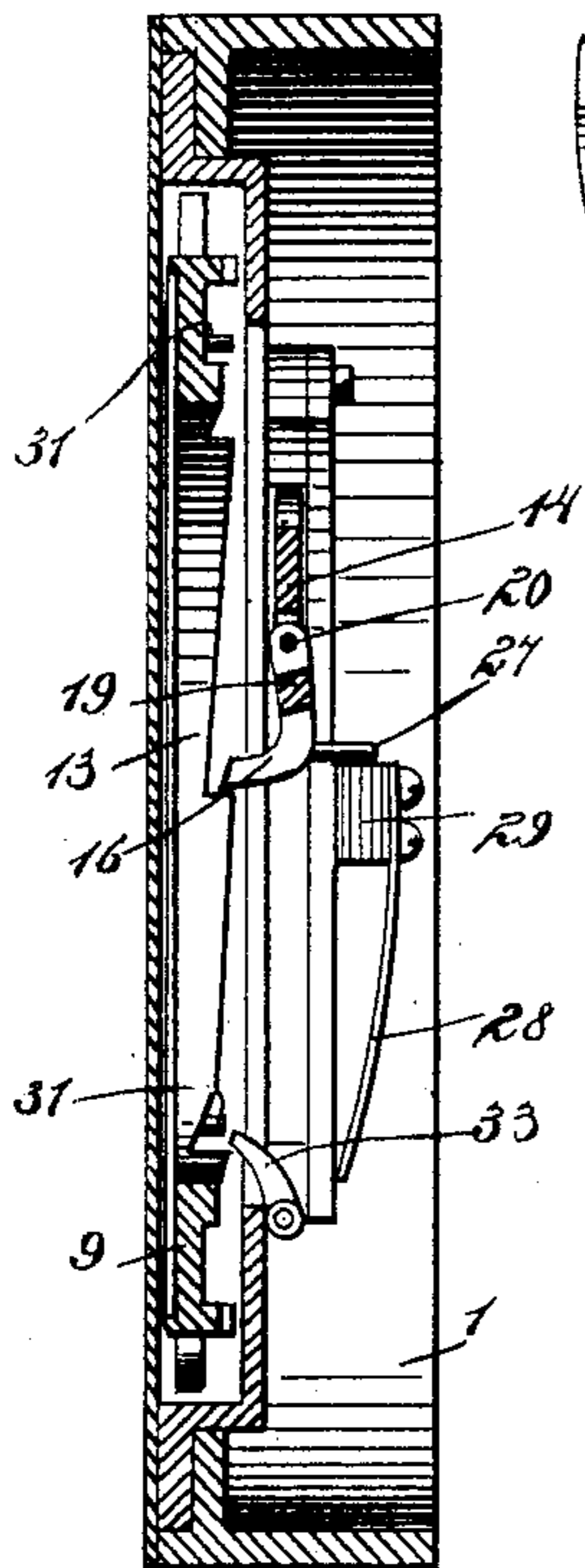


Fig. 5

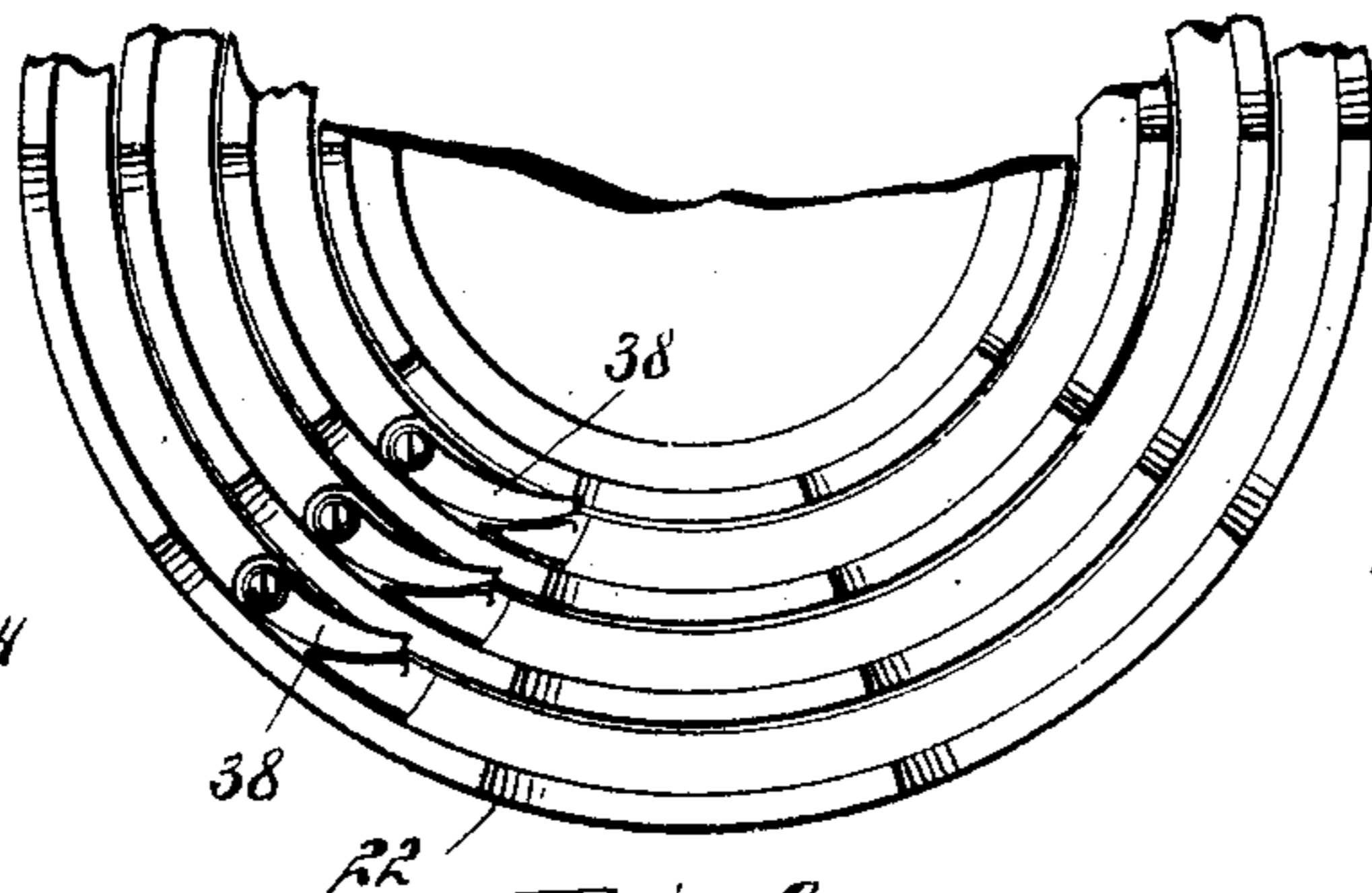


Fig. 8

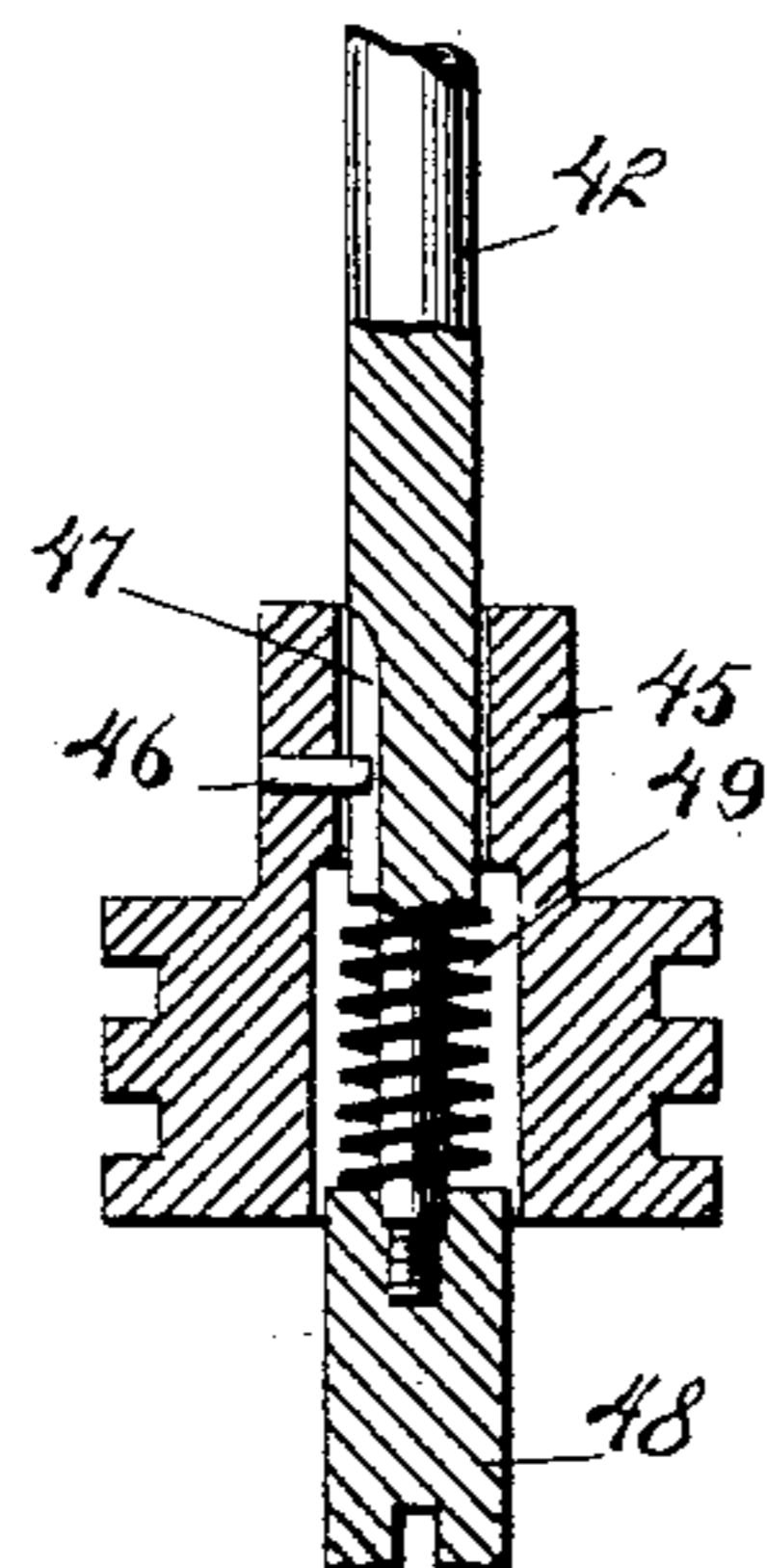


Fig. 9

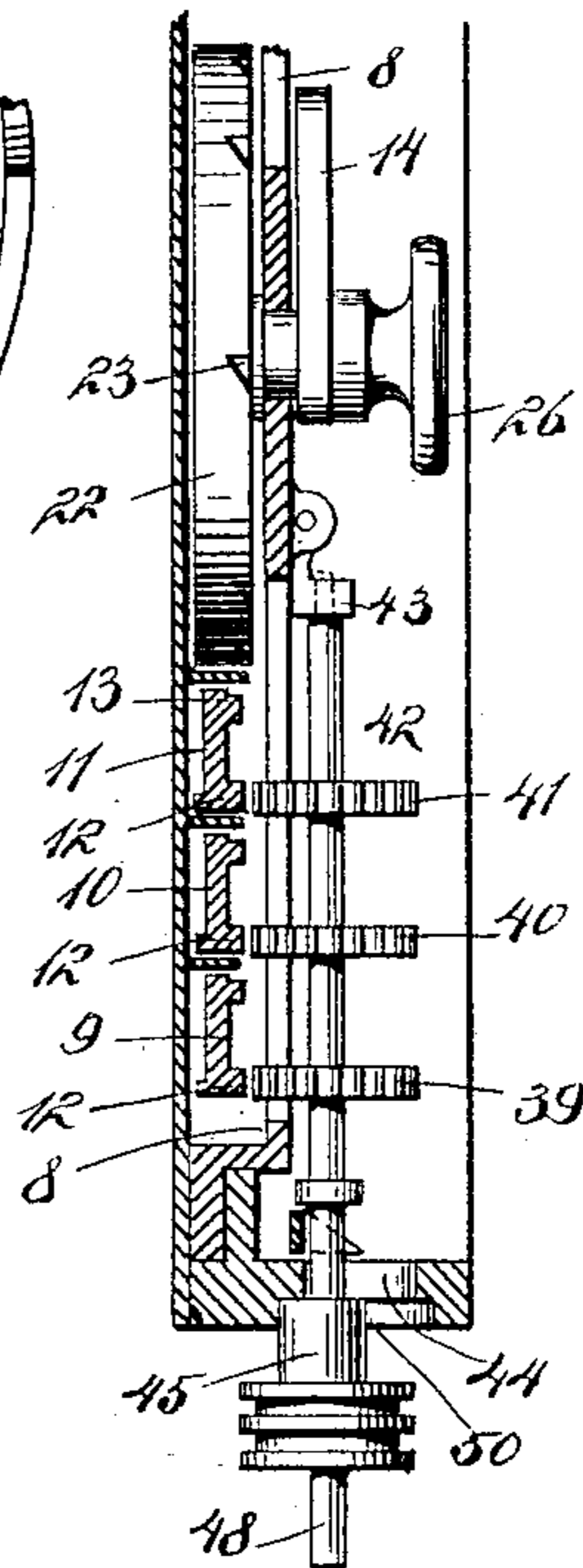


Fig. 6

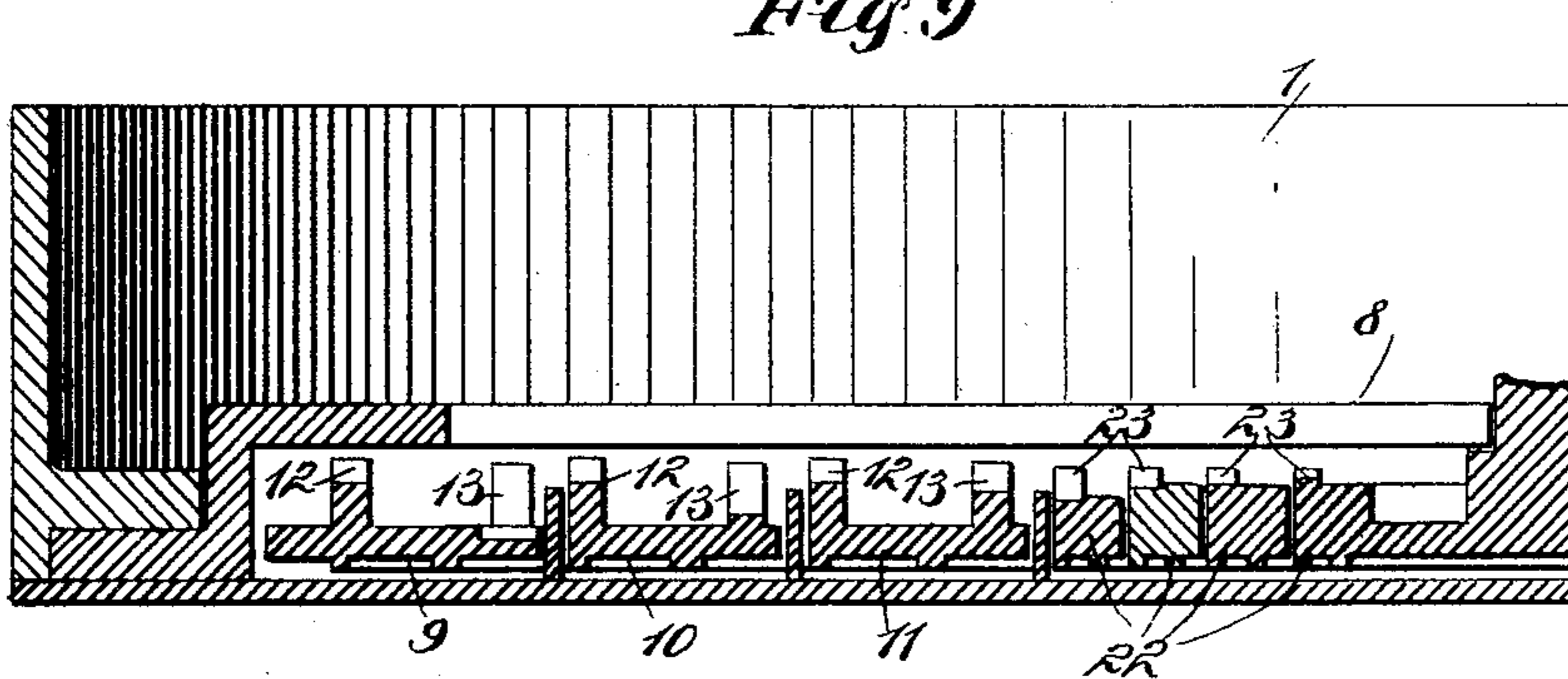


Fig. 7

WITNESSES:

Johna Berghman
R. R. Ferguson

INVENTOR

E. Fuchs

BY

Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD FUCHS, OF NEW YORK, N. Y., ASSIGNOR TO THE NEW YORK
STENCIL WORKS, OF SAME PLACE.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 602,700, dated April 19, 1898.

Application filed July 31, 1897. Serial No. 646,623. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FUCHS, of New York city, in the county and State of New York, have invented a new and Improved Fare-Register, of which the following is a full, clear, and exact description.

This invention relates to fare-registers used in public conveyances; and the object is to provide a fare-register of comparatively simple construction and with which fraudulent manipulation is practically impossible.

I will describe a fare-register embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of a fare-register embodying my invention. Fig. 2 is an edge elevation and partial section on the line 2 2 of Fig. 1. Fig. 3 is an interior view of the register. Fig. 4 is a section on the line 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 in Fig. 3. Fig. 6 is a partial section on the line 6 6 in Fig. 3. Fig. 7 is a partial section on the line 7 7 of Fig. 3 and drawn on an enlarged scale. Fig. 8 is a fragmentary view showing the total-registering wheels or rings employed, and Fig. 9 is a sectional detail showing the construction of a resetting device.

The fare-register comprises a casing 1 of circular form and having a hinge connection 2 with a base 3. The casing 1 also has a hasp portion 4, through which a staple 5 on the base 3 is intended to extend to be engaged by a lock. The front of the case is provided with a sight-opening 6 and also with a sight-opening 7.

Arranged to rotate in the casing between the front wall and a spider 8 is a series of concentric rings 9, 10, and 11, each having on its outer surface a series of figures ranging from "0" to "9" and designed to indicate through the sight-opening 6 the number of fares collected. The ring 9 is termed the "units-ring," the ring 10 the "tens-ring," and the ring 11 the "hundreds-ring." Each ring is provided on its inner side with a rack 12,

which extends only partly around the ring, there being a smooth space between the ends of the rack. These racks are designed to be engaged by a resetting device comprising gear-wheels, as will be hereinafter more fully described. Each ring is also provided with a rack 13, designed to be engaged by actuating-dogs operated by a lever 14, which extends through a slot in the side wall of the casing and is mounted to rotate on a stud 15. The number of notches in the rack 13 will correspond to the numbers on the rings—that is, there are ten notches, forming ten shoulders, with which the dogs engage. The moving dogs 16, 17, and 18 are extended from a frame 19, mounted to swing on a rod 20, mounted in the lever 14, and these dogs are held yieldingly against the racks by means of a spring 21, surrounding the rod 20 and engaging at one end with the frame 19 and at the other end with the lever 14. As is plainly shown in Fig. 9, one of the notches in each rack is deeper than the other series of notches in the rack, and, further, the deep notches will increase in depth from the inner ring to the outer ring, the purpose of which will hereinafter appear.

Arranged within the series of rings 9, 10, and 11 is another series of rings 22, which I will term the "total-amount" rings. These total-amount rings have a series of numbers on their outer surfaces ranging from "0" to "9," and these numbers may be seen through the sight-opening 7. These rings 22 are each provided with annular racks 23, similar to the racks 13, described in connection with the outer rings, and these racks are designed to be engaged by dogs 24, extended from a frame 25, carried by the lever 14 and pressed yieldingly in engagement with the racks by a spring similar to the spring 21.

It will be noted that the dogs for the rings 9, 10, and 11 gradually increase in length one relatively to the other—that is, the inner dog will be shorter than the middle dog and the middle dog is shorter than the outer dog. The dogs 24 are similarly constructed. The inner one of the rings 22 is made in the form of a disk, and the stud 15 is extended from its center through an opening in the spider 8.

Attached to the outer end of this stud 15 is a finger-piece 26, by means of which the rings 22 may be set.

Extended upward and outward from the frame 19 is a finger 27, designed on the backward movement of the lever 14 to engage upon a spring-plate 28, which extends from a block 29, mounted on the spider 8. During the forward movement of the lever 14 the finger 27 will move underneath the spring-plate 28; but as the free end of this plate 28 is curved downward upon the backward or return movement of the lever 14 the finger 27 will engage the upper surface of said spring-plate 28 and rock the frame 19 to carry the dogs out of engagement with the racks. From the outer dog 24 a finger 30 extends over the inner dog of the frame 19, so that when said frame 19 is raised the frame 25 will also be raised, and therefore no motion will be imparted to the rings on the backward movement of the lever.

A series of stop-pins 31 extends from the ring 9, and a similar series of stop-pins 32 extends from the ring 10. These stop-pins 31 and 32 are designed to be engaged by stop-dogs 33 and 34, mounted on a shaft 35, having bearings in lugs on the spider 8, and these dogs 33 and 34 are held yieldingly by means of a spring 34^a, encircling the shaft 35 and bearing at one end on the dog 34 and at the other end upon the spider 8. The inner end of the shaft 35 engages an inclined lug 36, carried on the inner end of the lever 14. By this construction as the lever 14 is moved to register a fare the inclined lug 36 will allow the shaft 35 to rock sufficiently to move the dogs 33 and 34 to a position to be engaged by the stop-pins, and on the return movement of the lever 14 the shaft 35 will be rocked in the opposite direction to move the dogs out of the line of movement of the pins, so that a ring or rings may be subsequently moved to register a fare.

The several rings are prevented from backward rotation by means of spring-fingers 37, extended from the spider 8 and engaging with the notched racks. The several total-amount rings are set or returned to a position where all the zeros will be disclosed at the sight-openings in the casing by manipulating the finger-piece 26.

By referring to Fig. 8 it will be seen that setting-dogs 38 are pivotally connected to the surface of the three outer rings 22, and these dogs are designed to engage the several rings or wheels in such manner that the said wheels may be all returned to their normal position—that is, the dog 38, carried by the outer ring 22, is designed to engage in a notch formed in the periphery of the ring 22 next within it, and the dog of this next ring engages with a notch formed in the periphery of the next inner ring, and the dog carried by this next inner ring is designed to engage in a notch formed in the periphery of the inner or disk-like ring. The dogs will be held yieldingly by suitable springs, as indicated in the draw-

ings. It will be seen by this construction that by rotating the finger-piece 26 the inner or disk-like ring will first be turned until the dog 38 engages in the peripheral notch of said disk-like ring, and then the two rings will be turned together and the other rings will be successively taken up in turn.

I will now describe the means for resetting the rings 9, 10, and 11. This means consists of gear-wheels or pinions 39, 40, and 41, mounted on a shaft 42 and adapted to engage with the racks 12. The shaft 42 has its inner end mounted to rotate in a block 43, pivotally connected between ears on the spider 8. This shaft 42 extends outward through a transverse slot 44 in the side wall of the casing 1, and attached to the extended outer end of the said shaft is a locking-head 45. This locking-head 45 is made tubular and engages over the end of the shaft, and a pin 46 extends through the head portion into a groove 47, formed longitudinally in the shaft. On the threaded outer end of the shaft 43 is a nut 48, and between this nut 48 and a shoulder formed on the shaft is a spring 49, designed to be engaged by the pin 46 when the head portion 45 is drawn outward relatively to the shaft. At one end of the slot 44 is a depression 50, into which the inner end of the head 45 is designed to engage to hold the gear-wheels out of engagement with the racks, and at the other end of this slot 44 there is a similar depressed portion 51, into which the inner end of the head portion 45 is designed to engage to hold the gear-wheels in connection with the racks.

As the successive numbers are indicated on the register at the sight-openings, it is designed to sound an alarm. This alarm consists of a bell or gong 52, attached to a lug extended upward from the spider 8 and designed to be struck by a hammer carried on a pivoted crank-lever 53, the end of the longer member of which bears against segmental cam-surfaces 53^a on the periphery of the ring 9. The lever is held yieldingly in engagement with its ring 9 by means of a spring 54, and obviously as the ring 9 rotates and as the longer member of the angle-lever slips over the tooth or segmental portion of the ring the hammer will be caused to strike the bell.

During the operation of setting the several rings back to zero it is desired that the bell shall not sound, and to move the angle-lever out of its operative position I attach a collar 55 to the shaft 42, and this collar engages against the inner side of inclined lugs 56, extended upward from the longer member of the angle-lever. As the shaft 42 is moved downward to engage its wheels with the racks the collar 55, engaging upon the curved surfaces of the lugs, will rock the angle-lever outward and out of engagement with the periphery of the ring 9.

The operation of this machine is similar to other machines of its character—that is, by drawing downward on the outer end of the lever 14 the ring 9 will be rotated one step, or

through the space between two figures, and after nine such steps shall have been made the dog 16 will drop into the deep notch of the ring 9, causing the dog 17 to engage with the rack of its ring and move said ring one step. This will continue throughout the several rings. The inner set of rings, which give the total amounts, will be similarly rotated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A fare-register, comprising concentric rings, racks on the rings, a pivoted lever, dogs on said lever engaging the racks to move the rings, and means for raising the dogs wholly out of engagement with the rings on the return movement of the lever, substantially as specified.

2. A fare-register, comprising concentric rings, a pivoted lever, dogs carried by said lever for engaging with racks on the rings and imparting a step-by-step motion to said rings, a plate attached to a fixed support, and a finger attached to the dogs and adapted to ride upon the upper surface of said plate, to raise the dogs out of engagement with the rings on the return movement of the lever, substantially as specified.

3. A fare-register, comprising concentric rings, a pivoted lever, dogs mounted to swing on said lever, racks on the rings with which said dogs are designed to engage, a spring yielding plate mounted on a fixed support and having its free end curved downward, and a finger extended from the dogs and adapted to engage upon the upper side of said plate to raise the dogs out of engagement with the rings upon the return movement of the lever, substantially as specified.

4. A fare-register, comprising a series of concentric rings, a lever, dogs mounted to swing on said lever, the said dogs being of different lengths, notched racks on the rings, a notch in one rack being deeper than a notch in the other rack, means for moving the dogs out of engagement with the racks, on the return movement of the lever, stop-pins on certain of the rings, swinging dogs adapted to engage the stop-pins, and means carried by the lever for moving said stop-dogs out of the line of movement of the pins, substantially as specified.

5. A car-fare register, comprising concentric rings, a rack extended around each ring, means for moving said rings forward to disclose consecutive numbers, a swinging shaft, gear-wheels mounted on the swinging shaft to be engaged with the racks when the shaft is swung in one direction, a tubular locking-head on the outer end of said shaft, and a pin extended from said head into a groove formed longitudinally in the shaft, substantially as specified.

6. A car-fare register, comprising concentric rings, a rack extended around each ring, means for moving said rings forward to disclose consecutive numbers, a swinging shaft,

gear-wheels mounted on the swinging shaft to be engaged with the racks when the shaft is swung in one direction, a tubular locking-head on the outer end of said shaft, a pin extended from said head into a groove formed longitudinally in the shaft, a nut engaging with the outer end of the shaft and movable within the head, and a spring in said nut and the shaft, substantially as specified.

7. A fare-register, comprising concentric rings, means for moving said rings forward to disclose numbers consecutively, racks extended partially around said rings, gear-wheels adapted for engagement with said racks, a swinging shaft on which said wheels are mounted, means for holding the shaft in either of its adjusted positions, a bell-hammer lever, and means carried by the swinging shaft for moving said bell-hammer lever out of operative position, substantially as specified.

8. A fare-register, comprising concentric rings, means for rotating said rings in one direction for disclosing numbers consecutively, a rack extended partially around each ring, gear-wheels for engagement with said racks, a swinging shaft on which said wheels are mounted, whereby the wheels may be moved into and out of engagement with the racks, means for holding the shaft in either of its adjusted positions, a bell-hammer lever designed to be swung by the outer one of said rings, and means for moving said lever out of its operative connection with the ring when the swinging shaft is moved to engage the gear-wheels with the racks, substantially as specified.

9. A fare-register, comprising concentric rings, means for rotating said rings in one direction to disclose numbers consecutively, a rack extended partially around each ring, gear-wheels for engagement with said racks, a swinging shaft on which said wheels are mounted, a bell-hammer operating-lever adapted to be swung on its pivot by the outer one of the rings, a projection on said shaft, and an inclined lug on the bell-hammer operating-lever with which said projection is designed to engage, to move the lever out of its operative connection with the ring, substantially as specified.

10. A fare-register, comprising concentric rings, a pivoted lever, dogs mounted to swing on said lever, racks on the rings with which said dogs are designed to engage, stop-pins extended from certain of said rings, stop-dogs for engaging with said pins, a spring-pressed rod on which said stop-dogs are mounted, and an inclined lug carried by the lever and engaging with said rod to move the stop-dogs out of the line of movement of the pins, substantially as specified.

11. A fare-register, comprising a series of rings, a notched rack on each of said rings, a pivoted lever, dogs mounted to swing on said lever and adapted for engagement with the racks, a spring for holding the dogs yieldingly

in engagement with the racks, a spring-plate mounted on a fixed support and curved toward the ring at its free end, and a finger carried by one of the dogs and adapted to
 5 move against the inner surface of said spring-plate when a ring is turned in one direction by the dog, and adapted to ride upon the outer surface of the plate as the dog is moved in the opposite direction, substantially as specified.

10 12. A fare-register, comprising a series of concentric rings for registering the number of trip-fares collected, a series of concentric rings within the first series, for indicating the total amount of fares collected, means for moving
 15 all of said rings forward, means for resetting the first-named series of rings and consisting of a shaft and gear-wheels mounted on said shaft for engaging with racks on the rings, means for resetting the inner series of
 20 rings, comprising a finger-piece having engagement with the innermost ring, and spring-pressed dogs carried by certain of the rings, for imparting motion to other rings, substantially as specified.

25 13. A fare-register, comprising a series of concentric rings for registering the number of trip-fares collected, another series of concentric rings within the first series, racks on said inner series of rings, a pivoted lever,
 30 dogs mounted to swing on said lever for en-

gaging the racks of said inner series of rings, other dogs mounted to swing on said lever for operating the outer series of rings, and means comprising a fixed plate, and a finger
 35 having connection with the dogs for simultaneously moving all of the dogs out of operative position upon a return movement of the lever, substantially as specified.

14. A fare-register, comprising a series of concentric rings, a swinging lever for moving
 40 said rings in one direction, stop-pins on certain of the rings, swinging dogs adapted to engage with the stop-pins, and means carried by the lever for moving said swinging dogs out of the line of movement of the pins, sub-
 45 stantially as specified.

15. A fare-register, comprising a series of concentric rings, a swinging lever for moving said rings in one direction, stop-pins on cer-
 50 tain of said rings, spring-pressed swinging dogs adapted to engage the stop-pins, a rocking shaft on which said dogs are mounted, the said shaft having its inner end cranked, and an inclined lug on the inner end of the
 55 lever with which the cranked end of said shaft engages, substantially as specified.

EDWARD FUCHS.

Witnesses:

WM. STANDERWICK,
 P. VAN ALSTYNE.