

(No Model.)

3 Sheets—Sheet 1.

C. A. NEUERT.

FARE REGISTER.

No. 313,513.

Patented Mar. 10, 1885.

Fig: 1.

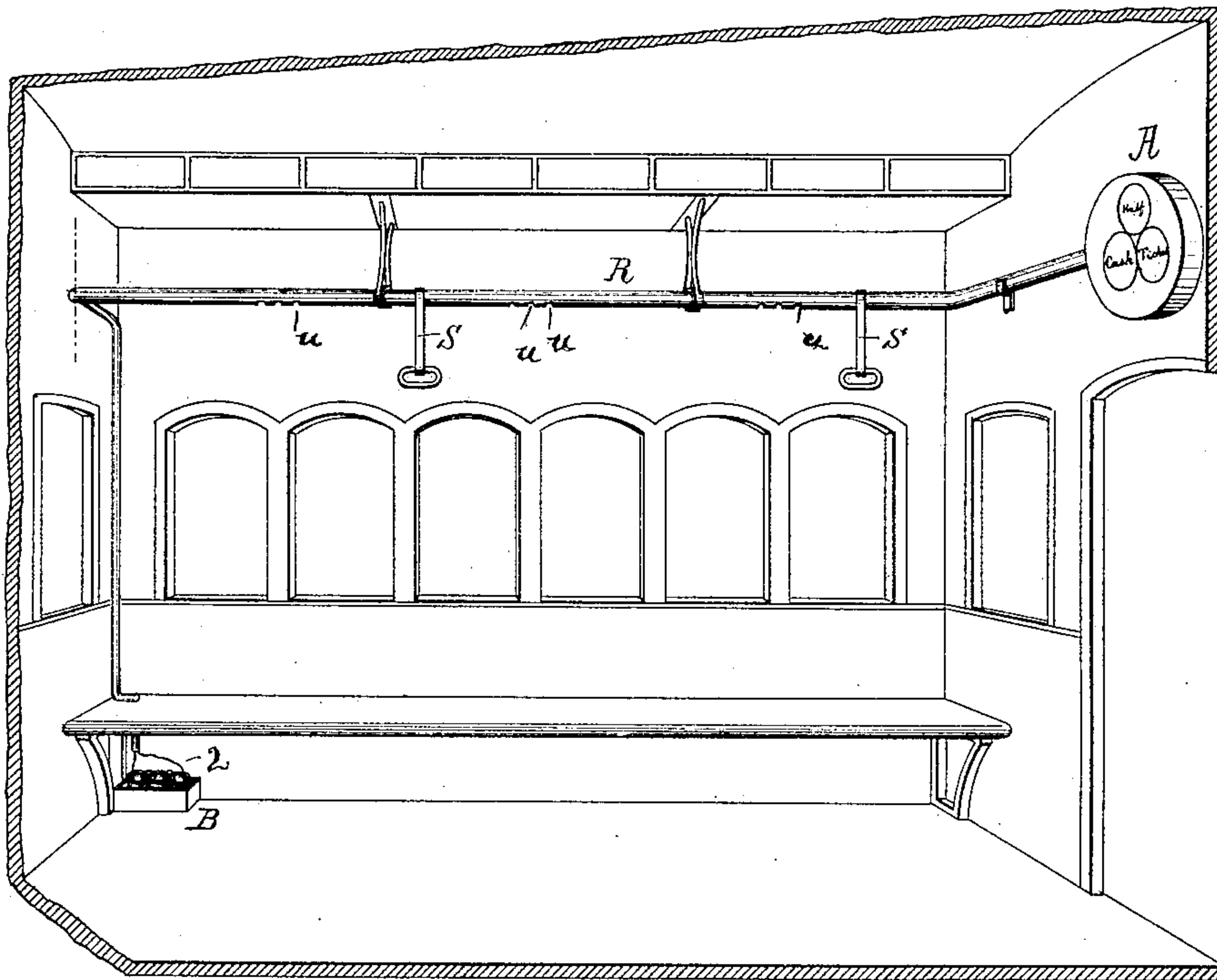


Fig: 2.

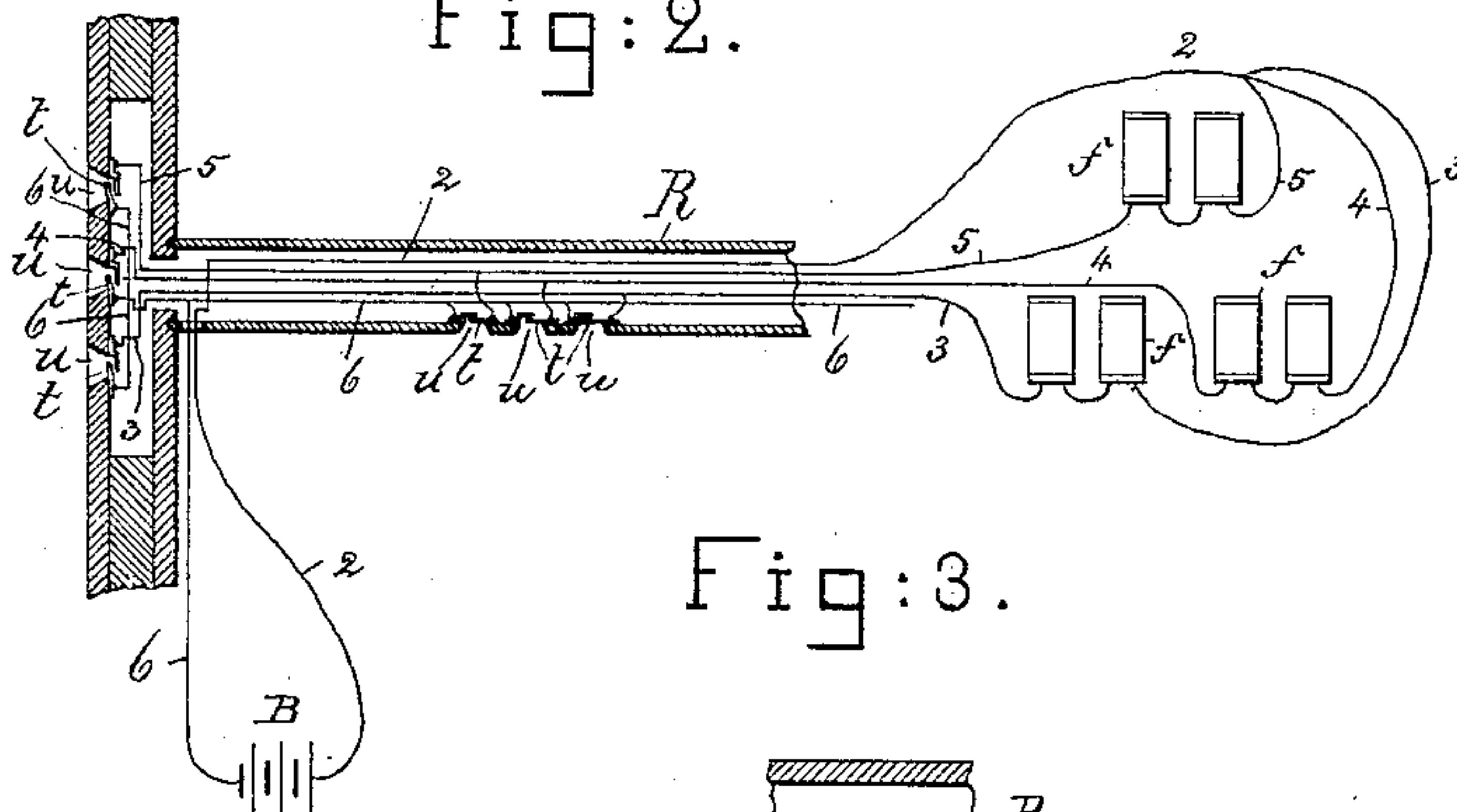
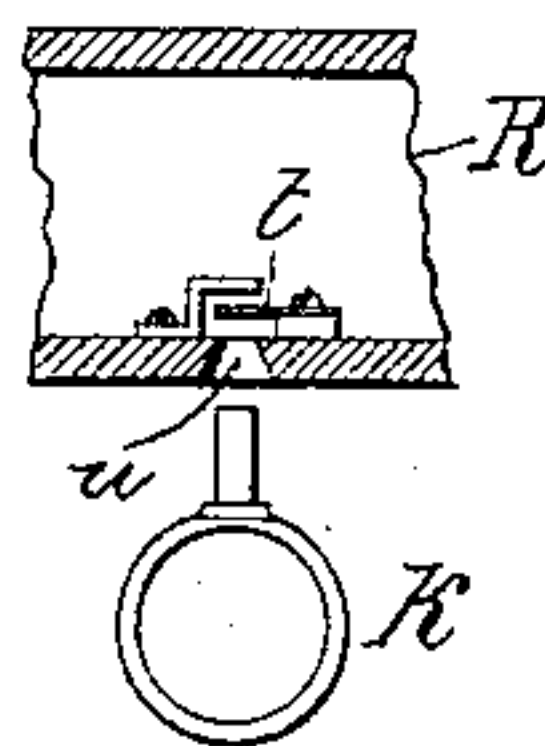


Fig: 3.



Witnesses.

Arthur Tappan.
Henry Marsh.

Inventory.

Charles W. Newert
by Crosby & Gregory attys.

(No Model.)

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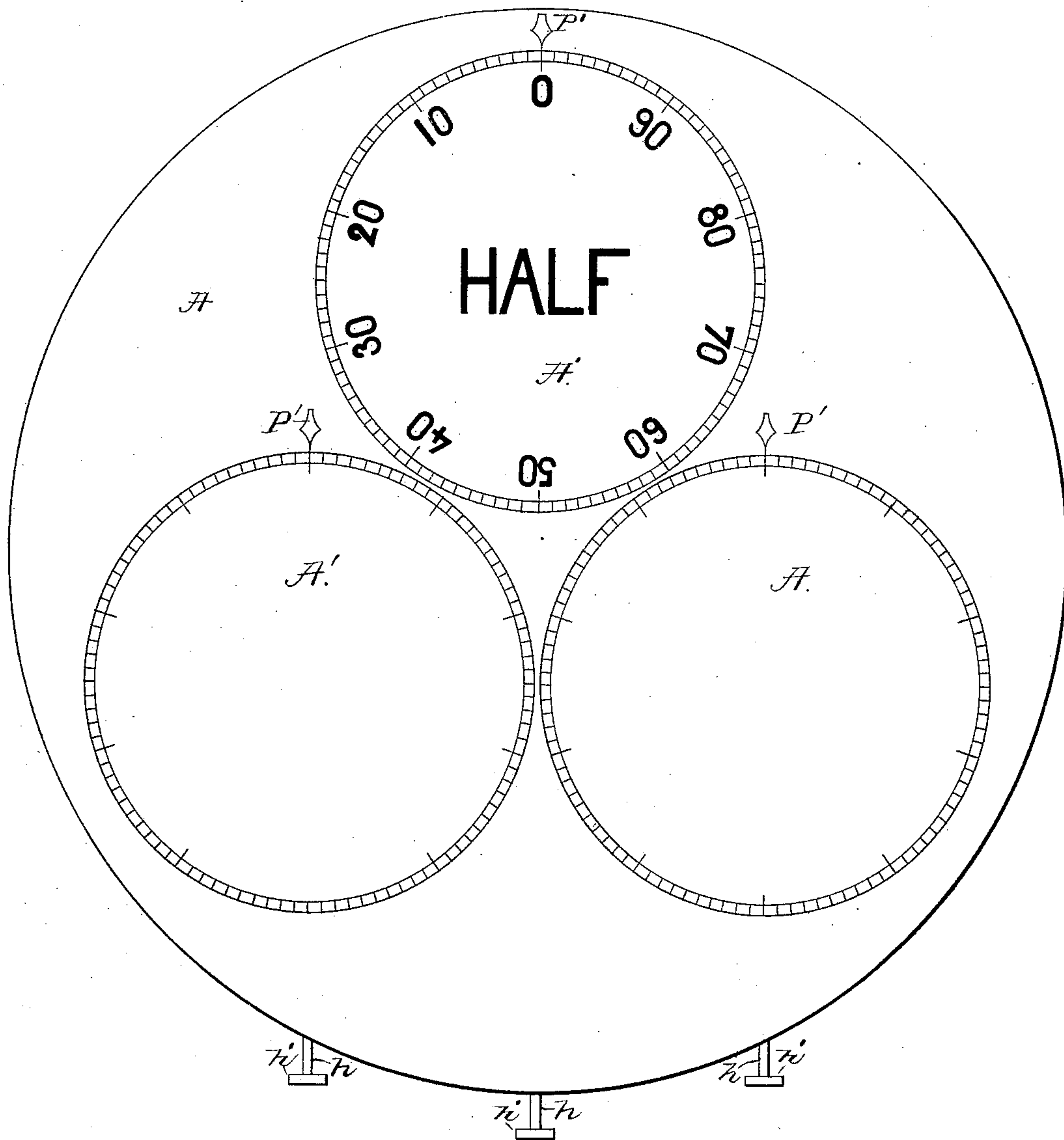
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Fig: 4.



Witnesses.

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John F. C. Finkert

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(No Model.)

3 Sheets—Sheet 3.

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Fig: 6.

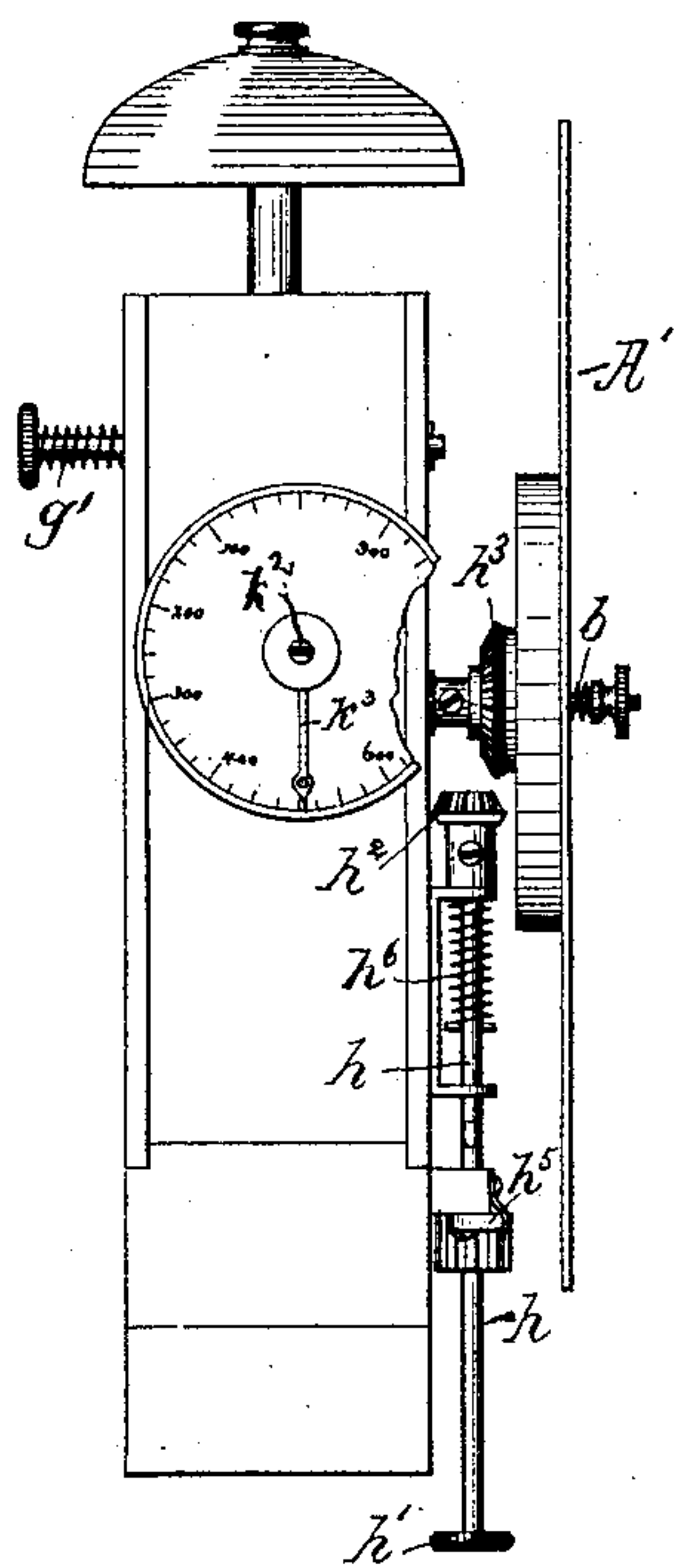


Fig: 5.

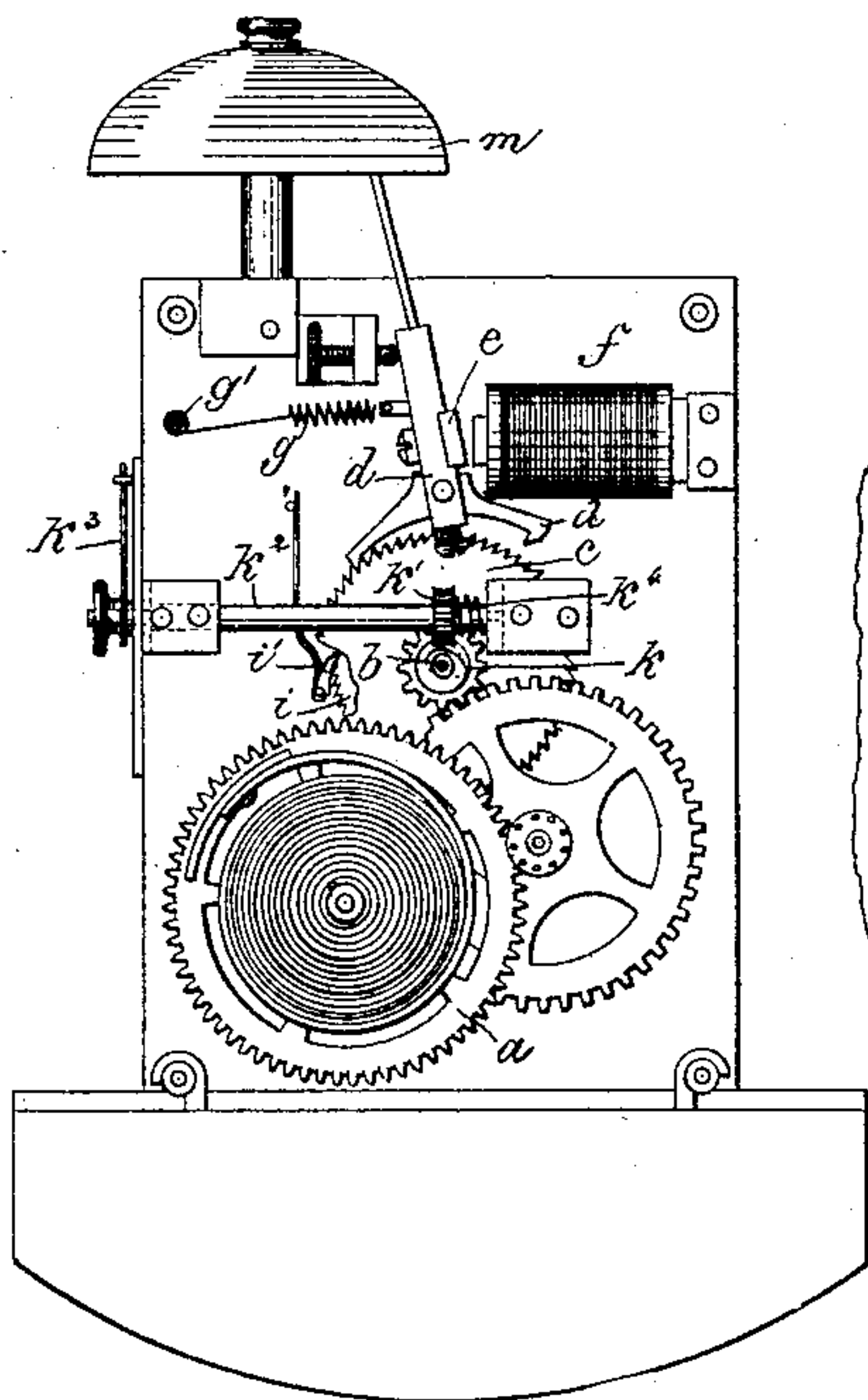


Fig: 7.

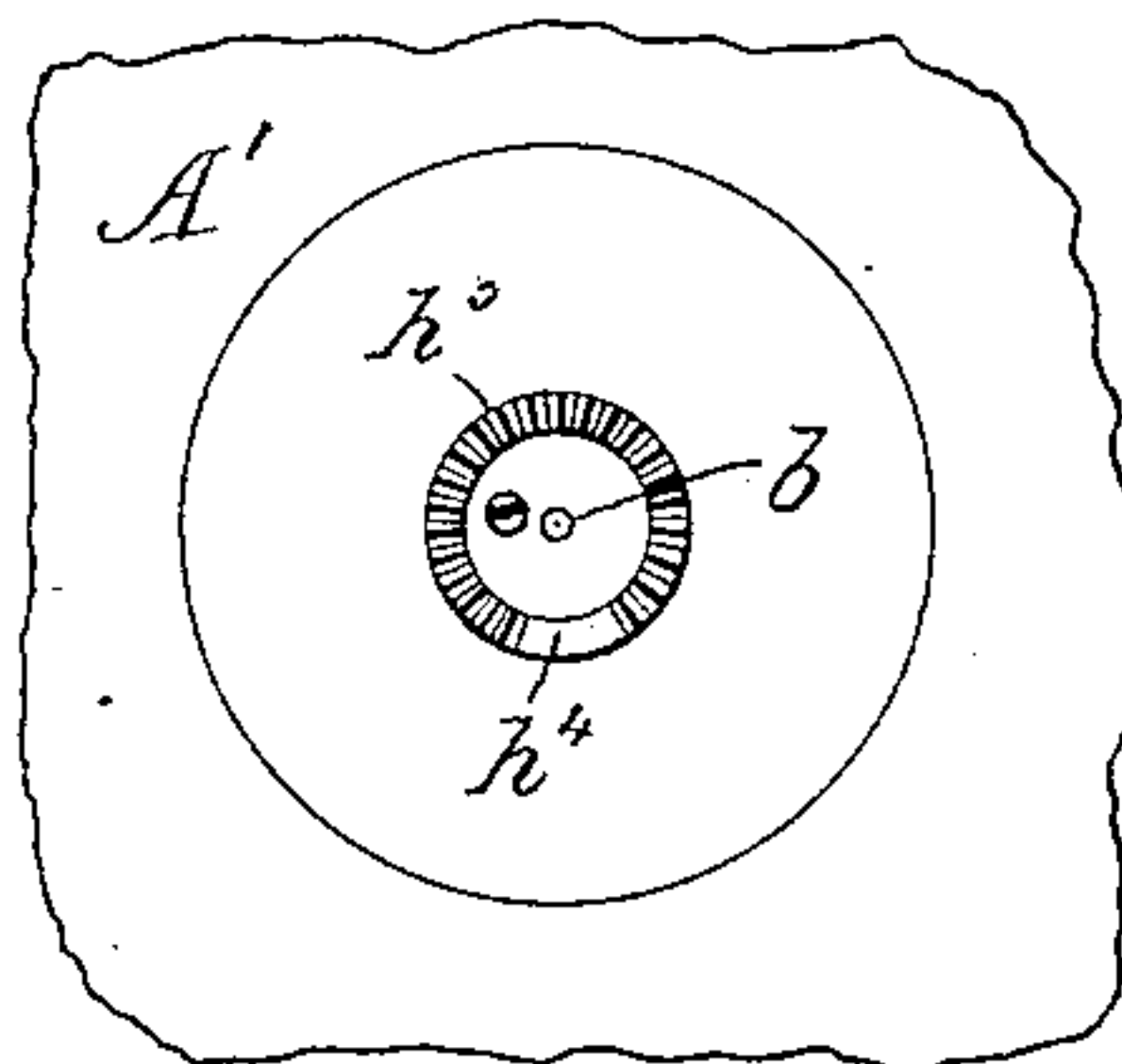


Fig: 9.

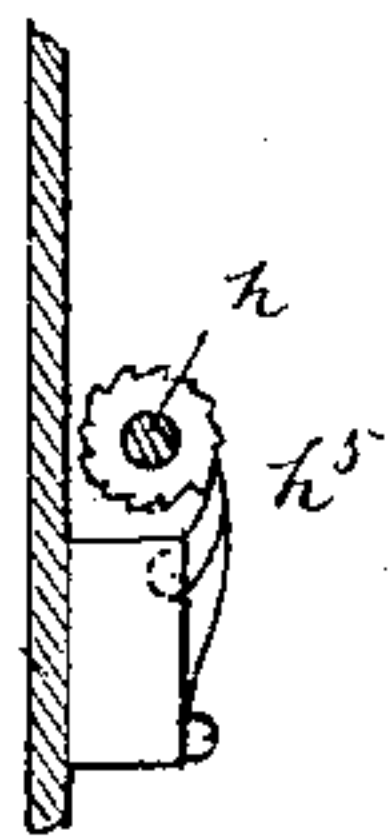
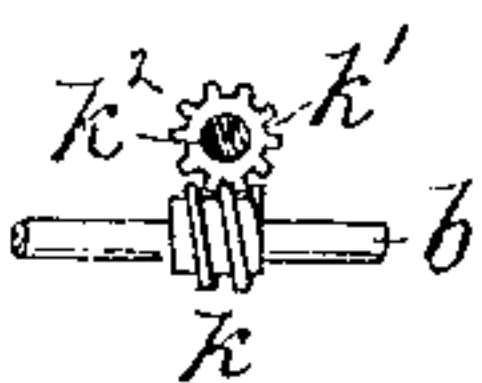


Fig: 8.



Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

CHARLES A. NEUERT, OF BOSTON, MASSACHUSETTS.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 313,513, dated March 10, 1885.

Application filed March 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. NEUERT, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Fare-Registers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention, relating to a fare-register for street-cars, has for one of its objects to enable the number of different kinds of fares to be registered on a suitable indicator visible to the passengers in the car. The indicator comprises several independent indicating devices—as many in number as there are different kinds of fares received—each being controlled by an electro-magnet in an independent circuit controlled at different points by the conductor or fare-collector. The different circuit-controlling devices will be inaccessible to the passengers, so that it will be impossible for them to move the indicator, as sometimes happens when indicators operated by a cord passing through the car are employed, the said cord being mistaken for the cord by which the usual signal is operated for the guidance of the driver. The circuit-wires are preferably extended through the longitudinal bar usually found in horse-cars, from which the straps are suspended that serve as a support for passengers standing in the car, and the circuit-closers that are inside the car are inclosed in the said bar, so that they can be operated only by a key inserted through a small opening, and are practically inaccessible to persons not provided with such a key.

Figure 1 is a perspective view of a portion of the interior of a street-car provided with a fare-register embodying this invention; Fig. 2, a diagram showing the circuits; Fig. 3, a sectional detail of one of the circuit-closers, with key for operating it on a larger scale; Fig. 4, a front elevation of the entire indicator; Fig. 5, a front elevation of the actuating mechanism of one of the indicating devices; Fig. 6, an end elevation thereof, and Figs. 7, 8, and 9 details to be referred to.

The indicator A, mounted in suitable position in the car to be visible to the most of the occupants thereof, is provided with a series of indicating devices, (shown in this instance as three in number,) one being employed to indi-

cate each different kind of fare—as, for instance, single cash fares, tickets, and half-fares.

Each indicating device (best shown in Figs. 4, 5, and 6) consists, essentially, of a clock-work or spring-motor, *a*, comprising a train of wheel-work, one of the shafts *b* of which is provided with an escape-wheel, *c*, permitted to move one tooth at a time by an anchor or escapement device, *d*, provided with suitable pallets to engage the teeth of the escape-wheel, and having attached to it the armature *e* of an electro-magnet, *f*, by the attraction of which the said escapement-anchor is moved in one direction, it being moved in the other direction by a retracting-spring, *g*, having the usual adjusting-spindle, *g'*. The wheel *c* is thus permitted to move for the space of one tooth—preferably one hundredth of a rotation—at each change of the condition of the magnet *f* caused by closing and then opening its circuit, or the reverse.

The arbor *b* is provided with an indicating device, (shown as a dial, *A'*,) which is frictionally connected with the said arbor, and rotated thereby for the space of one graduation on its periphery at each movement of the said arbor permitted by the escapement, the dial thus indicating, in connection with a stationary marker or point, *P'*, the number of movements of the escapement, or the number of times that the circuit of the magnet *f* is closed, the number of graduations on the dial being the same as the number of the teeth on the escape-wheel *c*.

It is obvious that the arbor *b* might carry a pointer to indicate in connection with a stationary dial instead of the reverse. The indicator is set back to the zero-point at the end of a trip of the horse-car by means of a shaft, *h*, having a milled head or handle, *h'*, outside of the inclosing-case of the indicator, and provided with a bevel-pinion, *h²*, which by a longitudinal movement of the shaft *h* is thrown into engagement with a bevel-gear, *h³*, connected with the indicating device *A'*, the said gear *h³* being mutilated or having a portion of its teeth removed, as shown at *h⁴*, Fig. 7, so that it will cease to be turned by the pinion *h²* and shaft *h* as soon as it arrives at the zero-point, or with the zero-mark of the dial opposite the point *P'*. The shaft *h* is prevented

from rotating in but one direction—viz., to produce the reverse rotation of the dial to that produced by the clock-work or motor—by means of a ratchet and pawl, h^5 , (shown in plan, Fig. 9,) and the said shaft is normally held by a spring, h^6 , with the pinion h^2 disengaged from the gear h^3 . A ratchet, i , fixed on the shaft or arbor b , and pawl i' (shown in Fig. 5 as on the back frame-plate of the motor) prevent the said arbor from turning backward with the dial when the latter is turned back by the shaft h .

In order to register the total number indicated by the apparatus in a number of trips of the car, the arbor b is provided with a worm, k , meshing with a worm-gear, k' , on a shaft, k^2 , provided with a pointer, k^3 , (see Figs. 5 and 6,) the worm and worm-gear being shown in this instance (see Fig. 8) as so proportioned that the pointer k^3 makes one-tenth of a revolution at each complete revolution of the shaft b , so that, the former indicating one hundred different operations of the magnet, the pointer k^3 , with its dial, will indicate up to one thousand operations of the magnet. A spring, k^4 , produces a slight friction and prevents lost motion between the gear k' and worm k . The lever d for the escapement is provided with a bell-hammer, which strikes a blow on a bell, m , at each movement of the escapement. The magnets f , controlling the motors of the different indicating devices, are magnetized by currents from the battery B, (see Figs. 1 and 2,) placed under the seat of the car, and supported in such manner as to be unaffected by the jarring of the car, and being protected in cold weather against freezing by thick layers of felting or other suitable non-conductor of heat. One pole of the said battery is connected with a wire, 2, leading to the indicator A, and there branching by wires 3 4 5 to the different controlling-magnets f of the indicating apparatus, from each of which the corresponding wire is led to all the points from which the conductor or fare-collector is to operate the register, the said wires being preferably carried through the rod R, made tubular for this purpose, that is usually employed in horse-cars to support the hand-straps s . The wire 6, from the other pole of the battery, is carried along adjacent to the said wires 3 4 5, leading from the magnets, and several series of circuit-closers, t , (see Figs. 2 and 3,) are provided, one of each series corresponding to each of the wires 3, 4, and 5 of the different magnets, so that by pressing one contact spring or portion of the circuit-closer against the corresponding portion the corresponding magnet will be magnetized and the indicator operated. The said springs are inclosed within the rod R, or at the end of the car within the frame-work of the car, and can be operated only by means of a suitably-shaped key, K, inserted through the openings u , made to receive it, so that there is no danger of the indicators being operated unintentionally.

I claim—

1. In an indicating apparatus for railway-cars, a clock-work or motor terminating in an escapement, and an electro-magnet controlling the said escapement, combined with an indicating device frictionally held on one of the arbors of the clock-work and rotated thereby, a mutilated gear connected with the said indicating device, a pinion normally disengaged from the said gear, and an actuating-shaft for the said pinion, whereby it may be engaged with and operate the said gear and indicating device, substantially as described.

2. In an indicating device for railway-cars, a clock-work or motor terminating in an escapement, combined with an indicating device frictionally held on one of the arbors of the said clock-work and rotated thereby, mechanism for turning the said indicating device independently of the clock-work, a worm connected with an arbor of the clock-work, and worm-gear and pointer actuated thereby for indicating the amount of movement of the clock-work independently of the indicating device, substantially as described.

3. The clock-work or motor and escape-wheel and ratchet fixed on the arbor thereof, and indicating device frictionally connected with the said arbor, combined with an escapement-anchor controlling the escape-wheel and electro-magnet, and armature for actuating the said anchor, and a pawl engaging the said ratchet, and device for turning the said indicating device independently of the arbor upon which it is supported, substantially as described.

4. In an indicating apparatus for street-railway cars, an indicating device visible from the car, and an electro-magnet and circuit controlling the operation of the said indicating device, combined with mechanism for moving the said visible indicator to the zero-point independently of the mechanism controlled by the magnet, and a second indicating device operating continuously to indicate the total number registered by the visible indicator during several periods of operation, substantially as described.

5. A fare-indicator for railway-cars, comprising an indicating device and an electro-magnet controlling its operation, combined with circuit-wires and circuit-controlling devices for said magnet, and a tube inclosing the said wires and circuit-controlling devices and protecting them from improper operation, the said tubes having openings corresponding with the different controlling devices which are operated by a device inserted through the said openings, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES A. NEUERT.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.