

No. 795,457.

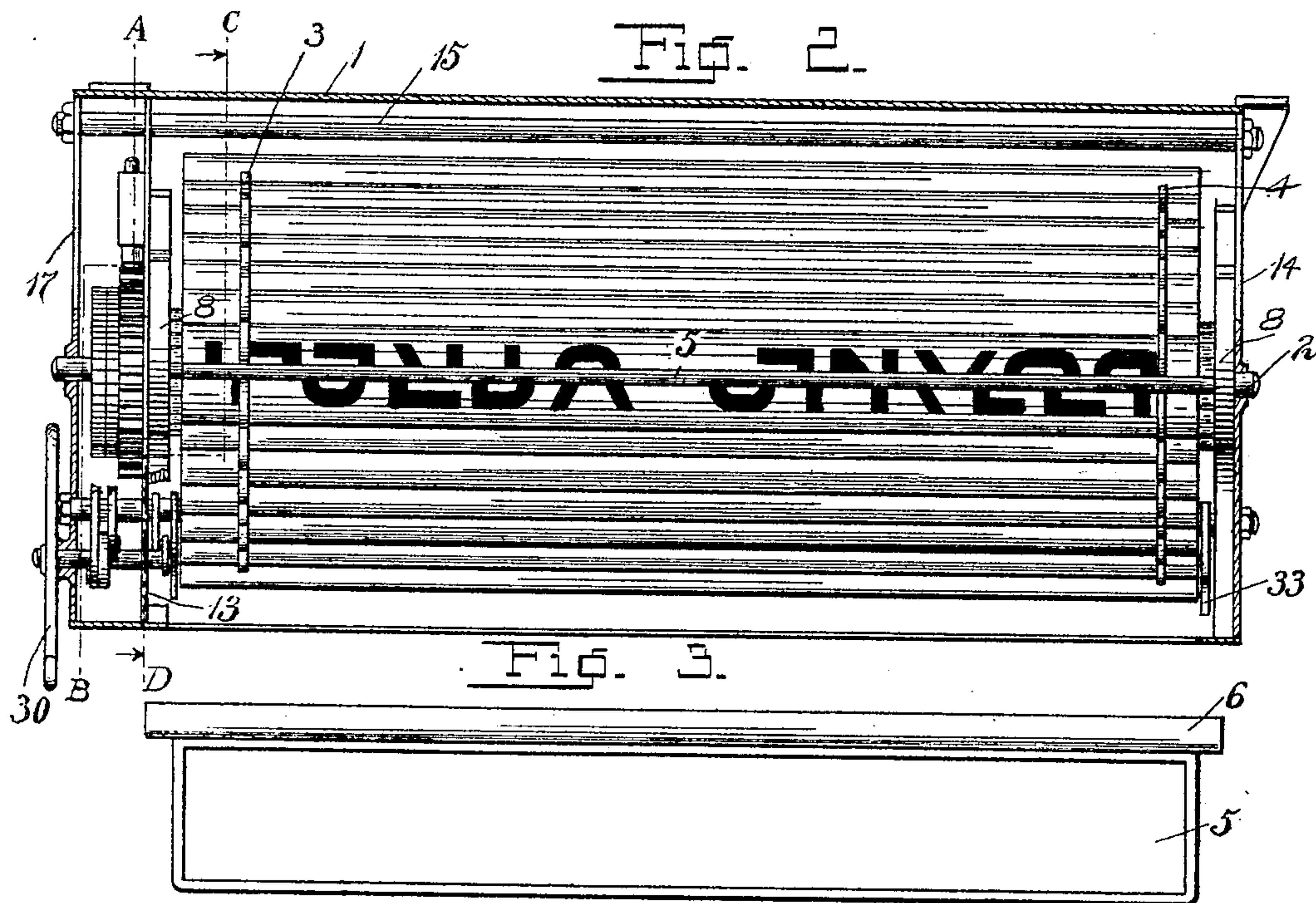
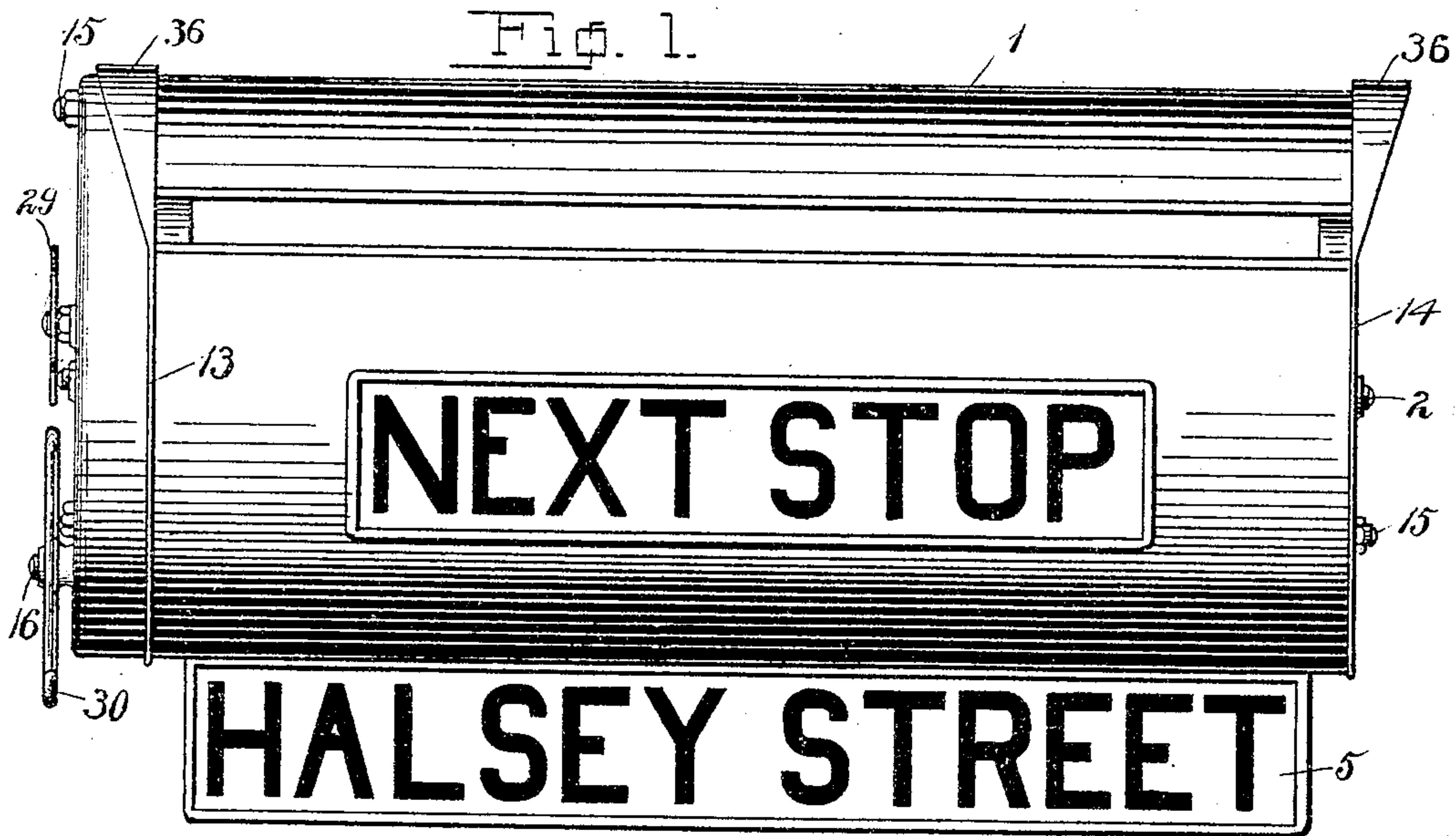
PATENTED JULY 25, 1905.

W. I. SUTTON.

INDICATOR.

APPLICATION FILED AUG. 19, 1904.

3 SHEETS--SHEET 1.



Witnesses
S. J. Hoexter
D. W. Mueller.

William T. Sutton Inventor

By his Attorneys Knight Bros

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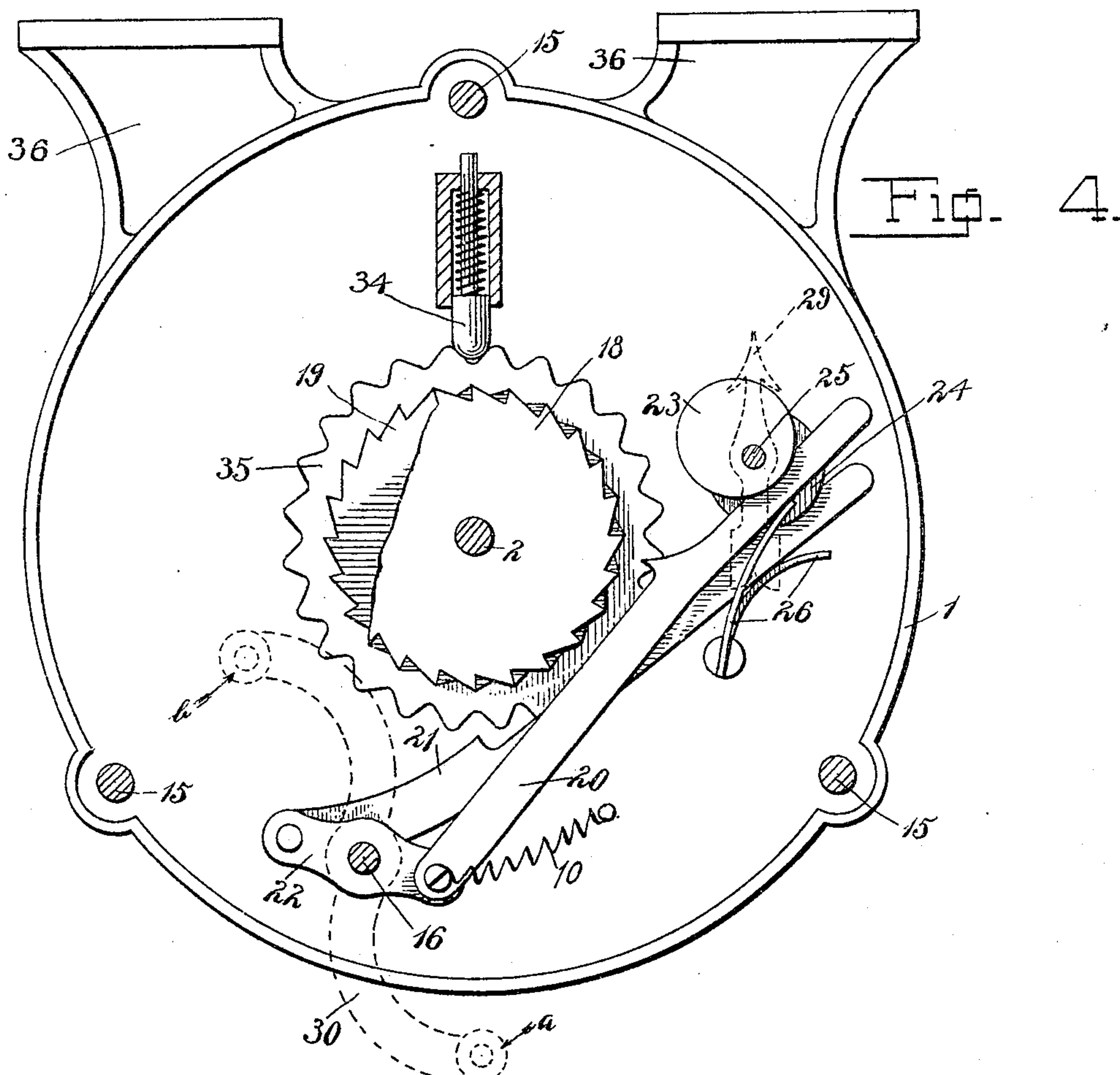


Fig. 4.

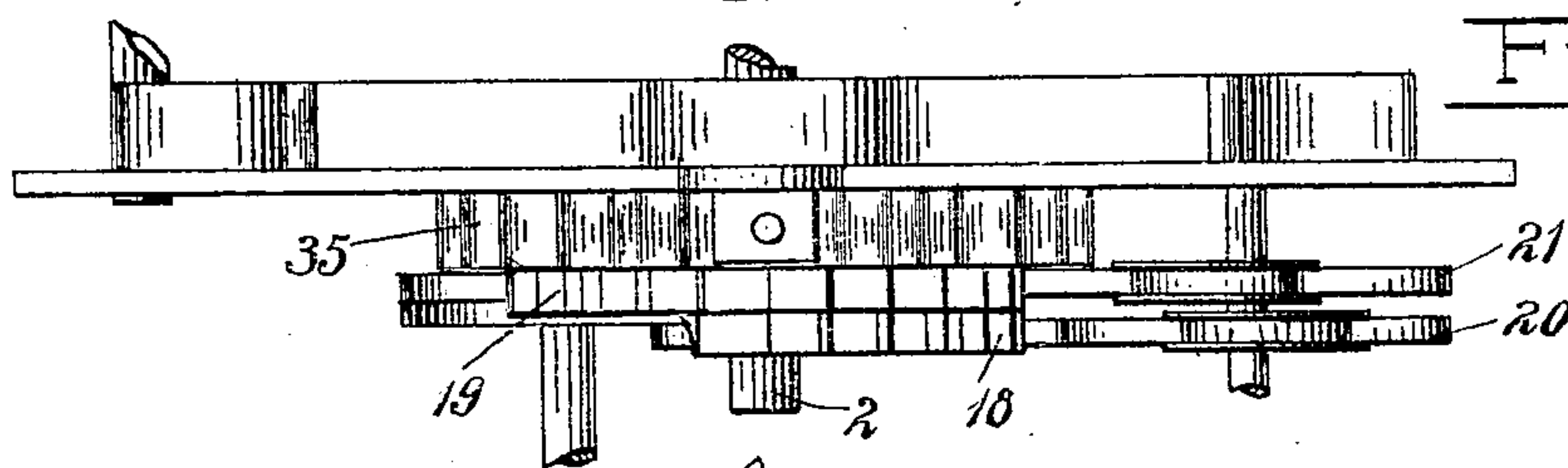


Fig. 5.

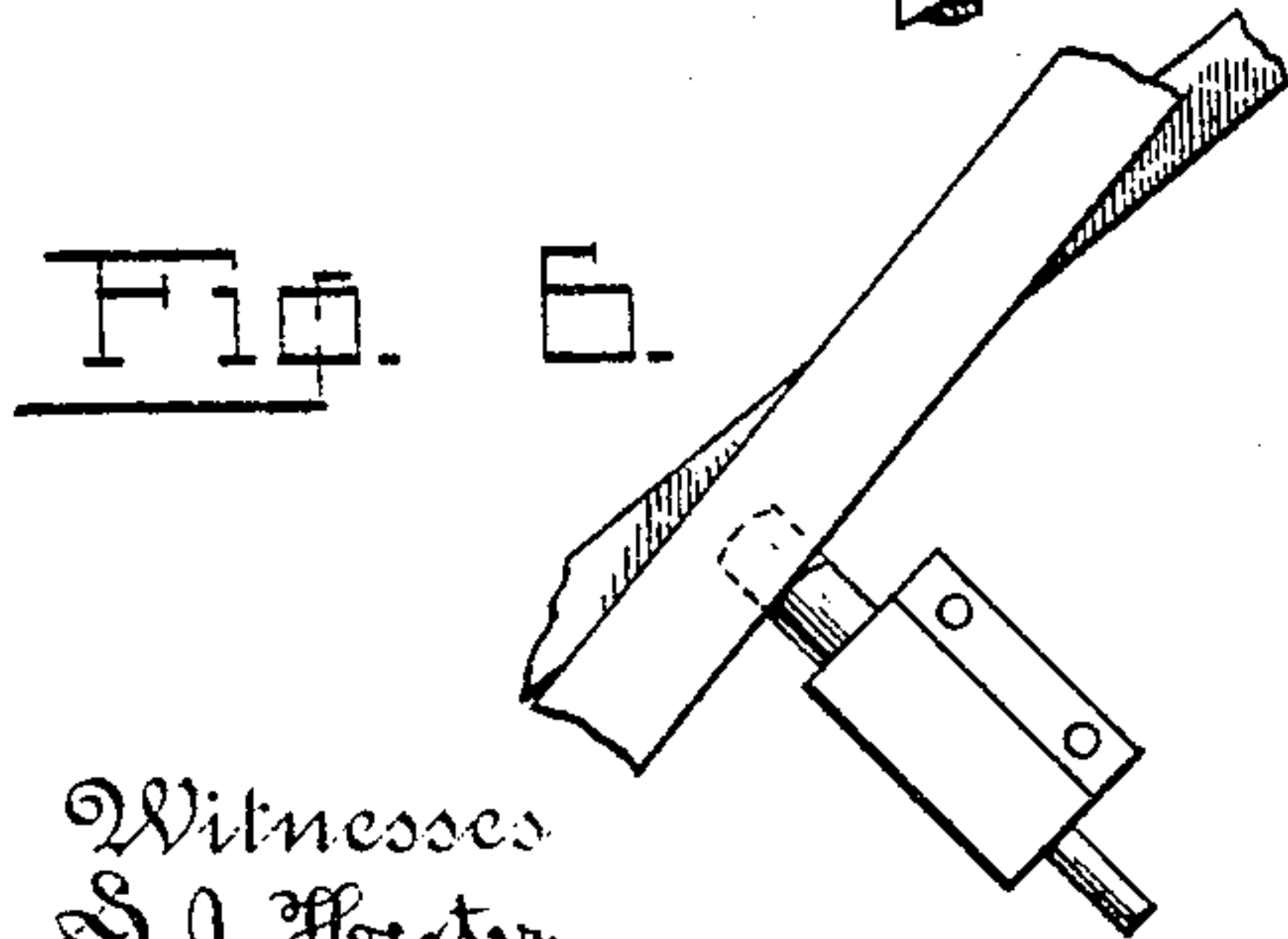


Fig. 6.

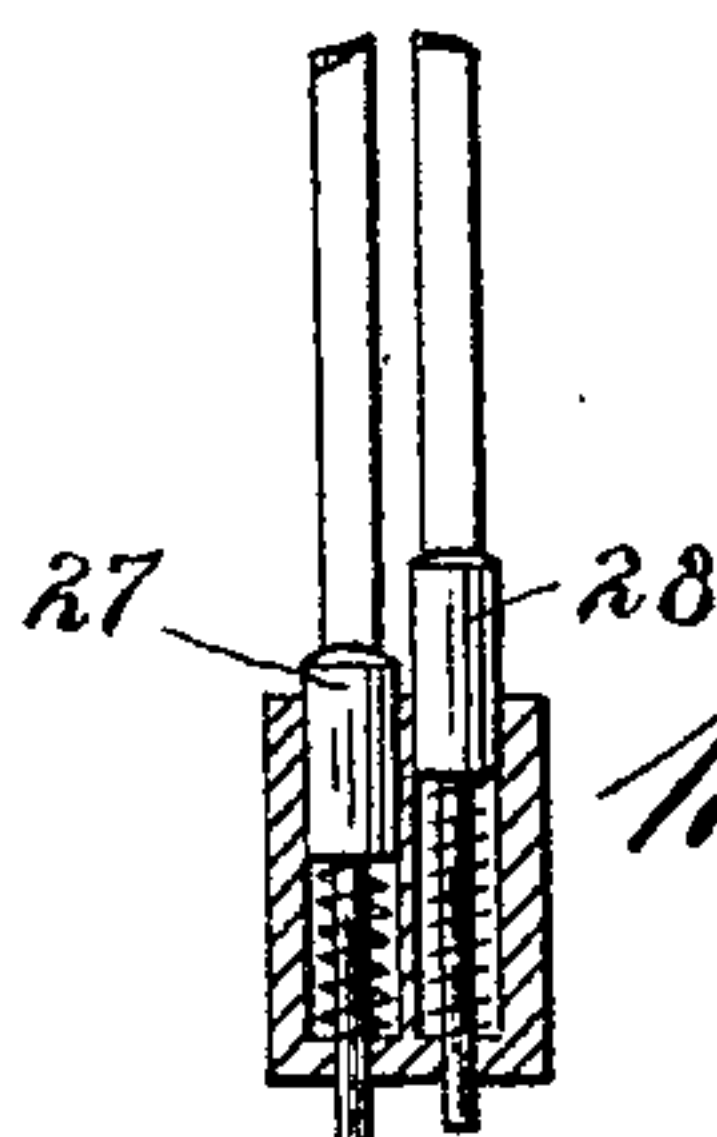


Fig. 7.

Witnesses
S. J. Hoexter
R. M. Mueller

William I. Sutton
Inventor

By his Attorneys Knight Bros

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3 SHEETS—SHEET 3.

Fig. 8.

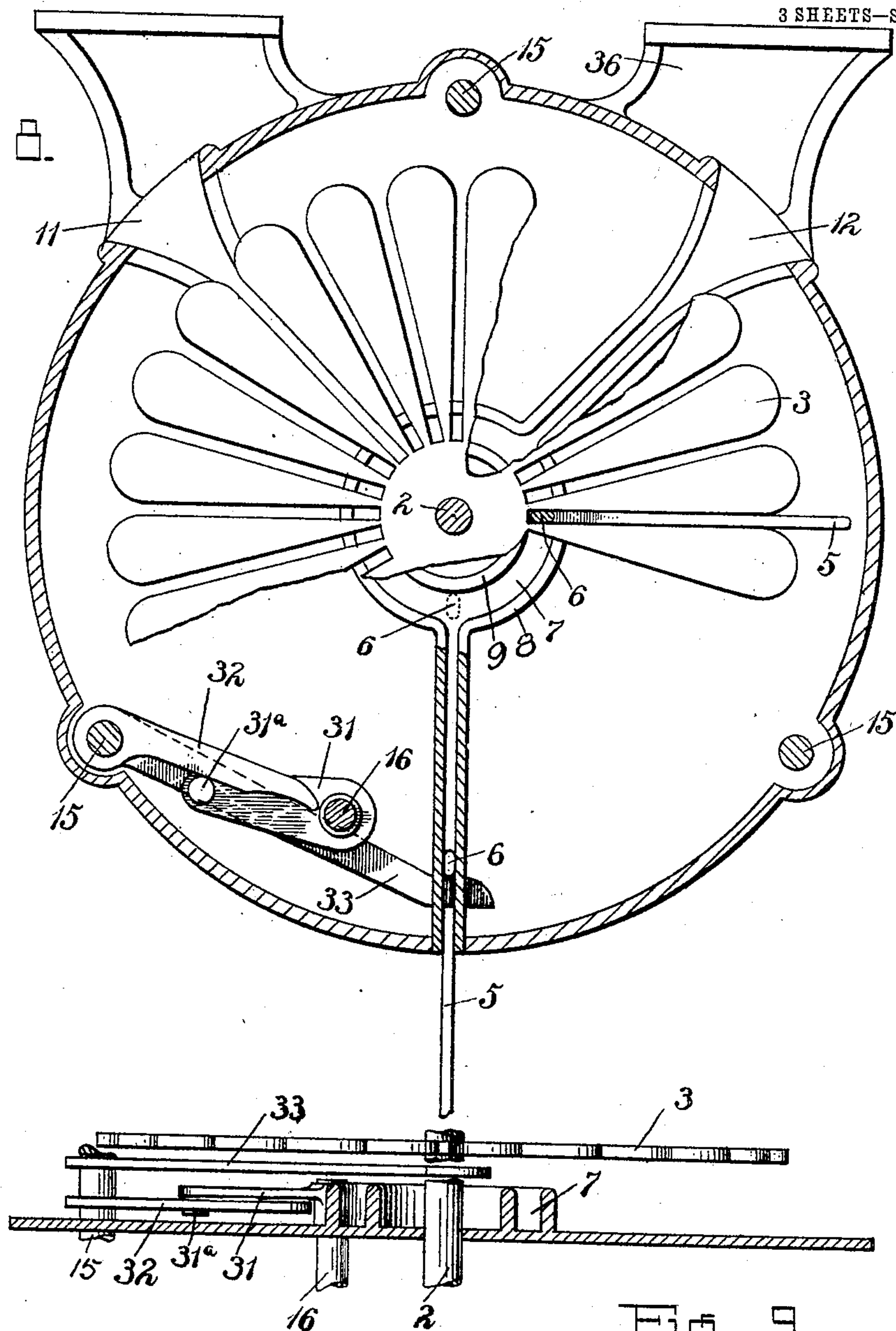


Fig. 9.

Witnesses
S. J. Hoexter
C. W. Grueber.

William I Sutton
Inventor

By his Attorneys
Hughes & Bros

UNITED STATES PATENT OFFICE.

WILLIAM I. SUTTON, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO PETER M. KLING, OF ELIZABETH, NEW JERSEY.

INDICATOR.

No. 795,457.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed August 19, 1904. Serial No. 221,347.

To all whom it may concern:

Be it known that I, WILLIAM I. SUTTON, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Indicators and Particularly in Station or Street Indicating Devices, as clearly set forth in the following specification.

The object of this device is to expose in succession a plurality of signs and automatically return each of the so-exposed signs to its normal unexposed position.

My present invention relates to an arrangement particularly adapted to enable the traveling public in street or railroad cars to ascertain at any time where the next stop is to be made without necessitating the conductor calling out such station upon approaching it or when leaving the last station. This is accomplished by a sign fully exposed to and in sight of all occupants, to be interchanged on the leaving of each station by the conductor. Considering similar devices, a distinct and important advantage of my invention lies in the fact that the exposed signs can be read from both sides, the entire mechanism being arranged so as not to obstruct the view and interfere in any way with these signs. To achieve this with a mechanism of the least number of parts, of small size, and compact and efficient construction, I provide a cylindrical casing inclosing the entire mechanism and having slots for allowing the indicator-plates to drop into sight and to be removed or exchanged at will. The mechanism itself consists of radially-slotted guide-disks for the indicator-plates mounted on a central shaft, which may be operated in either direction by means of pawls and ratchet-wheels. In connection with the turning pivot of said pawls I have provided a system of levers within said cylindrical casing for returning the exposed indicator-plate before the plate-holder is rotated, so as to bring another plate in position to drop into sight.

Various means may be arranged for bringing the two actuating-pawls into or out of operative relation with their ratchet-wheels; but I preferably employ two eccentrics fixed upon the same shaft, the outer ends of said pawl-levers resting against these eccentrics, which are in such relation to each other that the bringing out of operative position of one pawl will allow the other pawl to enter into engagement with its ratchet-wheel.

In the accompanying drawings, Figure 1 is a front view of the device, showing one of the indicating-plates in exposed position. Fig. 2 is a similar view with the cylindrical casing and certain parts of the mechanism cut away. Fig. 3 shows a separate indicator-plate. Fig. 4 is a cross-section of the device on line A B of Fig. 1. Fig. 5 is a plan view of Fig. 4. Figs. 6 and 7 are detail views of a modified form of the means for pressing the actuating-pawls into operative relation with their ratchet-wheels. Fig. 8 is a cross-section on line D C of Fig. 2. Fig. 9 is a plan view, partly on a central horizontal section, through the left-hand end of the mechanism shown in Fig. 2, but on a larger scale.

1 is the cylindrical casing, and 2 the central shaft, carrying the radially-grooved guide-disks 3 and 4, which hold and rotate the indicator-plates 5. The latter are held in their inner position by projections at their lateral ends or by their rear edges 6 extending over the sides of the indicator-plates and into annular grooves 7, formed by inwardly-projecting rings 8 and 9, arranged at the side walls 13 and 14 concentrically to shaft 2. These concentric projections may be arranged independently from the side walls on proper supports secured to the cylindrical casing 1. The outer annular projections 8 have several recesses, one at their lowest point, from which two ribs extend downwardly to a slot in the cylindrical casing 1, thus forming a guide for the dropping out of the indicator-plates 5. Two recesses in the upper part of the annular projections 8 and corresponding large openings 11 and 12 in the casing 1 serve for removing or inserting any of the indicator-plates.

The side walls 13 and 14, closing the ends of the cylindrical casing 1, are tightly held together by three screw-bolts 15. As shown in Figs. 4 and 8, the left-hand lower one of these bolts serves for carrying part of the mechanism, coöperating with the short axle 16, journaled slightly lower in the side wall 13 and in the cover 17, mounted over that part of the mechanism which is arranged on the outside of wall 13.

The entire mechanism is arranged at the left-hand end of the cylindrical casing 1, Figs. 1 and 2, and consists of two oppositely-working ratchet-wheels 18 and 19, fixed upon shaft 2 and coöperating with two pawl-levers 20 21, pivoted to the ends of a double lever

22 on the short axle 16. The outer end of each of these pawl-levers 20 21 rests against an eccentric 23 or 24, respectively, both being fixed to a shaft 25 in such way that only one of said pawls is at a time in operative relation with its ratchet-wheel. Leaf-springs 26 serve for holding the pawl-levers 20 21 always in close contact with said eccentrics. In Figs. 6 and 7 a modified form is shown for the latter purpose, providing two spring-pressed bolts or pistons 27 28 in place of leaf-springs 26. An indicating-arrow 29 is secured to the outer end of shaft 25 for adjusting the eccentrics 23 24, thus allowing to reverse the rotation of the indicator-shaft 2. A double lever 30 is mounted on the outer end of the short axle 16, carrying the actuating-pawls 20 21, for operating the device by hand or in any other suitable way. As shown in Figs. 2 and 8, a short crank-pin lever 31 is secured to the inner end of shaft 16, carrying at its free end the crank-pin 31^a, resting against the lower edge of another lever 32, mounted on the left-hand lower screw-bolt 15, Fig. 8. The outer end of lever 32 is shaped so as to conform with the circle described by the turn of pin 31^a, so that after lifting lever 32 a certain distance the latter becomes stationary during the last part of the operation. On both ends of this screw-bolt 15 are mounted finger-levers 33, extending with their free ends over the vertical plane of the indicator-shaft 2 and in close proximity to both sides of the indicator-plates 5, so as to hold the laterally-projecting rear ends 6 of the same when the plates are exposed and to effect the return motion of the latter.

In order to insure a stepwise motion of shaft 2, a detent-dog 34 is arranged engaging with a detent-wheel 35, secured to shaft 2. As a means for fastening the mechanism to a proper support brackets 36 project upwardly from the side walls 13 14.

The operation is as follows: On turning the operating-lever 30 in the direction indicated by arrows *a b* in Fig. 4 the lever mechanism 31 32 33 (see Fig. 8) will return the exposed indicator-plate 5. This operation is completed the moment pin 31^a enters that part of the lower face of lever 32 which is curved to the circle of its path, thus holding the plate 5 at rest in its inner position, while simultaneously the pawl 20 comes into engagement with its ratchet-wheel 18, moving shaft 2, and thereby the radially-grooved plate-holder 3 and 4, one step, thus bringing the next plate into position to be dropped in sight as soon as the operating-lever 30 is released and returned to normal position by means of a suitable spring 10. A half-turn of shaft 25, carrying the eccentrics 23 24, will bring the pawl 20 out of its operative relation with ratchet-wheel 18 and pawl 21 in operative position. The actuation of the operating-lever

30 will then result in rotating the plate-holder in opposite direction.

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

1. In a device of the character described, the combination of radially-arranged indicator-plates, supports at both ends thereof having annular grooves concentric with this radial arrangement, projections at the lateral ends of each of the indicator-plates and sliding in said annular grooves, and means for intermittently rotating the plates, substantially as set forth.

2. In a device of the character described, the combination of radially-arranged indicator-plates, stationary supports at both ends thereof having annular grooves concentric with this radial arrangement, projections at the lateral ends of each of the indicator-plates and sliding in said annular grooves, the walls of said grooves having recesses for allowing the plates to be exposed and removed, means for intermittently rotating the plates in order to successively place the same opposite said recesses and additional means for returning the exposed plates to normal position previous to said rotation, substantially as set forth.

3. In a device of the character described the combination with a radially-grooved plate-holder and a slotted casing for same, of a shaft carrying said plate-holder, oppositely-actuating ratchet-wheels on said shaft, an operating-pawl for each of said ratchet-wheels for rotating the plate-holder in either direction, means preventing simultaneous engagement of said pawls and ratchet-wheels, an operating-lever connected with said pawls, and a lever mechanism actuated by said operating-lever so as to return the exposed plate to normal position before the pawls engage their ratchet-wheels, substantially as set forth.

4. In a device of the character described the combination of a radially-grooved plate-holder, indicator-plates slidably supported in said grooves, and a slotted casing surrounding said plate-holder, of a shaft carrying said plate-holder, oppositely-actuating ratchet-wheels on said shaft and an operating-pawl for each of these ratchet-wheels for rotating the plate-holder in either direction, means preventing simultaneous engagement of said pawls and ratchet-wheels, a double lever pivoted within the casing and carrying said pawls at each end, an operating-lever and a crank-pin lever secured to the pivot of said double lever, a separately-journalled lever within the casing actuated by said crank-pin lever, two finger-levers secured to the pivot of the separately-journalled lever and arranged on each side of and in close proximity to the indicator-plates and lateral projections on said plates to be engaged by said finger-levers for restoring the exposed plates to normal posi-

tion previous to the rotation of the plate-holder, substantially as set forth.

5. In a device of the character described, the combination with a radially-grooved plate-holder, indicator-plates slidingly supported in said grooves and a slotted casing surrounding said plate-holder of a shaft carrying said plate-holder, oppositely-actuating ratchet-wheels on said shaft, an operating-pawl for each of these ratchet-wheels for rotating the plate-holder in either direction, means preventing the simultaneous engagement of said pawls and ratchet-wheels, a double lever pivoted within the casing and carrying said pawls at each end, an operating-lever and a crank-pin lever secured to the pivot of said double lever, a crank-pin projecting from the free end of said crank-pin lever, a separately-journaled lever within said casing actuated by the said crank-pin lever and having a curved outer end conforming with the circle path of said crank-pin so as to be at rest during the last part of the turn of said crank-pin lever, two finger-levers secured to the pivot of the separately-journaled lever and arranged on each side of and in close proximity to the indicator-plates, lateral projections on said plates to be engaged by said finger-levers for restoring the exposed plates to normal position previous to the rotation of the plate-holder, substantially as set forth.

6. In a device of the character described, the combination with a radially-grooved plate-holder, indicator-plates slidingly supported in said grooves, a slotted casing surrounding the plate-holder and means for intermittently rotating the latter, of lateral projections at the inner edge of the indicator-plates, annular projections forming circular grooves concentric with the plate-holder for said lateral projections vertical grooves leading from these circular grooves to a slot in said casing for allowing the plates to be exposed, finger-levers journaled within the casing and extending over the path of said vertical grooves so as to engage the lateral projections on the indicator-plates and to return the latter previous to the rotation of the plate-holder, substantially as set forth.

7. In a device of the character described, the combination of a casing, circular projections concentrically situated at opposite sides of and within said casing, and having a number of recesses, indicator-plates radially grouped and slidingly supported within said casing, lateral extensions at the inner edges of

said plates and engaged by said circular projections, means for holding said plates spaced, means for rotating said spacing means so as to allow each plate to drop into sight through one of the recesses in the circular projections, and additional means controlled by said rotating means for restoring each plate to its unexposed position previous to such rotation, substantially as set forth.

8. In a device of the character described, the combination with indicator-plates and means for holding and operating same, of a crank-pin lever, a crank-pin projecting from the free end thereof, an independently-journaled lever engaged by said crank-pin, plate-actuating finger-levers connected with said independent lever, and a curved portion of the latter conforming with the circle path of said crank-pin so as to make the plate-actuating levers stationary during part of the operation, substantially as set forth.

9. In a device of the character described, the combination with indicator-plates and means for holding and operating same, of a crank-pin lever, a crank-pin projecting from the free end thereof, an independently-journaled lever, resting with its lower face upon said crank-pin, plate-actuating finger-levers operated by said independent lever, and a curved part in the lower face and at the outer end of said independent lever, conforming with the circle path of said crank-pin so as to make the plate-actuating levers stationary during the last part of the operation, substantially as set forth.

10. In a device of the character described, the combination with radially-grouped indicator-plates, means for slidingly supporting same, and means for rotating said supporting means, of a crank-pin lever, a crank-pin projecting from the free end thereof, an independently-journaled lever, resting with its lower face upon said crank-pin, plate-lifting levers connected with said independent lever and a curved portion in the lower face and at the outer end of the latter, said curve conforming with the circle path of said crank-pin so as to make the plate-lifting levers stationary during the latter part of the operation and after the exposed plate is returned to its unexposed position, while the plate-supporting means are rotated, substantially as set forth.

WILLIAM I. SUTTON.

Witnesses:

JOSEPH J. SCHMIDT,
C. VON GRUEBER.