(No Model.) 4 Sheets—Sheet 1.

D. W. HARPER.

CASH REGISTER.

No. 577,164. Patented Feb. 16, 1897.

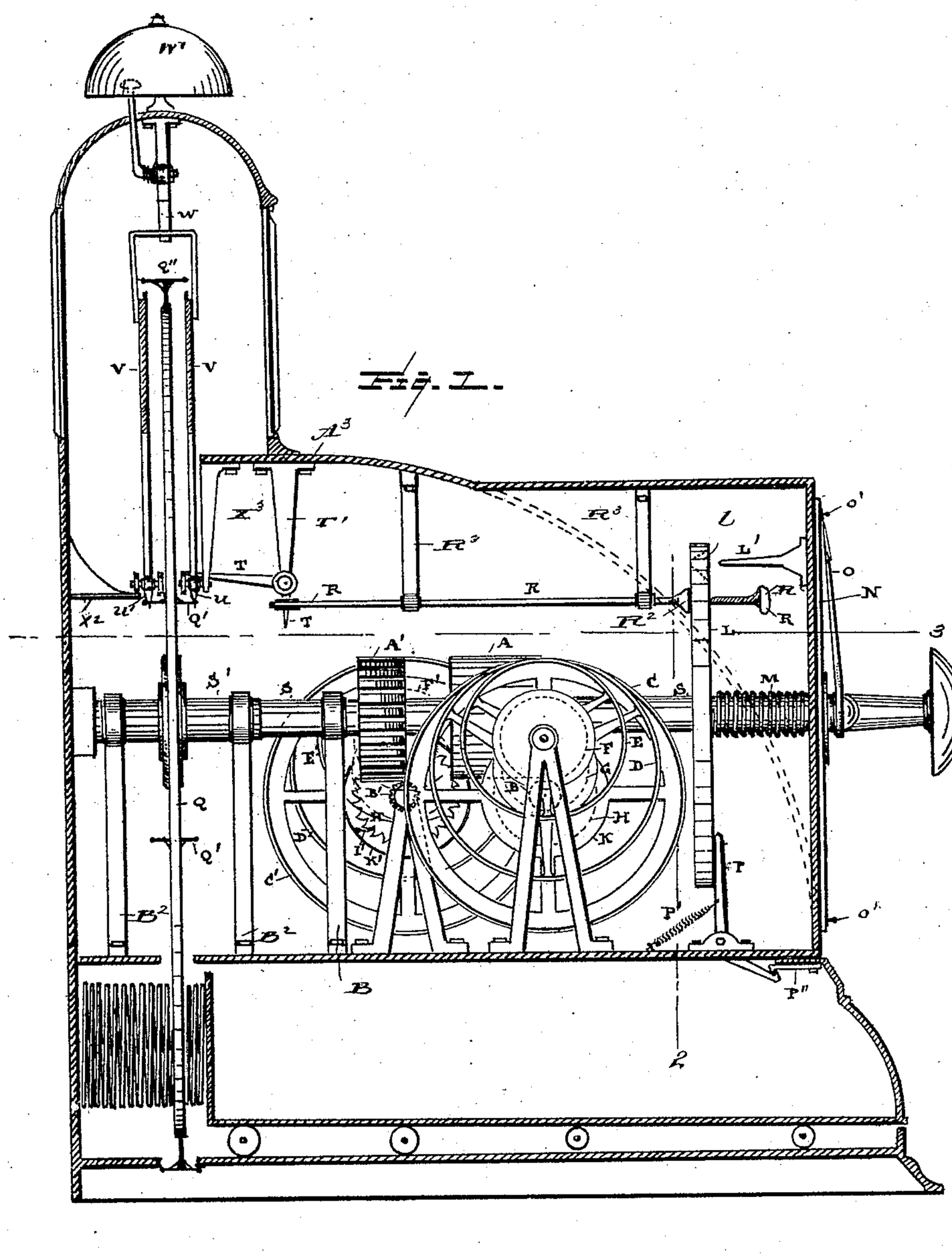

Fig. 1.

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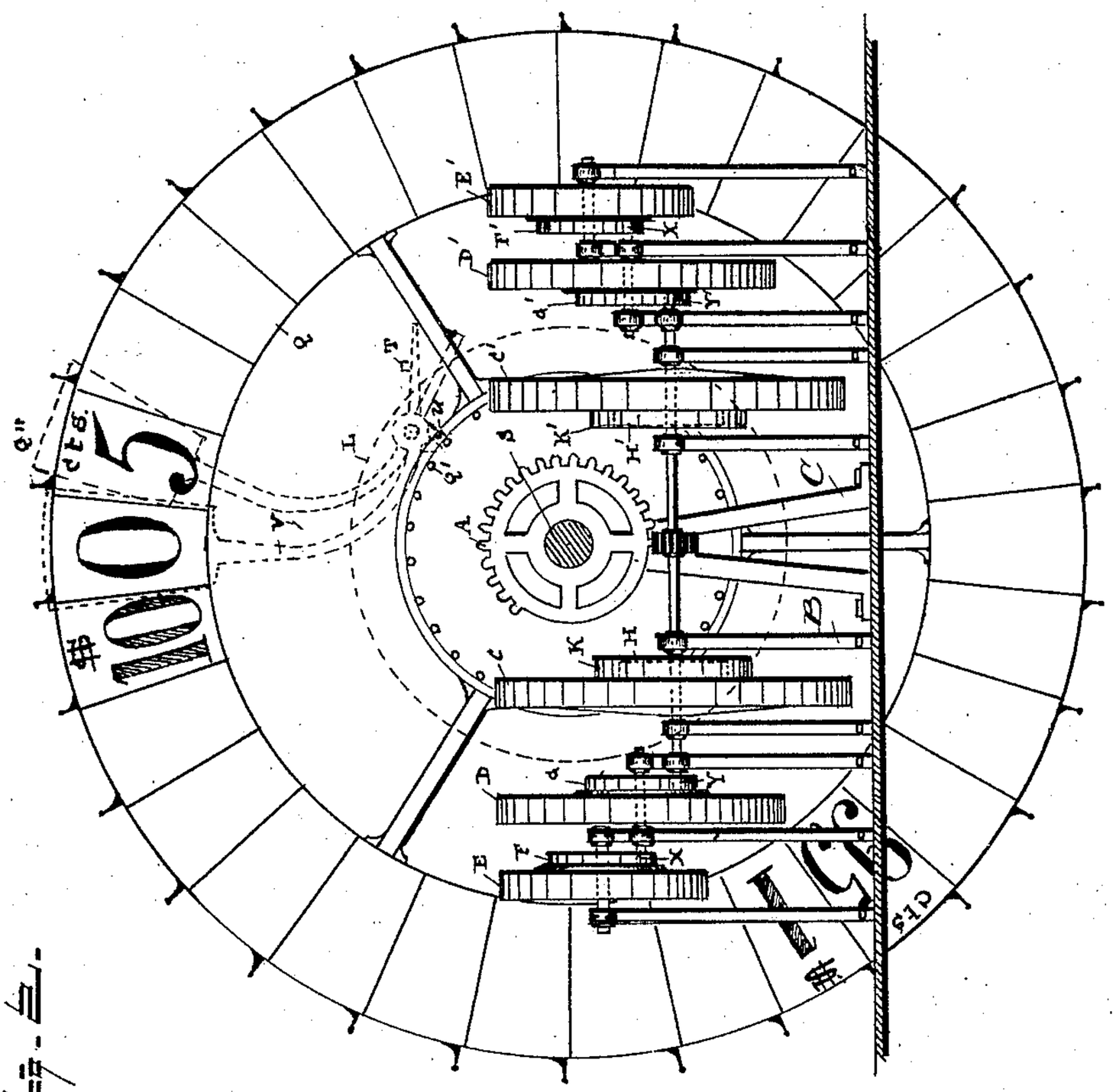

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(No Model.) 4 Sheets—Sheet 3.

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CASH REGISTER.

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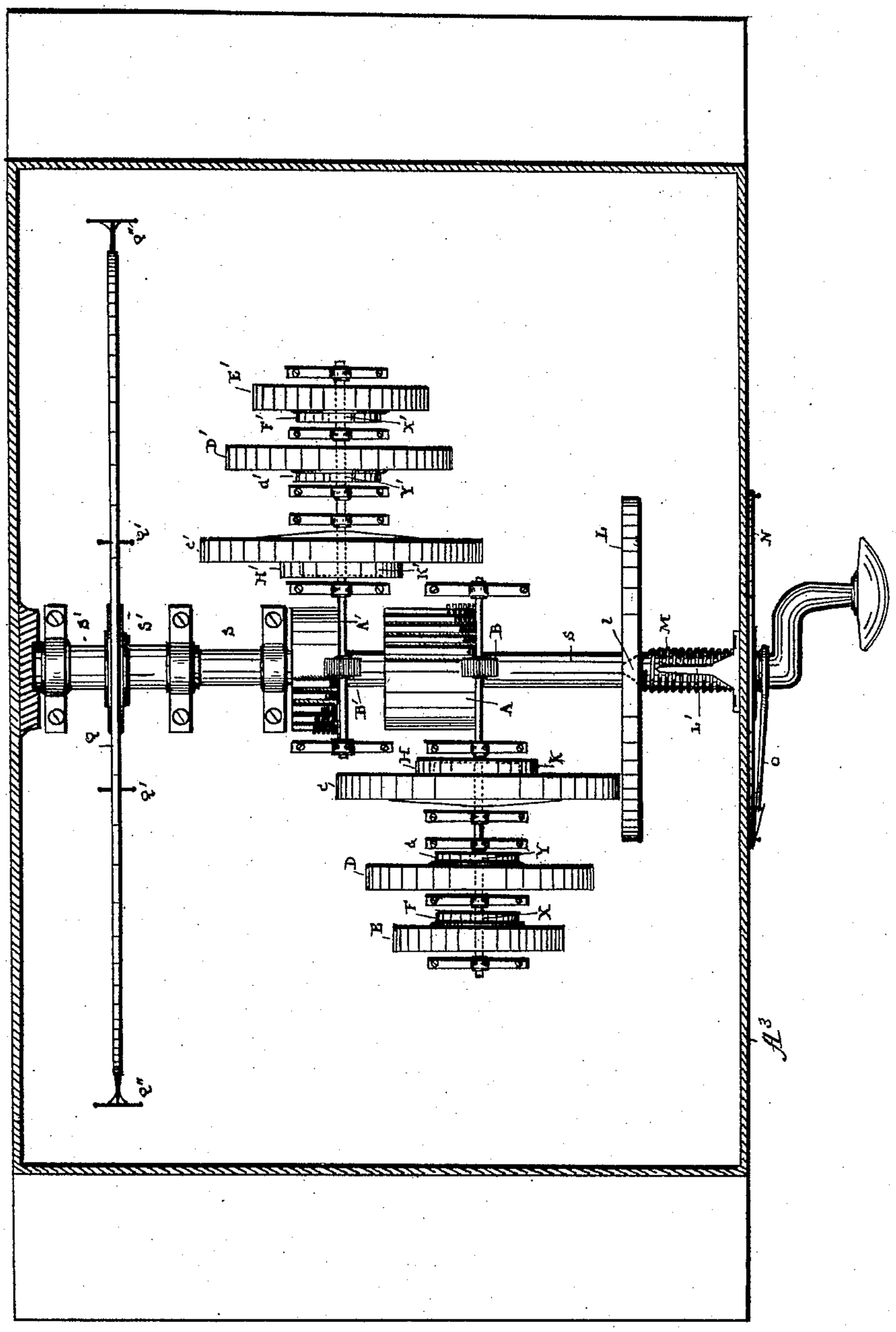

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CASH REGISTER.

No. 577,164. Patented Feb. 16, 1897.

Fig. 4.

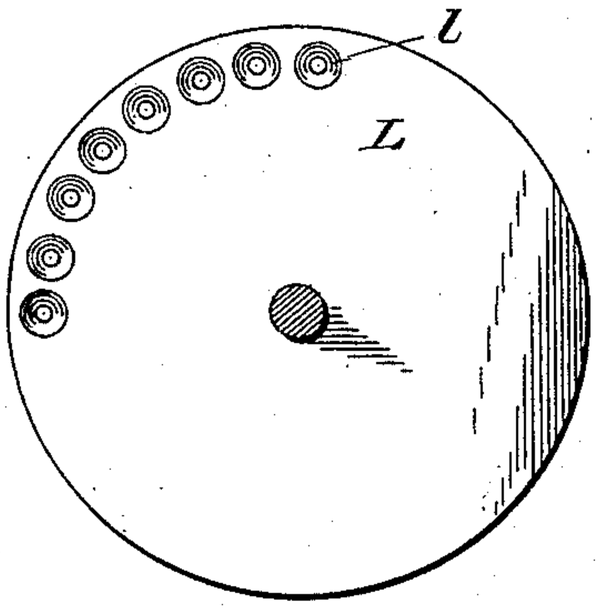


Fig. 5.

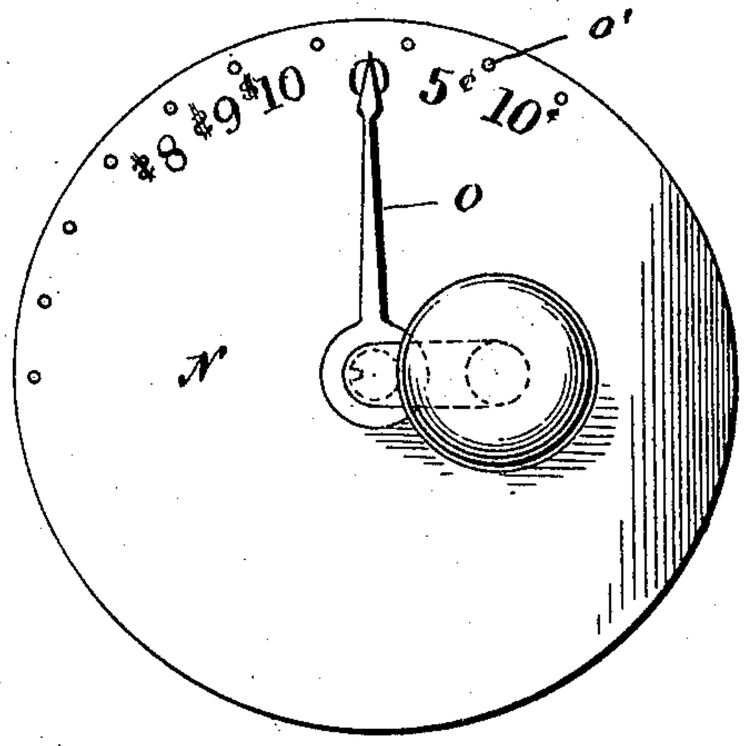


Fig. 6.

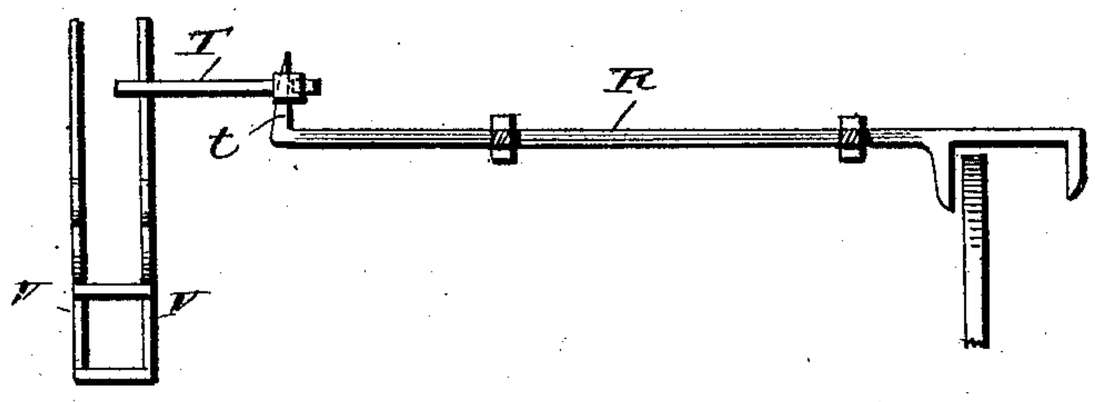


Fig. 7.

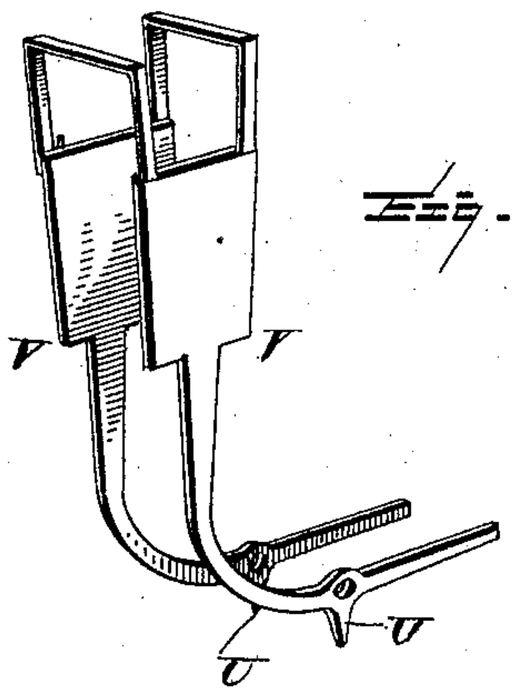
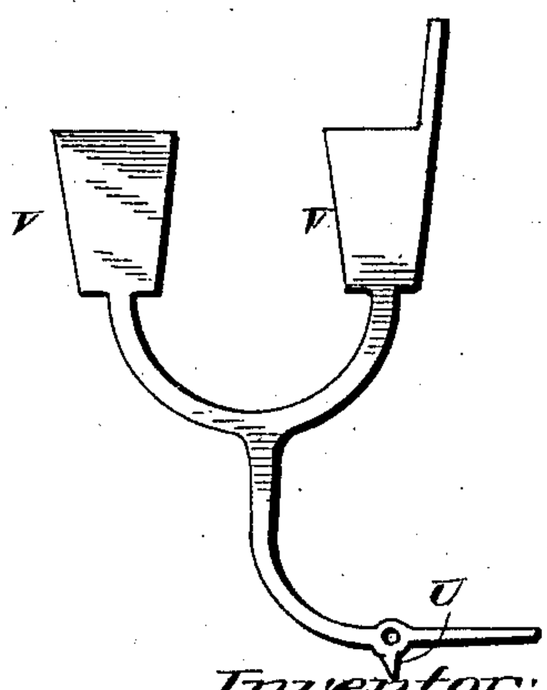


Fig. 8.



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Inventor:
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UNITED STATES PATENT OFFICE.

DANIEL W. HARPER, OF BIRMINGHAM, ALABAMA, ASSIGNOR OF ONE-HALF TO THOMAS RIPLEY FARNSWORTH AND ROBERT LEEDY MATTHEWS, OF MEMPHIS, TENNESSEE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 577,164, dated February 16, 1897.

Application filed August 11, 1896. Serial No. 602,448. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. HARPER, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Cash-Registers; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in cash registers and recorders, and especially to an entirely new novel mechanical movement in this class of inventions whereby the recording of a purchase is effected through the medium of a cog-wheel having broken series of teeth about its circumference, which teeth are cut at right angles to the axis of the wheel, each series of teeth designating a certain numerical amount corresponding to the amount of the purchase, and the said cog-wheel is regulated by mechanism which causes the teeth of the wheel to mesh with a pinion carried on a shaft connected with recording-wheels of any suitable construction common in the art, so that as an operating-shaft carrying the cog-wheel is pulled out the record of the purchase is made.

A further part of my invention resides in the provision of a shutter which is automatically operated so as to cover and obscure from view an indicating-numeral on a dial, or to be thrown back, disclosing the purchase amount, the mechanism for operating which shutter being actuated each time that the shaft carrying the cog-wheel is pulled out in the act of recording a purchase.

In connection with the foregoing I provide means for ringing a bell each time that a purchase is made, and suitable mechanism for tilting the shutter backward and forward, which will be hereinafter more fully described.

Heretofore it has been the practice to construct recorders in connection with cash-registers in which a plurality of indicating-dials are utilized to record dollars and cents, while in the present invention I am able, by the peculiar and novel construction embodied in the mechanism which I employ, to utilize but one dial having both the cent and dollar numerals, and from which both denominations may be recorded by a pulling out of the same shaft.

To these ends and to such others as the invention may pertain, the same consists, further, in the novel construction, combination, and adaptation of the parts, as will be hereinafter more fully described, and then specifically defined in the appended claims.

I clearly illustrate my invention in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which drawings similar letters of reference indicate like parts throughout the several views, in which—

Figure 1 is a central vertical section through my improved cash register and recorder. Fig. 2 is an end elevation with the face of the register removed. Fig. 3 is a top plan view of the interior mechanism with the shutter removed. Fig. 4 is a detail view of a perforated disk designed to hold the shaft from rotating while a purchase is being recorded. Fig. 5 is a side elevation of the dial on one end of the register together with the operating-handle and indicating-pointer. Fig. 6 is an enlarged detail view of the mechanism which is designed to tilt the shutter. Fig. 7 is an enlarged detail in perspective of the shutter. Fig. 8 is a side elevation of the shutter.

Reference now being had to the details of the drawings by letter, A^3 designates the casing of the cash-register, in which is carried at the bottom a money-drawer, and on the partition above the money-drawer are mounted the yokes B^2 B^2, in the perforated upper ends of which is carried the shaft S′, to which is keyed or otherwise fastened the dial Q, having arranged upon opposite sides, if desired, the indicating-numerals of different denominations, which in the present instance have numerals from "0" to "$10." Mounted on the yoke B^2 and in the front wall of the register is the shaft S, which telescopes at one end within the hollow shaft S′, but is keyed so

as to turn with the said shaft S'. Keyed to the shaft S are the cog-wheels A and A', which have series of broken teeth about their circumferences, with smaller teeth in the broken cogs at right angles to the axes of the wheels. Meshing with the teeth of the cog-wheel A is a pinion-wheel B, which is keyed to a shaft having communication with the recording-wheels C, D, and E, which are of ordinary construction and commonly used in the art. Hence no further detailed description of this part of the recording mechanism is thought necessary. This wheel A is designed for recording any purchase the amount of which is one dollar or below one dollar, while a second similarly-constructed cog-wheel A' is provided, which is designed to record purchases amounting to dollars. A pinion B' is provided mounted on a suitable shaft carried on yokes, which pinion is designed to mesh with any series of cog-teeth on the wheel A' which may be brought so as to mesh therewith. Suitable recording-wheels C', D', and E' are connected with this latter-referred-to shaft, whereby the dollar purchases may be recorded.

On the front face of the register is a dial N, rigidly secured thereto, and the numerals on this dial are similarly arranged to those on the dial *a*, before referred to.

An indicating-pointer O is keyed to the shaft S on the outside of the register, and a row of integral lugs *o'* are disposed at intervals between the numerals on the said dial N. Keyed to the shaft S within the casing of the register is a disk L, which has a series of conical-shaped apertures *l* about its rim.

Secured to the inside wall of the front of the register is a conical-shaped member L', the vertical center of which is coincident with a vertical central plane through the shaft S. Interposed between the said disk L and the front wall of the register on the shaft S is a spring M, which normally holds the shaft S in the position shown in Fig. 1 of the drawings.

An angle-lever P, pivoted to a casting, has one end projecting up in front of the face of the disk L and is retained in this position against the disk by means of the coiled spring P', while the lower end of the said lever is hooked and designed to catch over a member P'' to lock the drawer shut, and as the shaft S, carrying the disk, is pulled out the lever tilts and the drawer is unlocked, as will be readily understood.

The number of teeth on the broken cogs corresponds to the numerals from "1" to "10" on the dials *a* and N, and when it is desired to record a purchase the indicating-pointer *o* is turned with its shaft, which also turns the indicating-dial *a*, so that the amount of the purchase will appear at the indicating-aperture in the upright portion of the register. As the shaft S turns, the broken cog-wheel will also turn, so that the particular portion of its surface which has a number of teeth corresponding to the numeral of the purchase comes so as to mesh with the pinion on the recording-shaft when the shaft is pulled out to record the amount of the purchase, and as the pinion is turned the recording is effected. As the disk L moves forward, the point of the member L' will engage with the conical aperture which is in alinement with said member, and which aperture is in the same plane with the numeral on the indicating-dial, so that the disk will be steadily held from turning in either direction while the recording is being done.

The shutter and mechanism for operating the same are as follows: Pivoted on suitable brackets X^2 and X^3 is the shutter, made up of the two pieces V V, connected together at their upper ends and having their lower ends contracted and curved, as best seen in Fig. 7 of the drawings. This shutter is pivoted so as to straddle the dial *a*, and the strips connecting the two plates V are designed to strike against the lever W and ring the bell W' as the shutter tilts. Secured about the circumference of the dial *a* is a series of cross-pieces Q'' of a length slightly longer than the distance between the plates V, but of such a length as to readily pass between the sides of the strips connecting the plates, and which strips, it will be noted, are slightly outwardly-inclined as they rise upward. A second series of lugs Q' is provided on opposite sides of the dial *a*, which are utilized in connection with the lugs or cross-pieces Q'' for actuating the shutter. The curved lower portions of the shutter have the integral lugs U, which, when the shutter is pivoted in place, project in the path of the lugs Q' on the dial *a*.

Journaled in the brackets R^3 is the rod R, slidingly held therein, and one end of the said rod has the projections R^2, located a suitable distance apart, and one on each side of the disk L, so that as the disk is moved backward and forward the said bar R is caused to slide in the brackets supporting the same.

Pivoted in the bracket T' is the angle-lever T, one end of which is engaged by a bent end *t* of lever R, while the other end rests normally above the arms of the plates V, so that as the lever T is tilted the shutter is caused to be tilted, so that the upper widened portion will swing back, exposing the numeral of the purchase at the indicating-opening. It will be noted that the dial *a* and the shutter are pivoted on different centers, and that as the shutter is tilted by the angle-lever T the upper end of the widened plates V will come within the path of the cross-pieces Q'' on the dial *a*, and that if the dial is turned while the shutter is in its tilted position the cross-piece Q'' which happens to be next to the shutter will bear against the edges of the plates V V and cause the shutter to tilt back, so that the plates V will obscure the indicating-numeral opposite the aperture. When the plates V of the shutter are turned

to a vertical position, the cross-piece which abuts against the plates V or an integral lug or lugs thereon will have reached such a position, the dial carrying the same being on a different center, that the cross-piece will be allowed to pass on uninterrupted and the dial will be allowed to freely revolve without interference from the shutter.

It will be noted that when the shutter is in a closed position, covering the indicating-aperture, the integral point or lug U will be out of the path of the lugs Q′ and the dial may freely revolve in either direction, while when the shutter is in a tilted position and the dial *a* is revolved to the right or in the direction of the movement of the hands of a clock the shutter will be closed by a peg which contacts against the lug U, which projection U is in the path of the lugs Q′ when the shutter is tilted. As the dial *a*, carrying the cross-pieces Q″, moves to the right, the said cross-pieces Q″ will pass freely over the lugs on the plates V at a point substantially half-way between the numerals as the lug Q′ is closing the shutter. So it will be seen that whether the dial and its shaft are turned in either direction the shutter will be closed in case the latter is tilted back to expose the purchase amount.

In Fig. 8 I have shown a modified form of shutter having two plates V on each arm thereof, which may be utilized in place of the shutter shown in Fig. 7, if preferred. In case the shutter shown in Fig. 8 is used one of the plates V will tilt back on each side of the indicating-aperture, and when the shutter is not tilted the indicating-aperture will disclose the purchase amount.

What I claim to be new, and desire to secure by Letters Patent, is—

1. A cash-register having a shutter, which is designed to obscure or disclose an indicating-numeral by means of a rotary and reciprocating mechanism which indicates and records a purchase amount, substantially as shown and described.

2. A cash-register having a shutter which is designed to obscure or disclose an indicating-numeral, the said shutter being opened by means of a horizontal movement of a recording-shaft, and closed by a rotary movement of an indicating-dial, substantially as shown.

3. In combination with the shutter described, a dial having a series of peripheral projections, designed to contact with the upper end of the shutter, and a concentric series of projections above the axis of the dial, adapted to strike against a projection near the lower end of the said shutter, substantially as and for the purpose set forth.

4. In a cash-register the combination with a rotary indicating-dial, and means for operating the same, of a shutter pivoted eccentrically to said dial, of a series of cross-pieces about the circumference of the dial, which are adapted to strike against a portion of the shutter and close the same as the dial is rotated in one direction, substantially as shown and described.

5. A shutter, for a cash-register indicating-dial, mounted on brackets to the casing of the register; means as described for closing the shutter, combined with an angle-lever having one of its arms adapted to contact with a projection of the said shutter, its other arm connected to a sliding bar, whereby shutter may be opened as a purchase is made, substantially as described.

6. A shutter, for obscuring a numeral on an indicating-dial of a cash-register, consisting of two V-shaped plates pivoted within the casing of the register; means for tilting said shutter, the upper ends of said plates being connected together with bracket-strips, which as the shutter is tilted are caused to trip a bell-hammer, located in the path of the shutter, substantially as described.

7. A shutter for obscuring a numeral on an indicating-dial of a cash-register, consisting of two plates V having bracket-strips connecting their upper ends, the lower integral arms of the plate curved, and lugs U thereon, substantially as shown and for the purpose set forth.

8. In combination with a shutter as described, an angle-lever adapted to tilt said shutter, and a sliding rod connected to one end of said lever, and means for automatically operating said rod as a purchase is recorded, substantially as set forth.

9. In a shutter-operating mechanism for cash-registers, the combination with the shutter, and angle-lever as described, of the rod R, slidingly mounted in suitable bearings, the said rod connected at one end to said lever the other end having projections R^2, of the disk-wheel L, mounted on a horizontally-movable shaft the said disk adapted to strike against the projections as the shaft is moved backward and forward, substantially as shown.

10. A recording mechanism for a cash-register, consisting of a shaft carrying a cog-wheel having a series of broken teeth thereon, and means for recording a purchase as the said shaft carrying the cog-wheel is moved backward and forward, substantially as shown and described.

11. A recording mechanism for a cash-register, consisting of a longitudinally-movable shaft, having keyed thereto a cog-wheel, each cog having teeth at right angles to its length, the pinion-wheel mounted at right angles to the axis of said cog-wheel and in the path of the teeth thereon, and means for holding the said shaft from rotating, as it is moved longitudinally, substantially as described.

12. In combination in a cash-register, a shaft carrying an indicating-dial, a revoluble telescoping shaft working said dial-shaft, and having keyed thereto a cog-wheel with broken teeth thereon, and a pinion-wheel, which is connected with recording mechanism, and mounted with the teeth in the path of the said cog-wheel, substantially as described.

13. In combination in a cash-register, a shaft carrying an indicating-dial, a revoluble telescoping shaft working said dial-shaft, and having keyed thereto a cog-wheel with broken teeth thereon, and a pinion-wheel, which is connected with recording mechanism, and mounted with the teeth in the path of the said cog-wheel, and means for preventing the shafts from rotating when moved longitudinally, substantially as described.

14. In a cash-register, the combination with a horizontally and longitudinally movable shaft, a perforated disk mounted thereon of the stationary member L' adapted to register with an aperture in said disk, of the means for automatically operating a shutter and a catch to a money-drawer, as the shaft carrying the said disk, is pulled forward, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL W. HARPER.

Witnesses:
FRANKLIN H. HOUGH,
R. L. HOUGH.