

No. 756,018.

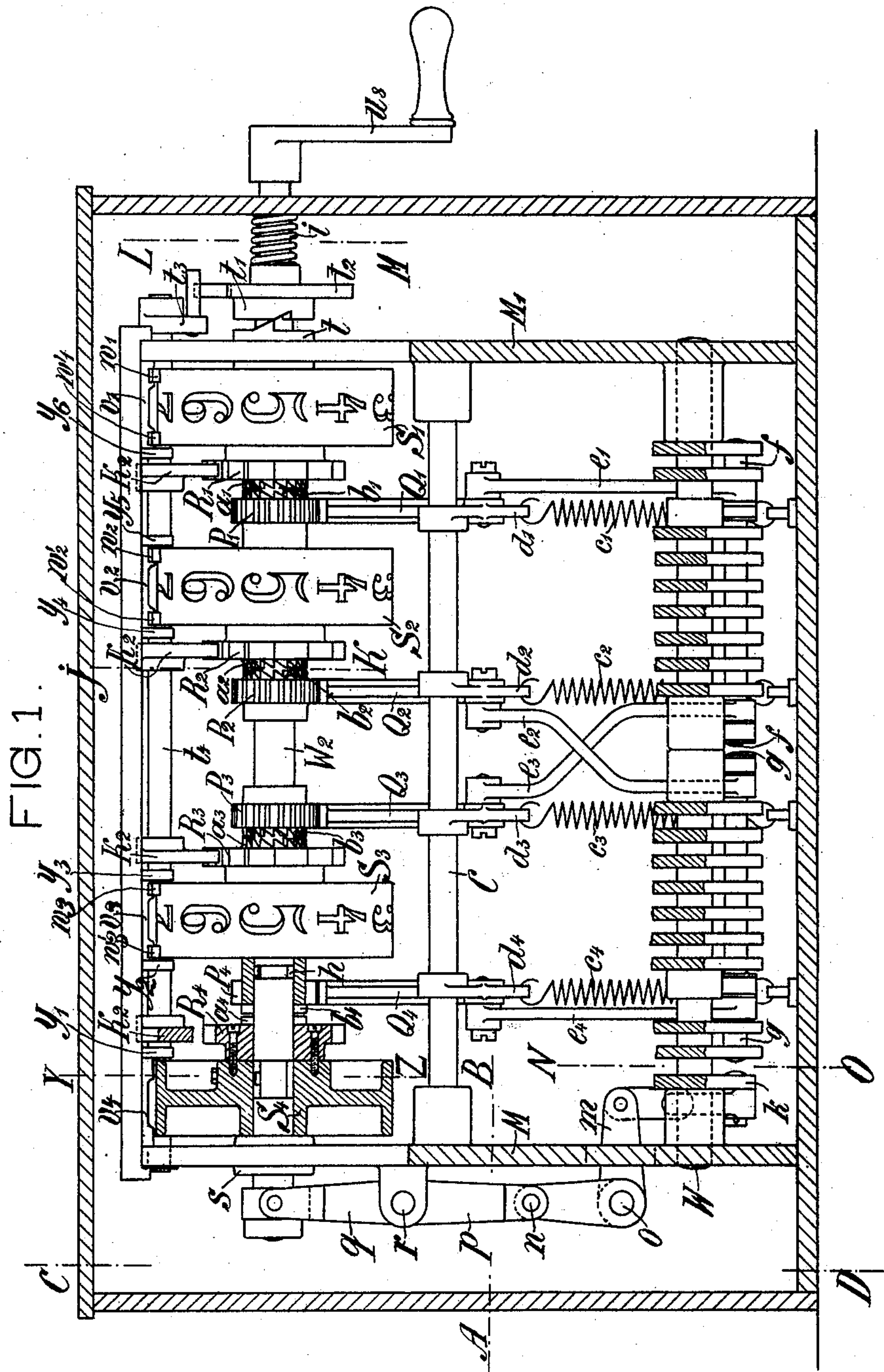
PATENTED MAR. 29, 1904.

G. HILLER.
CASH INDICATOR.

APPLICATION FILED MAY 5, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

FIG. 4.

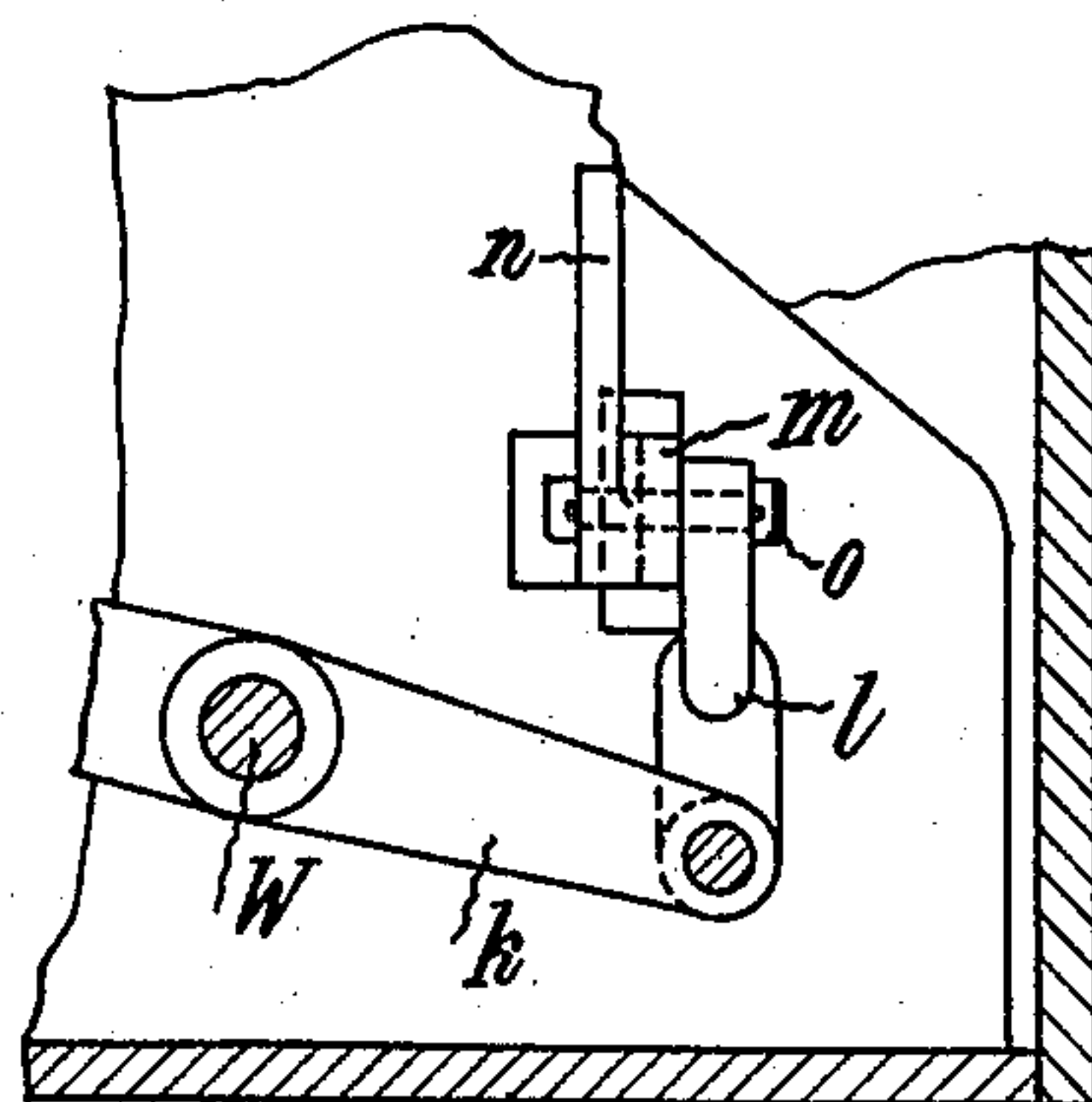


FIG. 2.

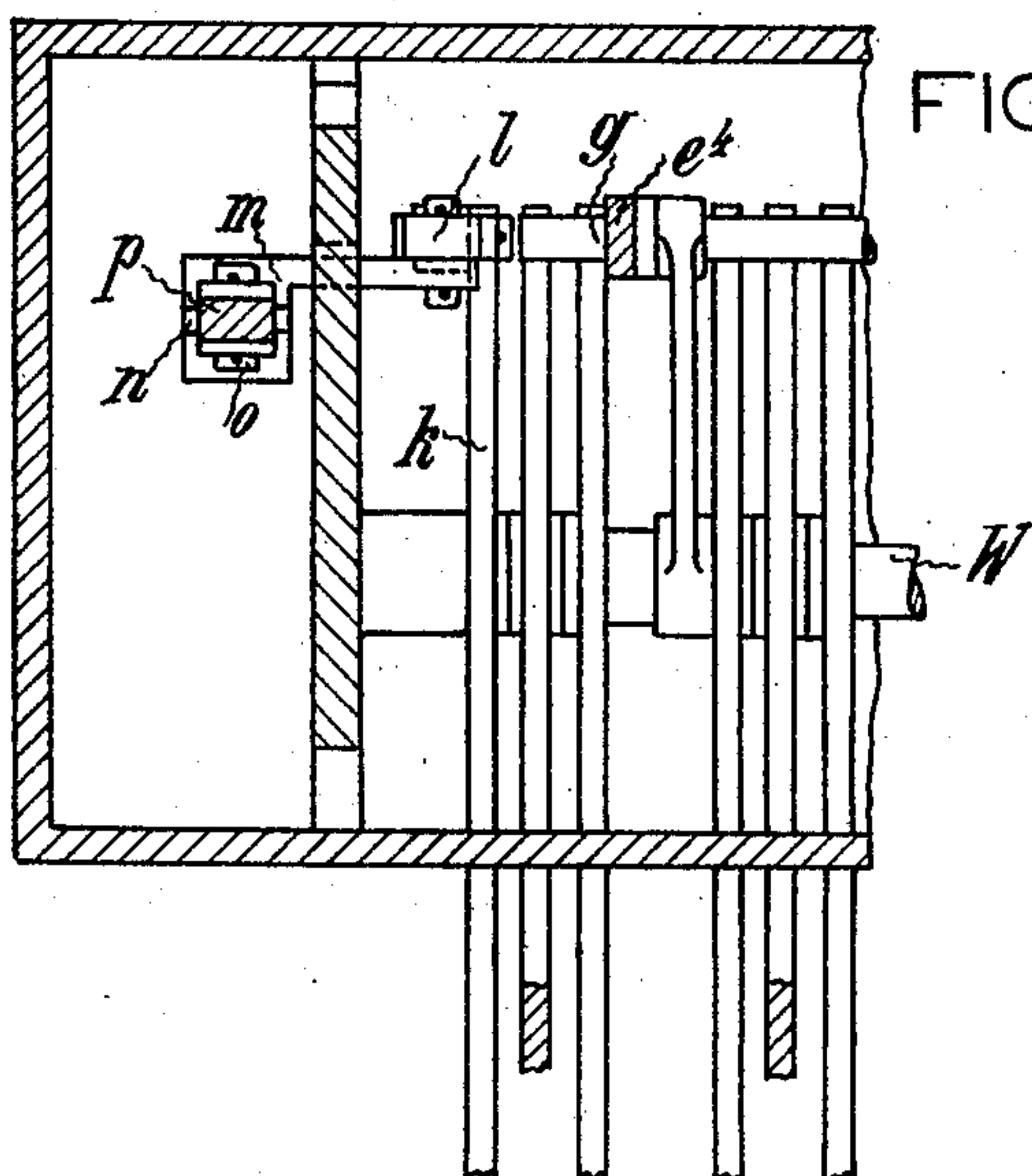
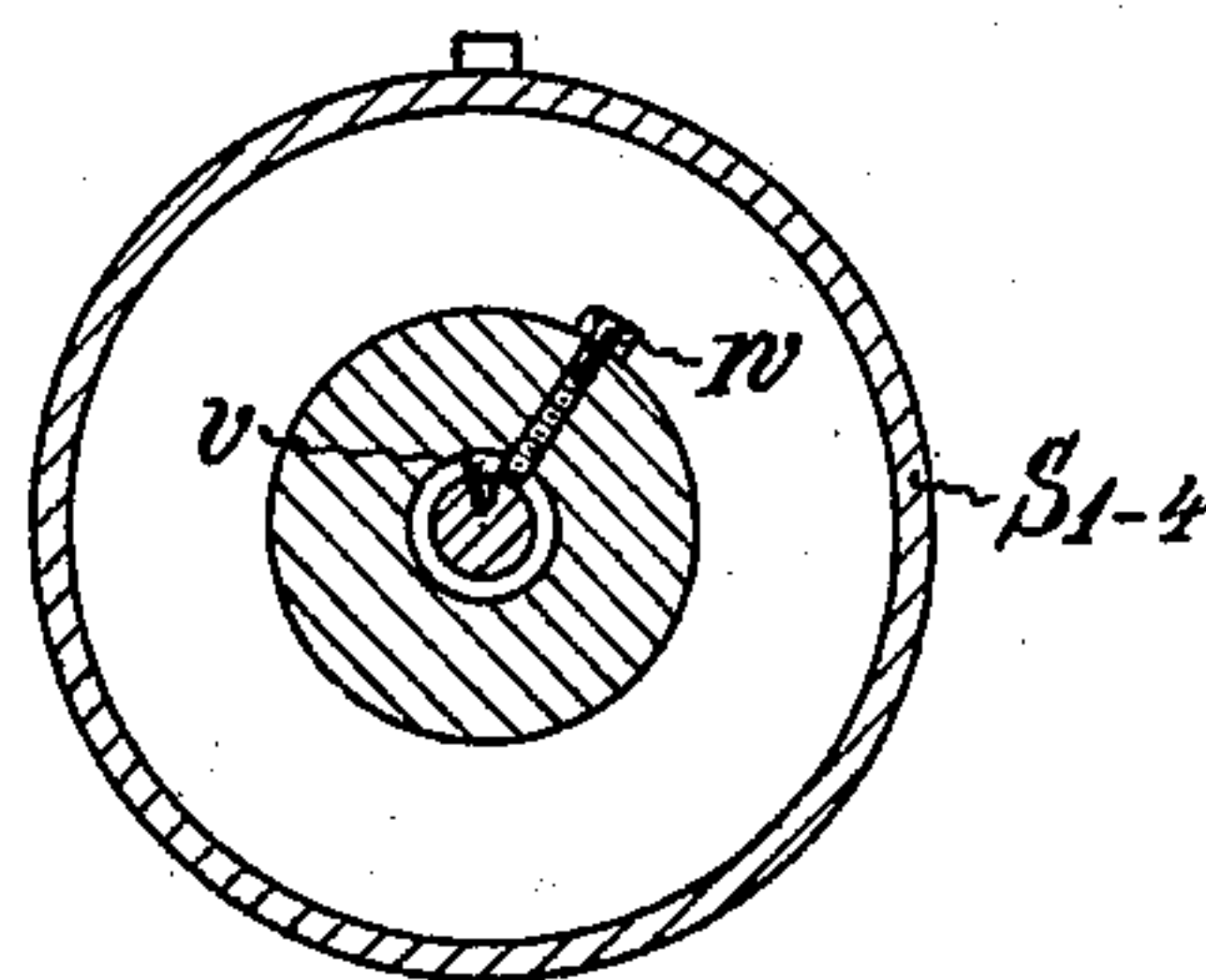


FIG. 5.



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No. 756,018.

PATENTED MAR. 29, 1904.

G. HILLER.
CASH INDICATOR.

APPLICATION FILED MAY 6, 1902.

NO MODEL.

3 SHEETS—SHEET 3.

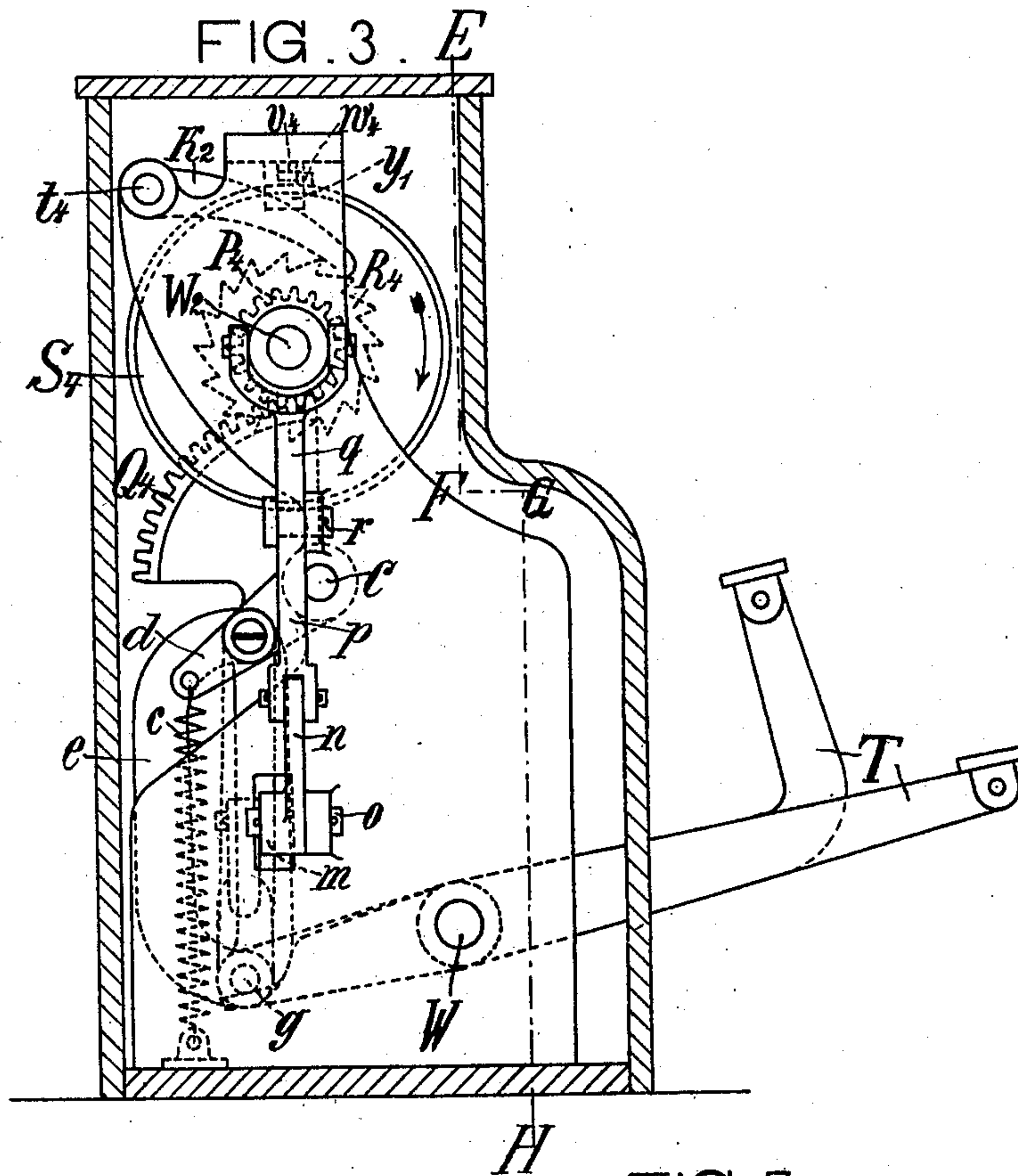
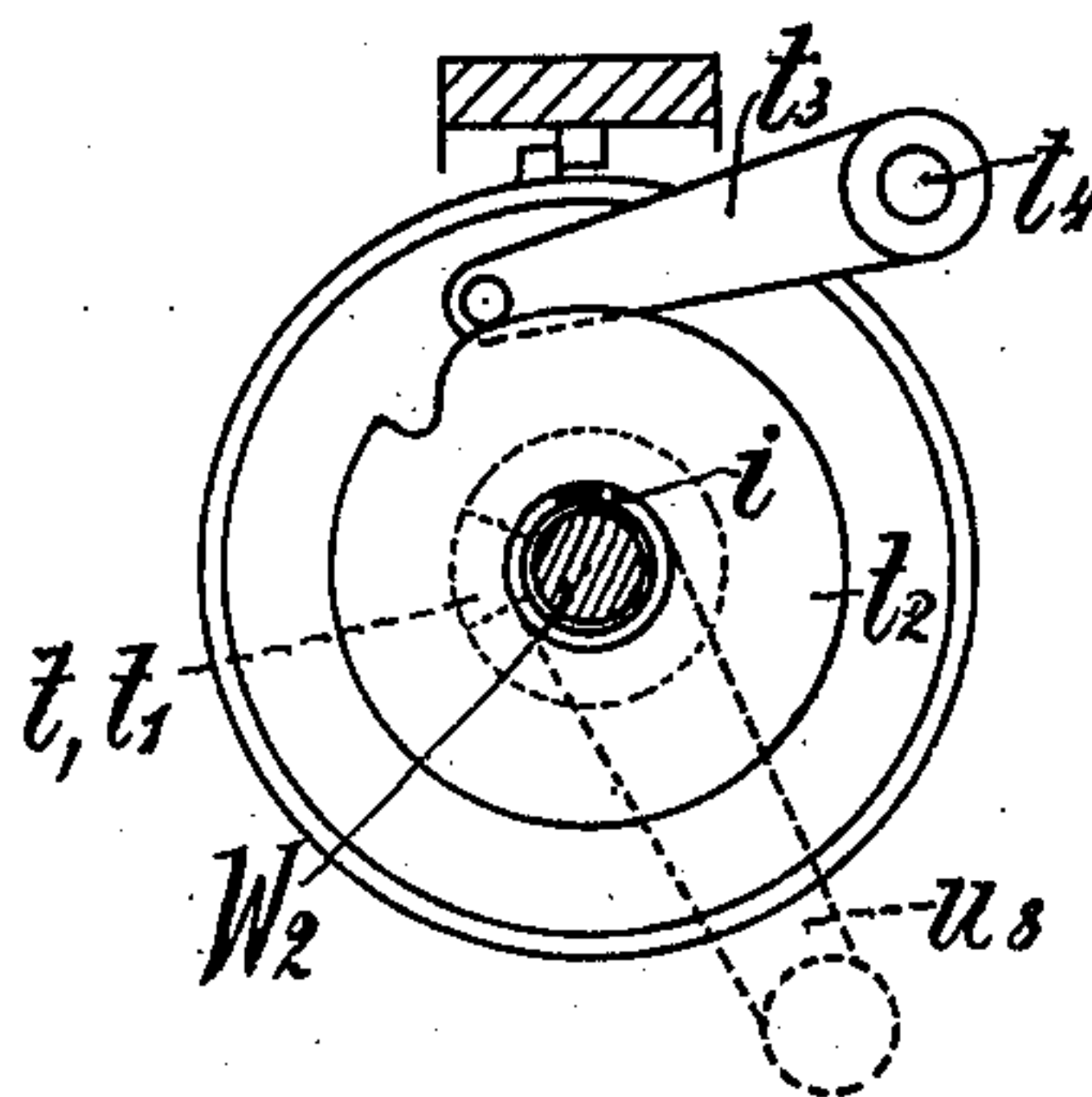
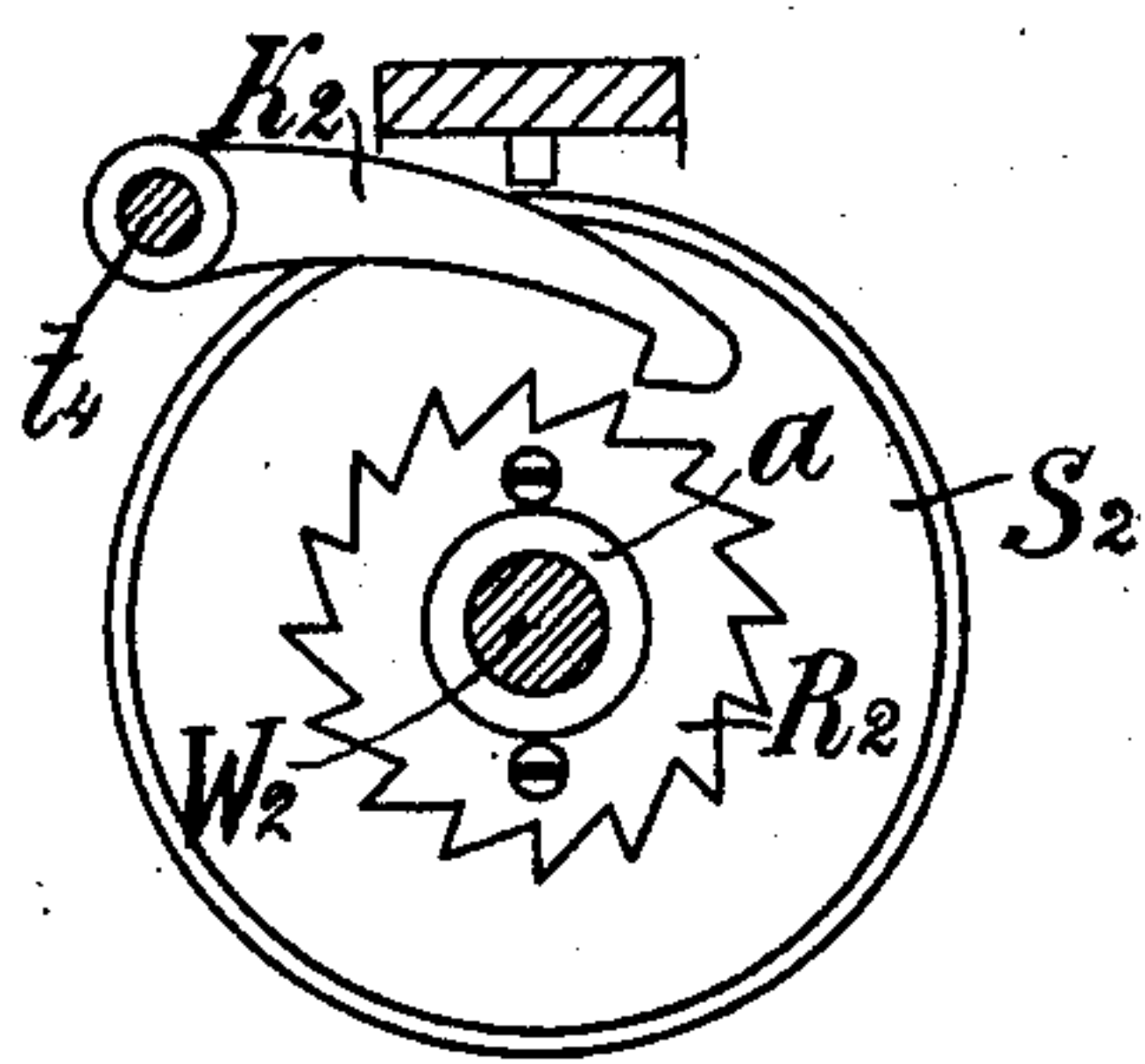


FIG. 6.

FIG. 7.



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UNITED STATES PATENT OFFICE.

GUSTAV HILLER, OF ZITTAU, GERMANY.

CASH-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 756,018, dated March 29, 1904.

Application filed May 5, 1902. Serial No. 105,888. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV HILLER, a subject of the King of Saxony, residing at Zittau, in the Kingdom of Saxony and Empire of Germany, have invented new and useful Improvements in Cash-Indicators, of which the following is a specification.

This invention relates to a cash-indicator wherein the individual amounts paid are indicated by indicator-wheels the numbers of which may be seen through holes arranged in the casing of the apparatus and which are directly operated by keys or groups of keys, said indicating-wheels returning to zero before manipulation, so as to be ready to register the transaction. Of course a separate indicator-wheel is provided for each value—such as for cents, tens of cents, for dollars, and tens of dollars, &c.—and hitherto a separate key independent of the others was required for each indicator-wheel. This fact has made the control and manipulation of this class of machines so difficult that registers with indicator tablets or cards were preferred to apparatus of the class here shown.

The purpose of this invention is to reduce the number of keys and to thus simplify the whole mechanism of such machines. This purpose is attained by using only two sets of keys, one set for the units and one for the tens of each denomination of the several coins, (cents, dollars, &c.,) each set consisting, of course, of ten keys numbered from "1" to "0," and these keys are so arranged as to be used for the units or tens of any denomination, as may be required.

In the accompanying drawings I have shown a preferred constructional form of the cash-indicator.

Figure 1 is a longitudinal section; Fig. 2, a section on the line A B, and Fig. 3 a section on the line C D, of Fig. 1. Fig. 4 is a section on the line N O, and Fig. 5 a section on the line Y Z, of Fig. 1. Fig. 6 is a detail view in cross-section on the line J K of Fig. 1, showing one of the ratchet-wheels and pawls; and Fig. 7 is a similar view of the cam t^2 , taken in section of the cam-shaft on line L M of Fig. 1, the crank-handle being shown in dotted lines.

The longitudinal section, Fig. 1, is taken on the line E F G H of Fig. 3.

The various wheels and connecting parts are designated by similar letters with the addition of numerals. For instance, one of the number-wheels is marked S' , the next similar wheel S^2 , and so on.

The indicator-wheels S' , S^2 , S^3 , and S^4 are adapted to turn upon the common shaft W^2 , but unable to move axially thereon. S' and S^2 are the indicator-wheels for the tens and units of dollars; S^3 and S^4 those for the tens and units of cents. For each indicator-wheel there is provided a toothed coupling, one half, a , of which is secured to the indicator-wheel itself, while the other half, b , is firmly connected with the communicating wheel P and capable of turning loosely upon the shaft W^2 . The communicating wheels P 1, 2, 3, 4 engage with toothed sectors Q 1, 2, 3, 4, which can turn loosely upon a common shaft C, but are immovable in the axial direction and which are subjected to the action of springs c , 1, 2, 3, 4, tending to turn the same back to their position of rest and attached to arms d , firmly united with such sectors.

Y' , Y^2 , Y^3 , Y^4 , Y^5 , and Y^6 are stops secured firmly in position, which, while permitting rotation of the wheels S' , &c., prevent the same from moving axially, and v' , v^2 , v^3 , and v^4 are each a stop adapted to stop the adjacent number-wheel at "0" upon the return movement thereof, ready for the next transaction. These arms are connected by rods e with two lifting-rods f g , each of which is acted upon by a group of keys, the ends of the keys T taking below the rods g and f . Accordingly the lifting-rod f is moved only by the group of tens-keys and the lifting-rod g only by the group of units-keys. In conformity therewith the toothed sectors Q' and Q^3 of the indicator-wheels S' and S^3 for the tens of dollars and tens of cents are connected by rods e' and e^3 with the lifting-rod f of the group of tens-keys and the toothed sectors Q^2 and Q^4 of the indicator-wheels for the units of dollars and units of cents by rods e^2 and e^4 with the lifting-rod g of the group of units-keys.

According as the cents indicator-wheels or the dollars indicator-wheels are coupled with

the groups of keys, which may be effected by a simple changing device, the groups of keys will act upon the indicator-wheels for the tens and units of dollars or upon the indicator-wheels for the tens and units of cents. A suitable arrangement is shown in the drawings. The couplings of the cents indicator-wheels are arranged, together with those of the dollars indicator-wheels, upon the shaft W^2 in such a manner that some are thrown into gear on the disengagement of the others, all the couplings being out of gear in a middle position.

To obviate the use of a special disengaging-rod or the like for the couplings, the shaft W^2 in the constructional form shown is adapted to be displaced axially, and the couplings b engage by pins h with annular grooves in the shaft W^2 , so that they are compelled to take part in the displacement of this shaft. The shaft W^2 is usually forced by a spring i or by a weight to its extreme position on the left of Fig. 1, in which the coupling $a^3 b^3 a^4 b^4$ of the indicator-wheels $S^3 S^4$ are in gear for the registration of cents.

The shaft W^2 is placed in its extreme position on the right by a pressure upon the same in the direction of its axis contrary to the action of the spring i , the couplings of the indicator-wheels $S^3 S^4$ being thrown out of gear, but those of the indicator-wheels $S^1 S^2$ being thrown into gear, so that these indicator-wheels are now connected with the two groups of keys.

In the constructional form represented the displacement of the shaft W^2 in opposition to the action of the spring i takes place by a special change-key k , Figs. 1, 2, 3, and 4, connected by means of a rod l and a bell-crank m , which is fitted to turn about a fixed pivot o with a two-armed lever p q . This lever can turn about a fixed pivot r and by one arm, p , takes hold of the arm n of the bell-crank lever m n ; but by the other arm, q , it takes hold of the shaft W^2 . Therefore on depressing the key k the displacement of the shaft W^2 takes place in opposition to the spring i . This displacement is limited by a stop s on the side M of the frame containing the mechanism.

For enabling the indicator-wheels to be returned to zero after the registration of the whole amount it is necessary to disengage the pawls K^2 , which, engaging with the ratchet-wheels R 1, 2, 3, 4, fix them in the position they have reached, and to impart to the indicator-wheels themselves a return movement corresponding to the partial turning movement necessary for changing their position. At the same time all the indicator-wheels have to be completely uncoupled from the groups of keys. This is accomplished in the constructional form shown by changing the shaft W^2 to its middle position, wherein all the couplings a b are thrown out of gear. For this purpose I have provided on the side M' of the

frame containing the mechanism of the cash-indicator a fixed cam-disk t , the cam of which engages with a corresponding notch in the front of a counter-disk t' , arranged upon the shaft W^2 .

By turning the shaft W^2 through the medium of the crank w^8 in the contrary direction to that of the turning movement of the indicator-wheels when changing them in position the cam of the disk t leaves the notch in the disk t' and slides upon the front of the latter. By the axial displacement of the shaft W^2 thus effected this shaft is placed in the middle position. (Represented in Fig. 1.) At the same time a tappet v , furnished in a broad annular groove of the shaft W^2 for each of the indicator-wheels S 1, 2, 3, 4, takes behind a corresponding projection w in the bore of the indicator-wheel, so that the indicator-wheels will be carried away in the return turning movement of the shaft. The disengagement of the pawls K^2 is effected by a cam-disk t^2 , connected with the disk t' and acting upon an arm t^3 on the shaft t^4 , common to the pawls K^2 , so that the arm will be lifted and the pawl K^2 disengaged, Fig. 3. By one turn of the crank w^8 , and thus also of the shaft W^2 , the indicator-wheels S 1, 2, 3, 4 are turned back to zero and the spring i effects the displacement of the shaft W^2 back to its extreme position on the left of Fig. 2 and the engagement of the couplings of the wheels $S^3 S^4$.

In the extreme positions of the shaft W^2 the projections w in the interior of the bore of the indicator-wheels can pass the tappets v on the shaft W^2 without touching them.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a cash-indicator of the class described, the combination with indicator-wheels for the units and tens of the different denominations, of two groups of actuating-keys, one for the units and one for the tens and means for shifting these groups from the units and tens wheels of one denomination to the like wheels of another denomination, substantially as shown and described.

2. In a cash-indicator of the class described, the combination with a shaft, of indicator-wheels for the units and tens of the different denominations of money, revolvably mounted upon a shaft, means for preventing side movement of the indicator-wheels as the shaft is reciprocated, two groups of actuating-keys one for the units and one for the tens and means for bringing these groups of keys into and out of operative connection with the units or tens wheels of one or the other denomination, as the shaft is reciprocated, substantially as shown and described.

3. In a cash-indicator of the class described, the combination with indicator-wheels adapted to indicate different monetary denominations, of stationary stops securing said indicator-wheels against side movement, driving-

gears for said indicator-wheels, two groups of keys, one for the units and one for the tens adapted to operate the driving-gears of the indicator-wheels of either monetary denomination at will, couplings for throwing the driving-gears and indicator-wheels into or out of gear one with the other and means for actuating the couplings, substantially as shown and described.

10 4. In a cash-indicator of the class described, the combination with the indicator-wheels, of a shaft carrying such wheels upon which they can freely turn, driving gear-wheels loosely mounted upon the shaft, adjustable couplings
15 between the driving-wheels and indicator-wheels, means for axially displacing the shaft in both directions, for shifting the driving gear-wheels, and groups of keys for operating the driving gear-wheels, substantially as
20 shown and described.

5. In a cash-indicator, the combination with the indicator-wheels, of an axially-movable shaft, upon which the indicator-wheels are loosely mounted, stationary stops on both

sides of the indicator-wheels, driving-wheels 25 loosely mounted upon the shaft, adjustable couplings between the indicator and driving wheels, a shifting key, and means for transmitting its movement to the shaft, substantially as shown and described. 30

6. In a cash-indicator, the combination with indicator-wheels, of an axially-movable shaft, upon which the indicator-wheels are loosely mounted, stationary stops on both sides of the indicator - wheels, driving - wheels loosely 35 mounted upon the shaft, adjustable couplings between the indicator and driving wheels, a spring forcing the shaft into one extreme position, and mechanism for forcing the shaft against the spring tension into the other po- 40 sition, substantially as shown and described.

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

GUSTAV HILLER. [L. s.]

Witnesses:

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PAUL E. SCHILLING. [L. s.]