(No Model.)

F. W. VAUGHAN.

CASH REGISTER AND INDICATOR.

No. 506,891. Patented Oct. 17, 1893.

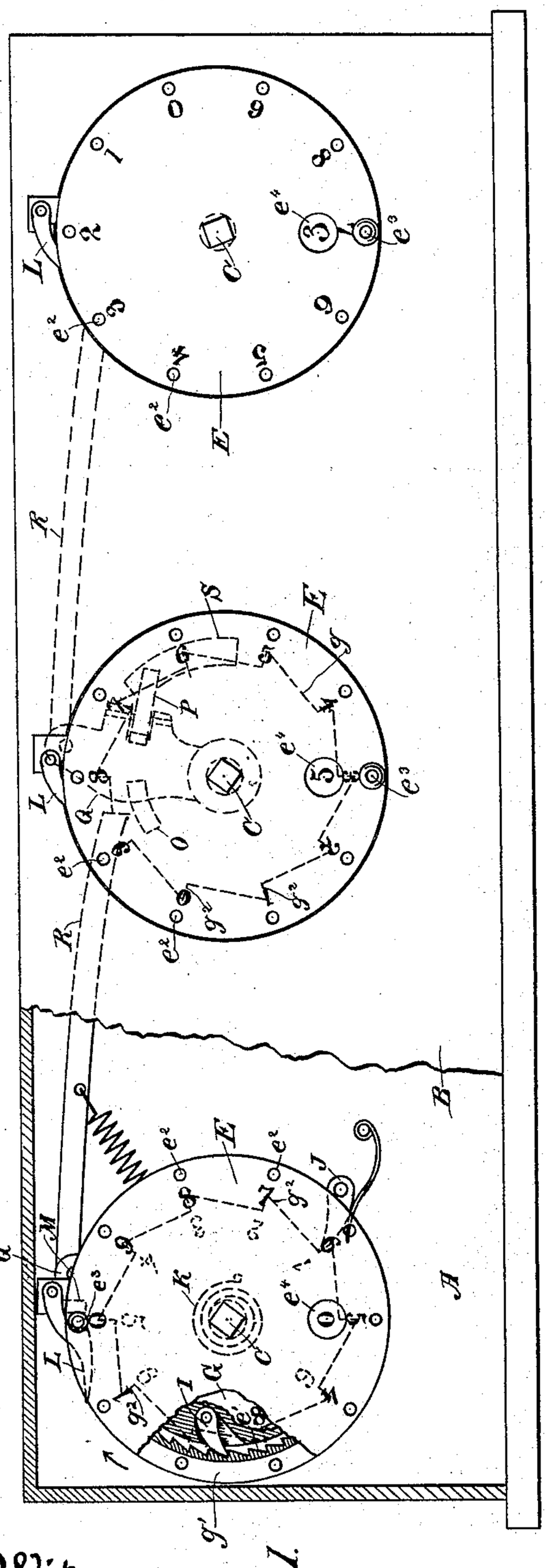

Fig. 1.

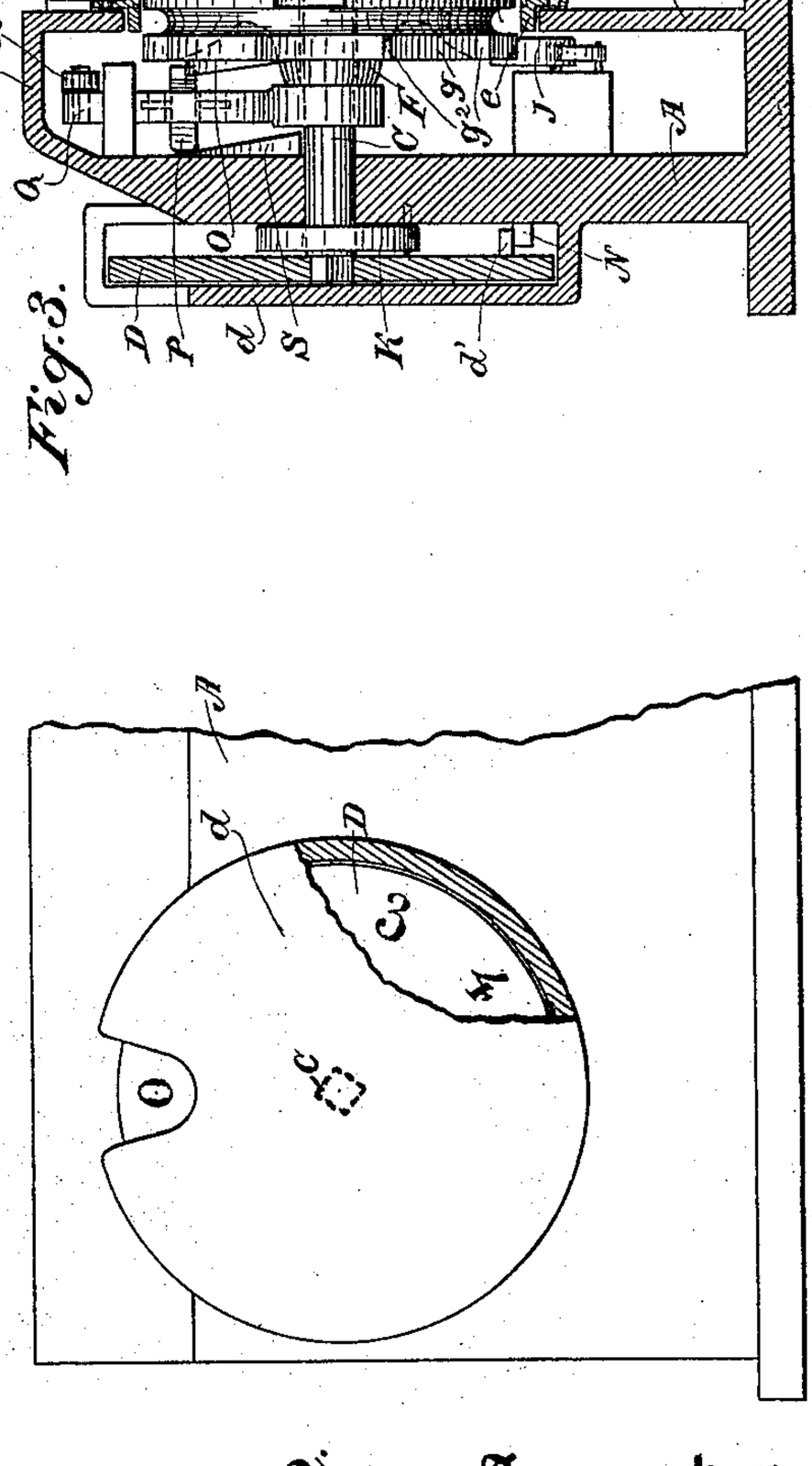

Fig. 3.

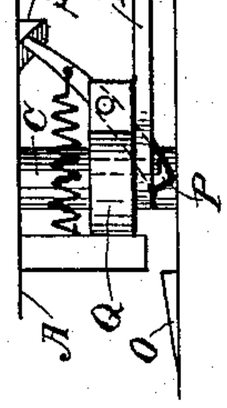

Fig. 4.

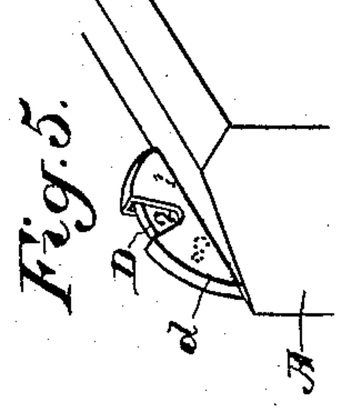

Fig. 5.

Fig. 2.

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UNITED STATES PATENT OFFICE.

FRED W. VAUGHAN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOHN D. SIBLEY, OF SAME PLACE.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 506,891, dated October 17, 1893.

Application filed June 8, 1893. Serial No. 476,985. (No model.)

To all whom it may concern:

Be it known that I, FRED W. VAUGHAN, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Cash-Registers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of cash registers in which series of reading dials representing different values and adapted to be operated either independently or progressively in connection, are employed.

My invention consists in the construction, arrangement and combination of devices, all of which I shall hereinafter fully describe and specifically claim.

The object of my invention is to provide a cash register which while exhibiting to the customer the amount of his purchase, as in ordinary cases, also makes provision for the indication to the operator of a progressive amount or sum total, representing the entire amount of sales for any given time, the arrangement of the parts being such as to enable them to be manipulated easily and readily and at the same time preventing any tampering with the machine, by which its proper function and operation may possibly be perverted.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a rear elevation of my cash register, the protecting plate B being broken away, and a portion of the operating wheel E of the first series being also broken away. Fig. 2 is a front elevation showing one of the indicating dials D. Fig. 3 is a vertical cross section in the plane of shaft C. Fig. 4 is a top view of the trigger P and its connected mechanism. Fig. 5 is a detail view showing the figures on the reverse face of dial D, to be read from the back of the machine.

A is a suitable frame-work having upon its back a protecting plate B. In the upper portion of one end of this frame-work and plate is mounted a shaft C, upon the outer end of which is carried an indicating dial D. This dial is provided on its outer face and within view of the customer, with figures representing the nine digits and the zero, in annular series, and corresponding characters are placed upon the inner face of the dial, the uppermost one or more of which can be seen over the top of the frame-work from the back of the machine, whereby the operator can tell that the proper figure is uppermost. This dial is preferably covered by a casing *d* having an aperture in its uppermost portion, through which one of the characters may be seen.

Upon the inner end of the shaft C is rigidly mounted an operating wheel E which has an inwardly projecting flange *e* provided with ratchet teeth *e'* on its inner surface. This wheel has around its periphery a series of holes e^2, beside each of which is a character denoting its value, namely, the nine digits and the zero, and these characters are in locations corresponding to those of the same characters upon the indicating dial D on the front of the machine. Into these holes is adapted to be removably fitted a handled pin e^3.

Loosely mounted upon the shaft C is a hub or sleeve F which carries the reading dial G, said dial having a peripheral flange *g* separated by an intervening groove *g'*. The reading dial G lies just without the protecting plate B, while its flange *g* lies within said plate, and said dial carries an actuating pawl I, controlled by a spring, and adapted to engage the ratchet teeth *e'* on the inner surface of the flange *e* of the operating wheel E.

The reading dial is provided on its face with characters representing the nine digits and the zero, and these are adapted to successively appear behind a sight aperture e^4 in the operating wheel E. The periphery of the flange of the reading dial G is provided with ratchet teeth g^2 with which a spring-controlled retaining pawl J is adapted to engage. A spring K is mounted upon the shaft C, preferably between the indicating dial D and the face of the protecting plate B, said spring being adapted to return the shaft C as will be presently explained.

Pivoted to the protecting plate B is a bevel-ended latch L behind which is a fixed stop M, said latch and stop lying in the path of the handled pin e^3 of the operating wheel E.

N is a fixed stop on the face of the frame

A, with which a suitable stop d' on the indicating dial D is adapted to come in contact.

The operation of these parts is as follows: Assuming the indicating dial D to be in position to show the zero at its uppermost portion, and that the operating wheel B shows its zero in a corresponding position, and that the reading dial G shows its zero through the sight aperture e^4 of the operating wheel, a customer makes a purchase to the amount of five cents. The operator thereupon removes the handled pin e^4 from the hole e^2 in which it was seated, and moves it down into the hole e^2 which corresponds with the figure 5 on the operating wheel E. He now turns said operating wheel to the right until the handled pin arrives at the pivoted latch L; and said pin then passes under the beveled head of said latch, until it gets behind it and is limited by contact with the fixed stop M. He thereupon leaves it in this position, the pin being held between the fixed stop M and the latch L. This movement of the operating wheel E has, through the shaft C, turned the indicating dial D, so that its figure 5 is exhibited to the customer through the opening in the casing d. This movement has also, through the engagement of the ratchet teeth e' of the wheel with the pawl I of the reading dial G turned said reading dial, with the wheel, through a corresponding arc whereby the zero still appears behind the sight aperture e^4, but the figure 5 on said reading dial is now down in the position previously occupied by the zero of the sight aperture. Now, another customer makes a purchase to the value of four cents. The operator thereupon removes the handled pin e^3 again and this removal freeing the wheel E of the latch L, said wheel under the influence of the spring K on the shaft C, flies back again to the left until the stop d' on the indicating dial D comes in contact with the fixed stop N, which thus limits the movement; and in this limit, the operating wheel E again presents its zero at the top, while its sight aperture e^4 has been carried down to its first position, thus exhibiting the previous purchase 5, and the indicating dial D is carried with it to present its zero again at the top. Now the operator places the pin in the hole e^2 representing the figure 4, the amount of the second purchase, and he thereupon turns the wheel E again to the right, until the pin is caught again between the latch L and the stop M. This movement has carried the figure 4 of the indicating dial D into sight, and has also, through the pawl and ratchet connection, carried the reading dial G around four places, thus presenting the figure 9 on said reading dial in the position previously occupied by the figure 5, and this figure 9 representing the sum of the two purchases is adapted to be exposed through the sight aperture e^4 of the operating wheel, when said wheel is relieved upon a third purchase and flies back to its initial position of zero. Thus the reading dial G is adapted to present a progressive sum, while the indicating dial D on the front of the machine presents each time the amount of the particular purchase to the individual. It will be observed that as the pawl and ratchet connections effecting these several movements are located behind the protecting plate B, they cannot be tampered with, being protected by said plate and by the inwardly extending flange e of the operating wheel which passes through said plate in an opening just sufficient to receive it.

The parts thus described constitute only the units or cents. To provide for the tens or dimes, I have a precisely similar set of parts as those heretofore described, and which need not be described in detail, their exterior representation being sufficient to understand their presence. These last mentioned parts representing the dimes are adapted to be operated either independently, as those heretofore described, or progressively by the connections which I shall now explain. Upon the flange g of the reading dial G is mounted rigidly a lug O which is adapted to come in contact with a pivoted trigger P, spring-controlled, and carried by a spring-controlled swinging lever Q, to the upper end of which is connected a pawl R, the end of which engages the ratchet teeth g^2 of the flange g of the reading dial of the dimes mechanism. This engagement, to prevent slipping, is preferably a forked one, the arms of the pawl passing down on each side of the flange g, thereby avoiding any tendency of the pawl to slip from its engagement with the teeth of said flange. Now, when the reading dial G of the first set is completing its revolution, its lug O coming in contact with the pivoted trigger P, will carry said trigger forwardly with it, and as the trigger moves forwardly, the lever Q is carried over and the pawl R will move the dimes mechanism one notch. The trigger at its inner end bears upon an inclined cam S, which gradually throws said trigger over, as it moves forward, and when the required movement has been reached, this throwing over of the trigger releases its other end from the lug O of the reading dial G, thus relieving said dial, and allowing the spring-controlled lever Q with its pawl R to return to its normal position, for engagement of the latter with the next tooth of the reading dial of the dimes mechanism. Similarly a hundreds or dollars set is to be used, operated by the same or similar mechanism from the tens or dimes set. Thus as a final result and at the end of a stated period, as, for example, at the end of the day, the total sum of the purchases for that period may be read through the sight apertures of the operating wheels E, this reading being backward in order that the several indicating disks D on the front of the machine may be arranged to show from left to right.

The dimes mechanism is operated alone when an amount of a ten value is received,

and similarly the dollars mechanism when dollars are received.

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

1. In a cash register, the combination of a frame or case having a protecting plate, a shaft within the frame, a wheel on said shaft having a sight aperture and inturned flange provided with ratchet teeth, a reading dial on said shaft within the flange of the wheel, a pawl carried by the dial adapted to engage the ratchet portion of the wheel whereby the wheel and the dial move together in one direction, means for holding the dial stationary in its advanced position while the wheel is being returned to its initial position, and means for returning said wheel to said initial position.

2. In a cash register, the combination of a reading dial, a shaft on which the same is mounted, a wheel on said shaft having a sight aperture and inturned flange provided with ratchet teeth, a pawl on the dial adapted to engage said teeth whereby the dial and wheel move together in one direction, and the pawl permitted to slip on said teeth to enable the wheel to be returned to its initial position without disturbing the advanced position of the dial, a second indicating dial on the opposite end of said shaft corresponding to and adapted to move with the wheel, and means for returning the shaft, the wheel and the indicating dial to their normal positions independently of the reading dial whereby progressive sums are indicated by the reading dial behind the sight aperture of the wheel.

3. In a cash register, the combination of the protecting plate B of the frame, a reading dial, an operating wheel having an aperture adapted to exhibit the characters of the reading dial behind it and having an inturned flange extending through said plate and inclosing the reading dial, a pawl and ratchet connection between the dial and flange of the wheel, means for turning said wheel and the reading dial to varying distances, and means for returning the wheel to a stated initial position independently of the reading dial, whereby progressive sums are indicated by the reading dial behind the sight aperture of the wheel, substantially as herein described.

4. In a cash register, the combination of the protecting plate B of the frame, a reading dial, an operating wheel having an aperture adapted to exhibit the characters of the reading dial behind it and provided with a flange extending inwardly through said plate and inclosing the reading dial, a pawl and ratchet connection between the dial and wheel, means for turning said wheel and the reading dial to varying distances, means for returning the wheel to a stated initial position independently of the reading dial, whereby progressive sums are indicated by the reading dial behind the sight aperture of the wheel, and an indicating dial on the face of the machine connected with and having equal movements with the operating wheel, substantially as herein described.

5. In a cash register, the combination of the protecting plate B of the frame, a reading dial, an operating wheel having a flange extending through said plate and inclosing the reading dial, a pawl and ratchet connection between the wheel and dial, a removable pin adapted to engage the operating wheel at different points, a pivoted latch on the protecting plate and a fixed stop for engaging the pin and limiting and controlling the movements of the wheel, and a spring for returning the wheel to a stated initial position when relieved by the removal of the pin, substantially as herein described.

6. In a cash register, the combination of the protecting plate B of the frame, a reading dial, an operating wheel having a flange extending through said plate and inclosing the reading dial, a pawl and ratchet connection between the wheel and dial, a removable pin adapted to engage the operating wheel at different points, a pivoted latch on the protecting plate and a fixed stop for engaging the pin and limiting and controlling the movements of the wheel, a spring for returning the wheel to a stated initial position when relieved by the removal of the pin, and an indicating dial connected with, corresponding to, and having equal movements with the operating wheel, substantially as herein described.

7. In a cash register, the combination of the protecting plate B of the frame, the reading dial outside of said plate and having a flange within said plate, the operating wheel having a flange extending through said plate and inclosing the reading dial, a pawl and ratchet connection between the reading dial and the operating wheel, means for moving the operating wheel and reading dial in unison to varying distances, and means for returning the operating wheel independently of the reading dial to a stated initial position, substantially as herein described.

8. In a cash register, the combination of a frame having the protecting plate B a series of reading dials, a series of operating wheels having inturned flanges extending through the said plate and inclosing the reading dials, and each having a pawl and ratchet connection with its corresponding reading dial, means for moving said wheels with their corresponding reading dials to varying distances, means for returning the wheels independently of their reading dials to a stated initial point, and a connection between one of said reading dials and the succeeding one whereby upon the complete revolution of one, the other will be rotated through a partial revolution, substantially as herein described.

9. In a cash register, the combination of a frame having the protecting plate B a series of reading dials, a series of operating wheels having inturned flanges extending through

the said plate and inclosing the reading dials, and each having a pawl and ratchet connection with the flange of its corresponding reading dial, means for moving said wheels with their corresponding reading dials to varying distances, means for returning the wheels independently of their reading dials to a stated initial point, and the connection between one of said reading dials and the succeeding one whereby upon the complete revolution of one the other will be partially turned, consisting of the lug on the first reading dial, the pivoted trigger with which the lug engages, the swinging lever by which the trigger is carried, and the pawl connected with said lever and engaging the second reading dial, substantially as herein described.

In witness whereof I have hereunto set my hand.

FRED W. VAUGHAN.

Witnesses:
W. R. BERRY,
B. F. HOBART.