

(No Model.)

2 Sheets—Sheet 1.

J. H. VOSS.
CASH REGISTER.

No. 529,980.

Patented Nov. 27, 1894.

Fig. 1.

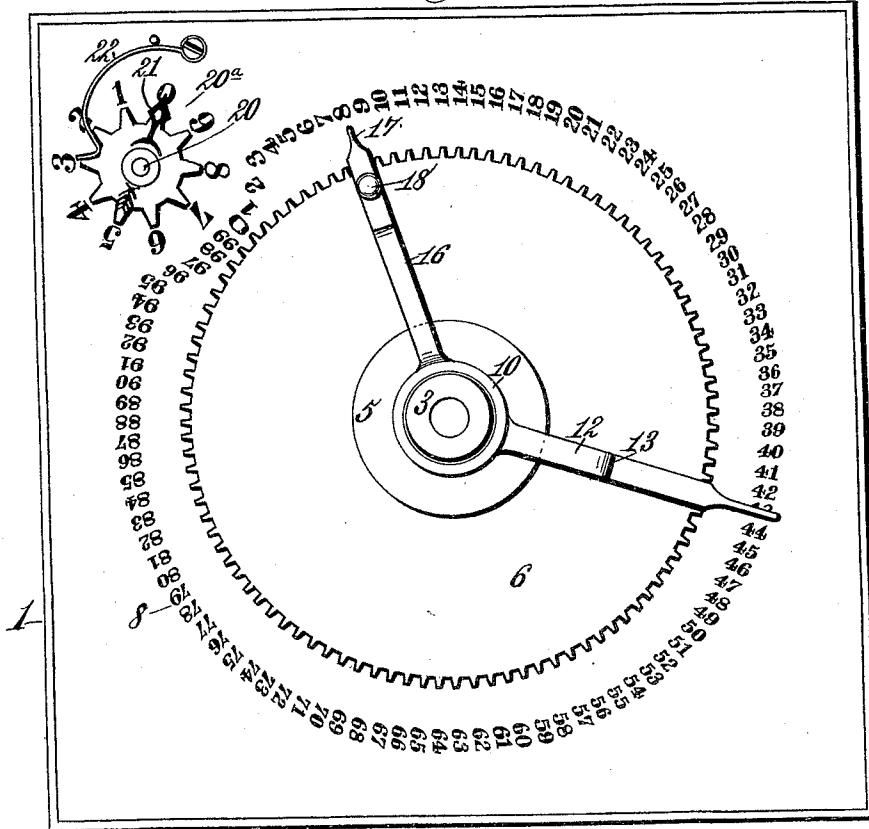


Fig. 2.

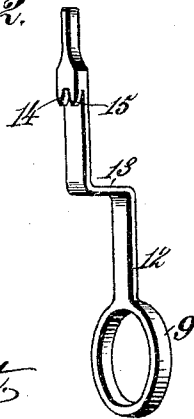
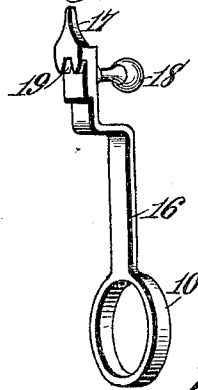


Fig. 3.



Witnesses.

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Mrs. A. Green

Inventor.

Joseph H. Voss.

By James L. Norris,
Att'y.

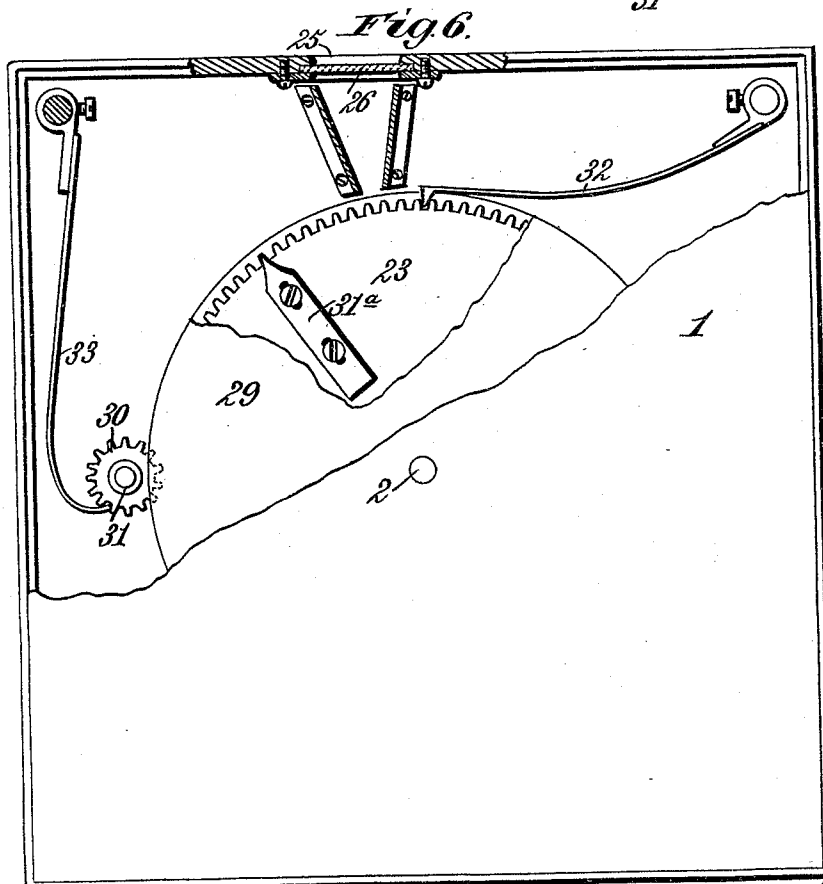
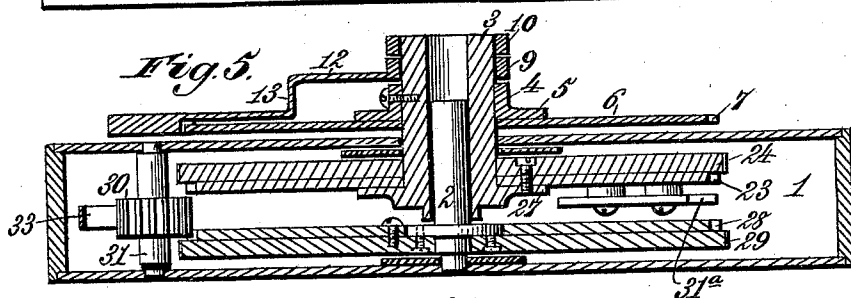
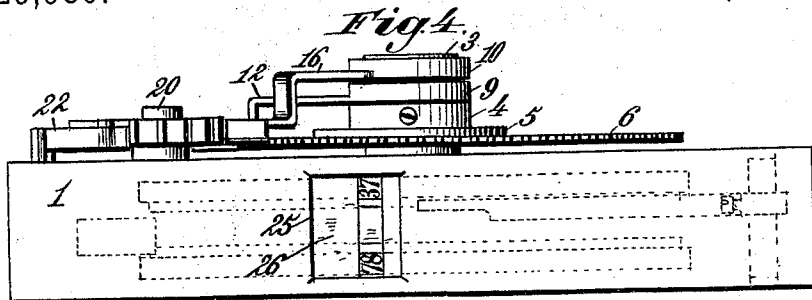
(No Model.)

2 Sheets—Sheet 2.

J. H. VOSS.
CASH REGISTER.

No. 529,980.

Patented Nov. 27, 1894.



Witnesses.
Robert G. Pratt,
Thos. A. Green

Inventor,
Joseph H. Voss,
By James L. Norris,
Att'y.

UNITED STATES PATENT OFFICE.

JOSEPH H. VOSS, OF CINCINNATI, OHIO.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 529,980, dated November 27, 1894.

Application filed July 26, 1894. Serial No. 518,668. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. VOSS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Automatic Cash-Adding and Daily-Receipts-Registering Mechanism, of which the following is a specification.

My invention relates to that class of apparatus usually comprised within the meaning of the term "cash registers," differing therefrom, however, in such features as to entitle it, more properly, to be called an automatic cash-adding and daily receipts registering mechanism. It is the aim of said invention to provide an apparatus comprising but few parts, having simple arrangement and accurate operation, whereby prices of a series of articles purchased by any individual customer may be successively added and the aggregate amount speedily and accurately ascertained by automatic devices, operating in the sight of the customer, the successive sums total of the whole number of sales effected during the day being automatically registered, at the same time, by a separate part of the mechanism. It is my purpose, in other words, to provide a machine of the type referred to, which shall be free from complication, easily, quickly and accurately operated by any person without requiring experience, or training, and by which a clerk, attendant, or employé of any kind, shall be entirely relieved of the task and responsibility of making numerical additions, whereby the occurrence of mistakes from this source shall be wholly avoided, and the proprietor or manager be enabled to ascertain, at the close of the day's business, or at any moment prior thereto, the gross receipts, or sum total resulting from the whole number of individual sales, this information being obtainable by a glance at that portion of the mechanism by which the successive items are added and the amounts displayed.

To these ends, the invention consists in the novel features of construction and in the parts and new combination of parts herein-after fully described and then particularly pointed out and defined in the claims which conclude this specification.

To enable those skilled in the art to which

my said invention pertains to fully understand and to make and use the same, I will now proceed to describe said invention in detail, reference being made for this purpose, to the accompanying drawings, in which—

Figure 1 is a plan view of an automatic cash-adding and daily receipts registering mechanism embodying my invention. Figs. 2 and 3 are detail perspectives showing the arms operating the mechanism. Fig. 4 is a side elevation of the parts shown in Fig. 1. Fig. 5 is a transverse section taken on the line 4—4, Fig. 1. Fig. 6 is a plan view, inverted, part of the housing being broken away, to show the interior.

The reference numeral 1, in said drawings, indicates a casing, or housing of any suitable form, that shown being rectangular. This housing is entirely closed, so that all access to its interior shall be prevented unless made necessary by the mechanism becoming disordered, or requiring repair. This housing is of such form, and the mechanism is so organized that it may stand erect, or lie flat, as the case may be.

Passing transversely through the housing, at or near its central point, is a shaft 2, having a step bearing at one end in the plate of the housing, its body being supported by a sleeve 3, which passes through and has bearing in an opening in the other plate, its end, which projects outside the housing, being provided with a collar 4, which is made rigid with the sleeve. This collar has a flange 5 which is of sufficient width to afford support to a large spur gear 6, which lies close to the exterior surface of the housing and is provided upon its edge with one hundred teeth, or cogs, 7, of ordinary form. These teeth lie and move over a series of one hundred, equal, radiating divisions 8, which extend outside the periphery of the spur gear. These radial divisions contain a series of numerical indications, ranging from 1 to 99, inclusive, the one hundredth division containing a cipher or zero. On the end of the sleeve 3 which projects beyond the collar 4, are mounted two independent encircling rings 9 and 10 each closely fitting upon but capable of free circular movement around the sleeve. The lower ring 9 carries an arm 12, lying in the radial line of the gear, a bend 13 being formed in the arm in

order to bring its free end down close to the face of the spur-gear 6. Its length is such that it projects beyond the teeth of the gear, its end being tapered to approximate the form of a gear-tooth. At a little distance from said tapered end, which is thickened, for the purpose, up to a point coinciding with the base of the teeth of the spur-gear 6, is formed a recess 14, capable of admitting one of said teeth, the lugs 15 on each side of said recess, being of such form that they can readily enter between the teeth of the spur-gear 6. The arm is readily disengaged from said teeth by merely raising it, after which it may be turned freely in either direction. The ring 10 also carries an arm 16, similar to the other in all substantial particulars, save that it is somewhat shorter, so that its tapered point 17, does not project so far beyond the teeth of the gear 6. It is provided also with a knob 18, by which it is manipulated, and its bend 16^a is so formed that it may pass over the arm 12 without contact therewith. Its thickened extremity is provided with a recess 19, like that in the arm 12, and for a like purpose.

Upon the front or outer plate of the housing 1, nearly in a straight line drawn through the axis of the shaft 2 and through the space 8 containing the zero indicator is a shaft 20, parallel with the shaft 2 which carries the gear 6. On this shaft 20 is mounted a small gear resembling with its teeth the form of a star. These teeth are ten in number and the distance between the axes of the two gears 6 and 20 is such that the end of the arm 12, when the latter revolves in unison with the gear 6, will engage the gear 20, and, in passing, advance it a single space, which is measured by the interval between two adjacent teeth. The small gear 20 is surrounded by an annular strip 20^a divided into ten of these spaces numbered from 1 to 9, inclusive, the tenth space which contains a cipher, or zero, indicator, being placed between the first and the ninth. One of the teeth on this gear is provided with a distinguishing point, such as an arrow-head and is used as an index 21. An elastic strip 22 having its end bent into angular form to fit between any two of the teeth, holds the small gear 20, but permits it to move, under suitable impulse. It will be observed that the small gear 20 will be advanced a single tooth at the completion of each full revolution of the gear 6, as more fully explained hereinafter.

Upon the sleeve 3, within the housing 1, and immediately beneath the outer plate thereof, is a spur-gear 23, similar in size and number of teeth to the gear 6. This gear carries a disk 24, having its periphery divided into one-hundred equal parts containing the consecutive numbers 1 to 99, inclusive, with a cipher in the hundredth place. The edge of this disk moves close to a sight-opening 25, in the side or edge wall of the housing, and the numbers thereon may be seen through a transparent pane 26. The gear 23 and disk 24 are

rigidly attached to each other and to a flange 27, on the lower end of the sleeve 3.

Upon the lower end of the shaft 2, which has movement independently of the sleeve 3, is a gear 28, similar in size and number of teeth to the gears 6 and 23. This gear carries a disk 29, similar in all respects to the disk 24 and having a like series of numerals on its periphery which are also exposed to view at a single point through the sight opening 25. Meshing with the teeth of the gear 28, is a small pinion 30 carried by a shaft 31, having its ends journaled in the two parallel plates of the housing. This pinion has a face of such width that, while meshing with the gear 28, its teeth also lie within reach of a tappet 31^a, mounted on the flat side of the gear 23, with its end coinciding, in position, with the numeral 99, on the edge of the disk 24. At each complete revolution of the latter, therefore, the gear 28 and disk 29, will be advanced a single space, this movement being simultaneous with that advance of the disk 29 by which the cipher or zero mark, on its edge, is exposed to view through the sight opening 25. An elastic strip 32, having its end properly shaped, engages the teeth of the gear 23 and holds the same as well as the gear 6, after each advance movement, and a substantially similar device 33 engages the teeth of the pinion 30 holding both it and the gear 28 which meshes with said pinion.

The manner in which the apparatus is used is as follows: The gear 6 is adjusted to bring the zero indicator on the disk 24, into the sight-opening 25, and the small gear 20 is turned, in like manner, until the index 21 coincides with the zero mark in the annular strip 20^a. A like adjustment is given the gear 28 and disk 29, so that the zero mark in the latter also stands in the sight-opening 25, and the arm 9 is placed so that its tapered extremity coincides with the zero mark in the series of radial spaces 8, surrounding the gear 6. If, now, any article is sold, the arm 12 is turned in the direction in which the numerals are read in the series of spaces 8, and its recess 14 being engaged with one of the teeth of the gear 6, the latter turns in unison with said arm, which is arrested at the point where it coincides with the number denoting the price at which the article was sold. Let it be supposed that this price was fifty cents. The arm 12 is moved to coincide with the numeral 50, in the series 8. The arm 12 is now allowed to remain in engagement with the gear 6, and as the second article is sold the other arm 16 is disengaged from the teeth of the gear and caused to coincide with the zero mark in the series 8, where it is again engaged by dropping it upon said gear, one of the teeth of the latter entering the recess 19 in said arm. Suppose the price of the second article to be sixty-five cents. The arm 16 is turned in the same direction of movement given to the arm 12, until its point coincides with the number 65 in the series 8. This

movement, at the same time, carries the arm 12 from the number 50 over sixty-five further spaces, or divisions, 8, thereby making an automatic addition of the two sums. In so doing, as the total exceeds the number of said divisions, the end of the arm 12 is carried past the small gear 20 and in passing advances it a single space, causing its index 21 to coincide with the number 1 in the annular strip 20. The arm 12 then passes on and stops at the number 15, in the series of divisions 8, thus showing an amount of one dollar and fifteen cents. At the same time, the arm 16 is arrested at the numeral 65, showing the price of the last item. At each succeeding item the arm 16 is released from the gear 6 and returned to zero, re-engaged with the gear and advanced in like manner to the figures denoting the cost of the item. The arm 12 remains throughout at the point where it was first placed and at each operation of the arm 16 performs the successive additions, with the aid of the small gear 20, the latter indicating dollars, while the gear 6 denotes the pennies. The two gears are capable of indicating nine dollars and ninety-nine cents, but it is evident that in cases where larger purchases are usually made, the gear 20 may have a greater number of teeth or I may combine a second and similar gear therewith, and operate it by a finger on the gear 20 in the same manner in which the latter is advanced by the gear 6. As one function of the mechanism is to add and register automatically the series of purchases made by a single customer, so that the latter may inspect the successive amounts as item after item is added by the machine, the single gear 20 will, in most retail stores, be sufficient for all ordinary purposes. At each movement of the gear 6 the gear 23 and its disk 24 are advanced a like distance, and the successive amounts produced by the machine are exposed to view on the edge of the disk in the sight-opening 25. When the sum equals or exceeds one dollar, the tappet 31 carried by the gear 6, operates the pinion 30 and advances the gear 28 and disk 29 a single space, thereby exposing a numeral in the sight-opening which denotes the dollars. After completing the additions of the purchases by any single customer, the arm 12 is disengaged from the gear 6 and restored to zero, and the operation repeated with the next customer. When single purchases are made requiring no additions, this arm 12 may be allowed to remain until a series of items are to be added for one and the same person. The successive aggregates are duly registered by the two disks 24 and 29, which show, at the close of each day's business, the total receipts for the day. The amounts indicated by these two disks are exposed and may be ascertained at any moment by means of the sight-opening 25. As the housing 1 is securely closed against all access, the registering mechanism cannot be tampered with. As a check upon a salesman, the

machine possesses one advantage not found in the ordinary cash-register, viz: as it adds the several items in the presence of the customer, who is naturally interested in obtaining correct results, it is practically impossible to attempt any deception without exposure following immediately.

The machine may be suspended on a wall or desk, laid flat upon a counter or table, or erected on a suitable base, as circumstances and personal preference require.

What I claim is—

1. In a mechanism of the type described, the combination with a housed or inclosed registering mechanism, of a gear arranged on the exterior to indicate consecutively a number of cents less than one dollar, an independent gear to indicate dollars, and two independent arms loosely mounted on the axis of the cents-gear each adapted to engage and disengage the teeth of the gear and one of said arms being of such length as to engage the dollar-gear in passing and advance it a single space, substantially as described.

2. The combination with a gear having one hundred teeth and adapted to indicate by its revolution, any number of cents less than one dollar, an independent gear to indicate dollars, and two independent arms loosely mounted on the axis of the cents-gear, said arms being provided with recesses adapted to engage and disengage the teeth of the cents-gear, and one of said arms being of such length as to advance the dollar-gear a single space at each complete revolution of the cents-gear, substantially as described.

3. The combination with a gear having one hundred teeth and surrounded by an equal number of divisions containing numbers to and including ninety-nine, and a zero, of two independent arms mounted on rings fitted loosely on the axis of said gear, each having in its lower face, near the free end, a recess to admit a tooth of the gear, said arms being adapted to pass each other without interference, so that one can remain in engagement and automatically add the separate sums indicated by the other, substantially as described.

4. The combination with a gear indicating from one to ninety-nine cents, of two independent arms mounted on rings loosely fitting the axis of said gear, each arm being adapted to engage and disengage said gear and turn in either direction, when disengaged, of a dollar indicating wheel carried by a separate shaft and advanced at each revolution of the cents-wheel by the prolonged end of one of said arms, a cent-indicating gear moving in unison with the cents-gear and inclosed in a housing, a dollar-indicating gear on a separate, concentric axis, a tappet on the cent-indicating gear, and a pinion engaging the dollar-indicating gear and itself engaged by said tappet, the gears last named carrying disks displaying the dollars

and cents on their edges through a sight opening, substantially as described.

5. The combination with the exposed cents-gear and an independent dollars-gear, of two independent arms turning loosely on the axis of the former and adapted to engage and disengage the same, and a separate, inclosed registering mechanism operated by the cents-gear and comprising disks displaying the successive amounts on their edges through a sight-opening, substantially as described.

6. The combination with a gear carried by a sleeve and indicating from one to ninety-nine cents, of two independent arms having rings loosely fitting said sleeve and provided with recesses adapted to engage and disengage the teeth of the gear, of a dollar-

gear on an independent shaft, two gears carrying disks and inclosed in a housing, one gear carried by the sleeve and the other by a shaft within the sleeve, a pinion meshing with the latter, and a tappet on the other gear engaging said pinion in passing the disks having consecutive numbers on their edges which appear in a sight-opening in the casing, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOSEPH H. VOSS. [L. S.]

Witnesses:

JAMES L. NORRIS,
THOS. A. GREEN.