

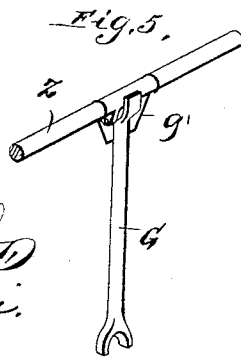
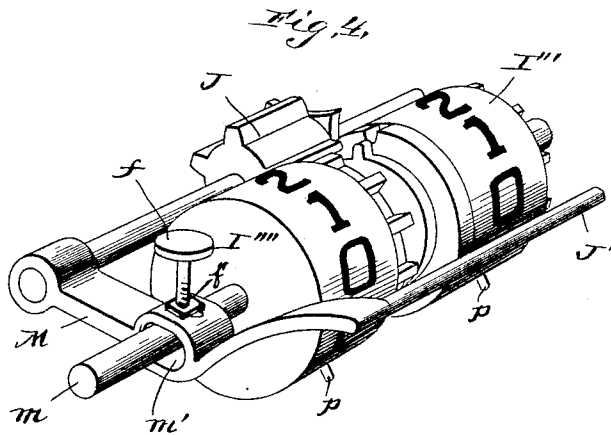
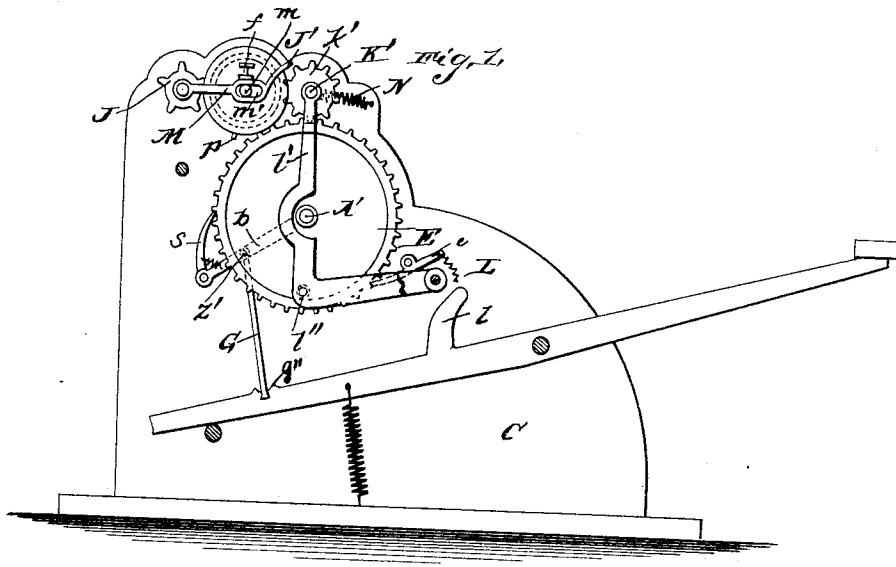
(No Model.)

3 Sheets—Sheet 1.

H. G. O'NEILL.
CASH REGISTER.

No. 480,614.

Patented Aug. 9, 1892.



WITNESSES:

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Philip C. Massi

INVENTOR

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(No Model.)

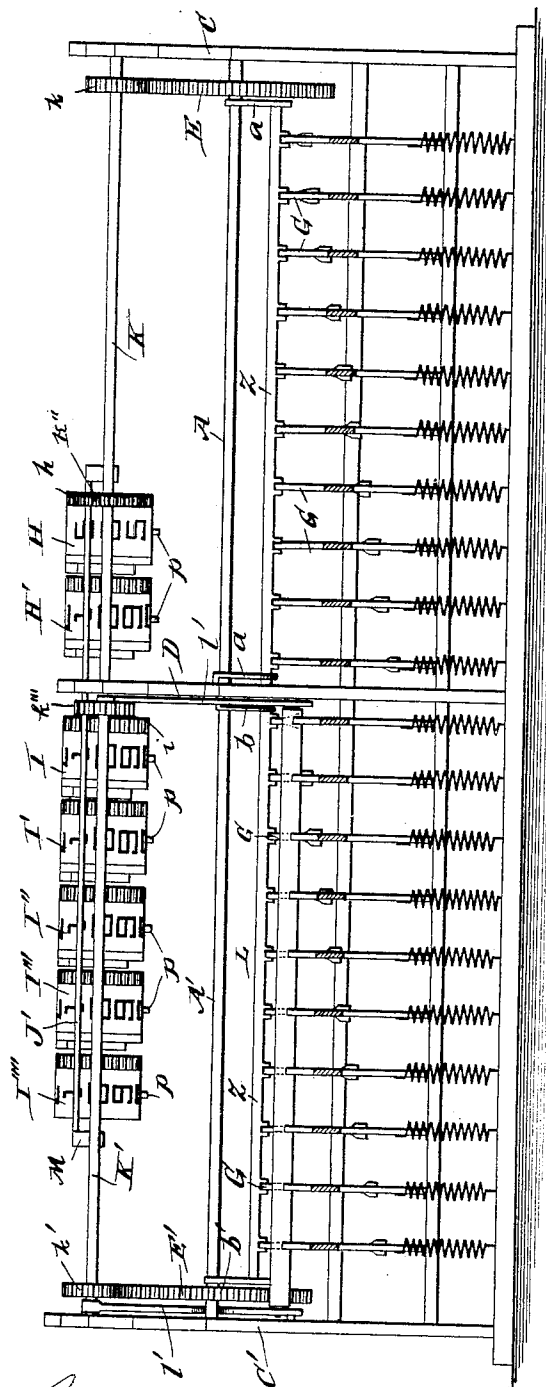
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Patented Aug. 9, 1892.

Fig. 2.



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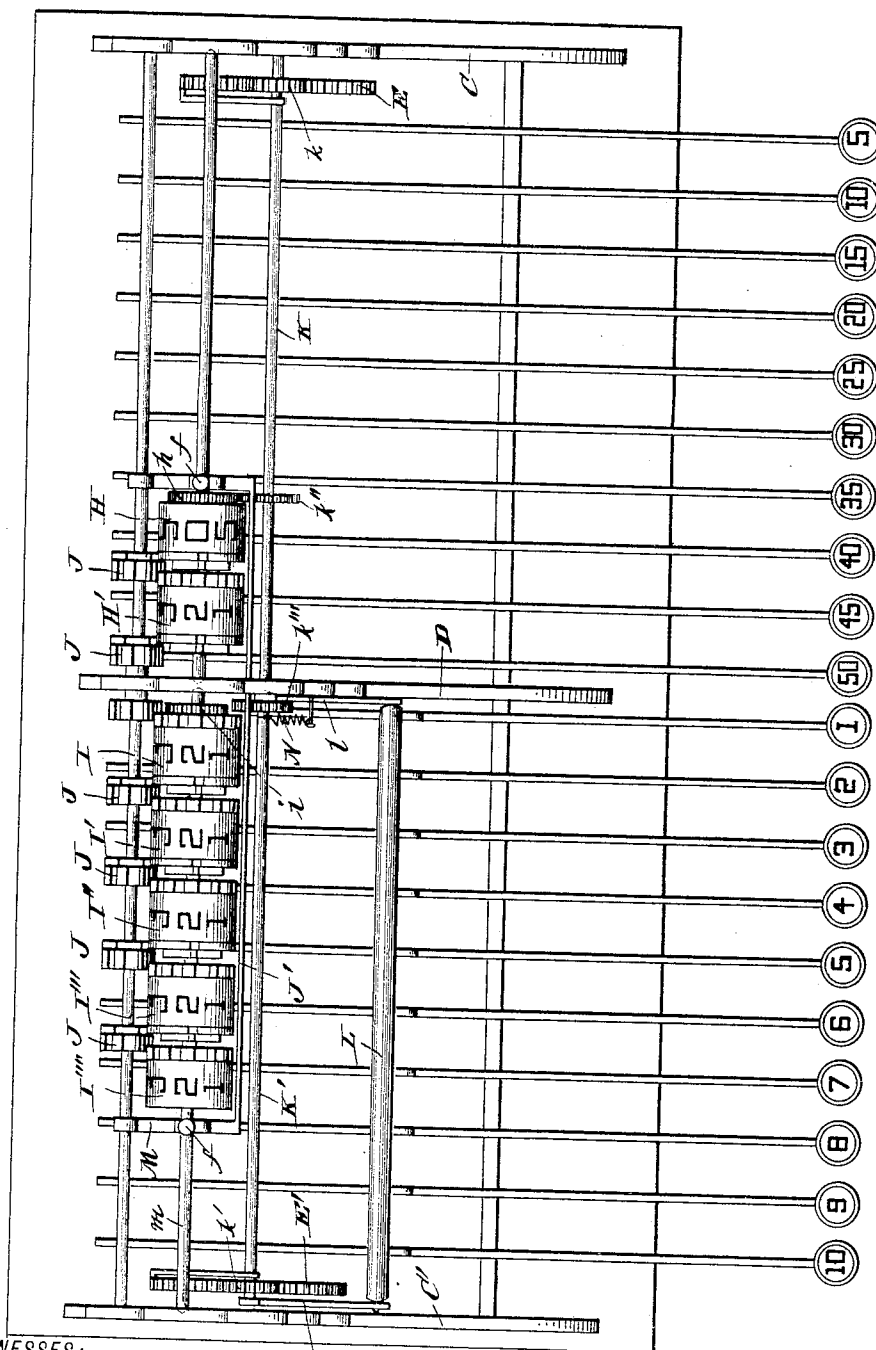
H. G. O'NEILL.
CASH REGISTER.

3 Sheets—Sheet 3.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY G. O'NEILL, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE STANDARD REGISTER COMPANY, OF BOSTON, MASSACHUSETTS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 480,614, dated August 9, 1892.

Application filed October 30, 1891. Serial No. 410,333. (No model.)

To all whom it may concern.

Be it known that I, HENRY G. O'NEILL, a subject of the Queen of Great Britain, and a resident of Louisville, in the county of Jefferson and State of Kentucky, 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 letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical transverse section. Fig. 2 is a front elevation, partly in section. Fig. 3 is a top plan view. Fig. 4 is a detail view of adding-wheels and their attachments. Fig. 5 is a detail view.

This invention has relation to cash-registers; and its object is to provide an attachment for some machines of common form using a series of key-levers whereby the aggregate value of the transactions indicated by the machine will be made known upon inspection of a series of adding-wheels, all as hereinafter set forth.

In producing the devices and combinations which form the subject-matter of this application I have designed not to interfere materially with the construction and arrangement of parts adopted in many cash-registers, in order that the improvements may be readily connected to such machines at a minimum expense.

In the accompanying drawings, the letters A and A' designate two shafts, each being about one-half the length of the machine and each carrying near its end a toothed wheel, as indicated at E and E'. These shafts may be supported in bearings of the lateral frames C and C' and of a middle upright or frame D.

Z and Z' indicate bail-levers, which have arms a and a' and b and b', respectively, said arms being pivoted on said shafts or in the axial line thereof near their ends. Each of these bail-levers is provided with a pawl and with a series of projections or arms G, extending downward, respectively, over the various key-levers, which extend undersaid bail-bars, said projections or arms being graduated in

length to correspond, respectively, with the working movements of the key-levers. These bail-levers extend transversely over the key-levers, one bail-bar traversing the levers of the cent series and the other bail-bar traversing the levers of the dollar series, and each bail-lever being common to all the keys of its series.

The downward projections or arms G are of different lengths, because while the actual movement of all the key-levers of the machine is similar, its working movement—that is to say, that part of its movement in which it is actually in engagement by its pawl with the toothed wheel E or E' of the adding mechanism—varies, according to the radial distance through which such wheel must be moved to transmit the value of the key to the adding-wheels. The working movement of the five-cent key will be much less than that of the twenty-five-cent key, and therefore the downward projection or arm of the bail-lever corresponding to the five-cent key will be materially shorter than that which corresponds to the twenty-five-cent key.

For registers of limited capacity having a small number of keys the sectional division requiring two bail-levers will be unnecessary, as a single bail-lever will meet the requirement; but for large machines, when the keys are numerous, the sectional division involving two bail-levers, each having its own pawl and operating an independent toothed wheel for transferring its value, will be found more practical. In this sectional arrangement the bail-lever Z on the right is actuated by the key-levers of the cent series and the bail-lever Z' on the left is actuated by the key-levers of the dollar series; but while the bail-lever of the cent series is always in connection through its pawl, toothed wheel, and pinions with the adding-wheels, that of the dollar series is normally disconnected from the adding-wheels and its pinion is brought into engagement with the first of the dollar-adding wheels by the action of any key of its series, as hereinafter described.

E and E' are the large toothed wheels which are engaged by the pawls of the bail-levers, respectively. These wheels are located conveniently at points on the inner sides of the

lateral frames C and C', respectively, in such position as to be turned by one of the pawls s upon movement of the graduated bail-lever Z or Z', as the case may be. Pawls e are designed to hold the wheels E and E' in place while the graduated bail-bar is resuming its normal position, having passes through an arc corresponding to the value of the key struck. Springs may be employed to retract the bail-bars.

The letter G represents the downwardly-extending shoulders, arms, or projections of the bail-bars, which, as hereinbefore stated, are of graduated lengths, in order to effect the correct movement of the toothed wheels E and E' to make the addition.

In order to avoid the sliding of the end of the arm G on the key-lever as it rises and the consequent friction, it is preferred in large machines, or where the bail-bar is designed to move through a considerable arc, to pivot the arms G to the bail-bar and to provide stop-shoulders g'' and springs g' to hold these arms in normal position when the keys are down and disengaged therefrom. At an elevation above said wheels E and E' and between the side frames C and C' and mediate supports are the transverse pinion-shafts K and K', on which, so arranged as to be in engagement with the wheels E and E', respectively, are the pinions k and k', and upon suitable bearings is arranged a series of adding-wheels side by side and turning in planes at right angles to the direction of the pinion-shafts. These pinion-shafts are of the construction shown, wherein the adding-wheels are centrally arranged, provided with secondary pinions k'' and k''', to engage, respectively, the first of the cent-wheels of the adding series and the first of the dollar-wheels of the same; but it will be observed that whereas the first cent-wheel is always in engagement with its pinion the dollar-wheel-actuating pinion is normally disengaged from the first dollar-wheel, being held back by a spring N, connected to the pinion-shaft K', which is carried by the arms l' of the bail-frame L, which is pivoted at l'' and is moved when any one of the dollar-keys is operated by the lug l of the dollar-key, this movement bringing its pinion k''' into engagement with the first wheel of the dollar series.

The adding-wheels are arranged in series on a suitable shaft m and turn in planes transversely to the direction of said shaft. The first two wheels H and H' on the right serve to show the number of cents in the sum, the remaining wheels I I' I'' on the left showing the dollars. The first wheel H of the cent series is constantly in engagement with the pinion k''; but the first wheel I of the dollar series is normally out of engagement with the pinion k''', as hereinbefore stated.

The series of adding-wheels is provided with carrying-pinions J and with peripheral stop-pins p. A slide-frame M, arranged on the shaft m and slotted at m', may be moved back and

forth a distance limited by said slot and is designed to be secured in its rear or forward position by means of clamp-screws f. This slide-frame carries on its rear bar the carrying-pinions J, and its front bar J' constitutes a stop to engage the peripheral stop-pins of the adding-wheels when the slide is moved back, disengaging the carrying-pinions and allowing the adding-wheels to be turned until their further movement is prevented by the stop-bar J'. In this position these adding-wheels are designed to show "0" at the sight-slot or in reading position. When the slide is moved forward, its stop-bar is disengaged and the carrying-pinions are brought into engagement with the adding-wheels. The clamp-screws f engage the shaft m through oblong apertures in the walls of the slots m' and are provided each with a collar f' thereon, which by turning the screw binds the frame securely to the shaft.

The first adding-wheel of the cent series is provided with a lateral toothed disk h to engage the pinion k'' and the first adding-wheel of the dollar series is provided with a toothed disk i to engage the pinion k'''.

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

1. In a cash-register, the combination, with a series of key-levers and a series of laterally-arranged adding-wheels having two wheels in the cent portion of the series, of a bail-lever and its pawl, a toothed wheel and pinion, and downward projections or arms of said bail-lever graduated in length to correspond with the values of the respective keys whereby they are engaged, substantially as specified.

2. In a cash-register, the combination, with a series of key-levers and adding-wheels arranged side by side and turning in planes transverse to their shafts, of independent bail-levers for the cent series of keys and the dollar series of keys, their pawls and toothed wheels, the pivoted bail-frame carrying the dollar-pinion, and the lugs of the dollar-key levers adapted to engage said bail-frame, substantially as specified.

3. In a cash-register, the combination, with a series of key-levers and the laterally-arranged adding-wheels, of the bail-lever and its pawl, the adding-gearing engaged by said pawl, the stop-pins of the adding-wheels, and the adjustable stop-slide bearing the carrying-pinions of the adding-wheels, substantially as specified.

4. In a cash-register, the combination, with adding-wheels and gearing in connection therewith, of a bail-lever carrying a pawl, the graduated downward projections pivoted to said bail-lever, and the stop-shoulders and springs for said projections, substantially as specified.

5. In a cash-register, the combination, with parallel shafting and adding-wheels and gearing, all turning in parallel planes, of a bail-lever having graduated downward projections

and a series of key-levers respectively under
said projections and adapted in operation to
run through similar arcs, but to do work
through arcs of different extent correspond-
5 ing to the lengths of the respective projec-
tions of the bail-lever, substantially as speci-
fied.

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

HENRY G. O'NEILL.

Witnesses:

PHILIP C. MASI,
CHAS. L. TAYLOR.