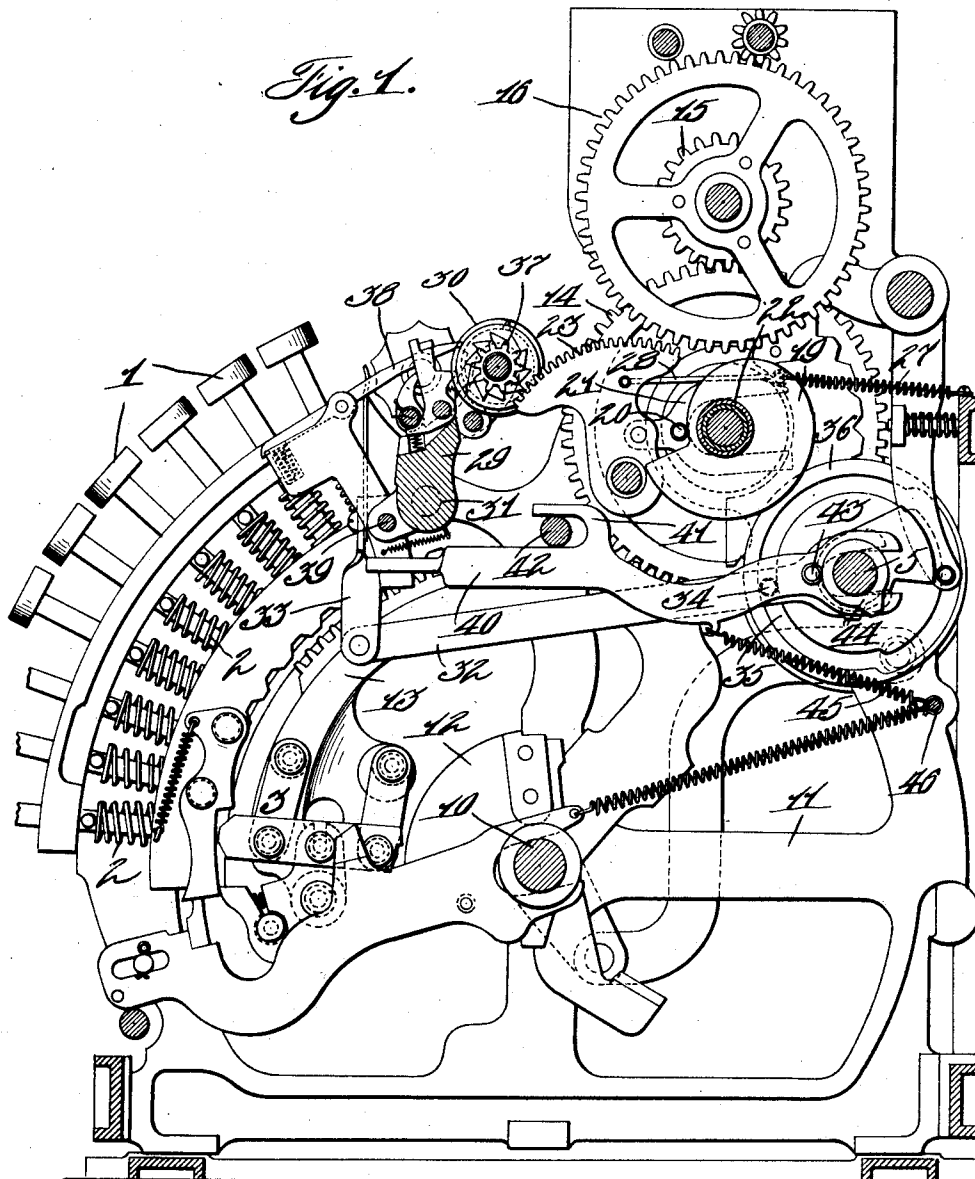


C. PALMER.
CASH REGISTER.
APPLICATION FILED MAR. 28, 1910.

1,011,997.

Patented Dec. 19, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

G. H. Fairchild
Geo. S. Forderer

INVENTOR

Charles Palmer

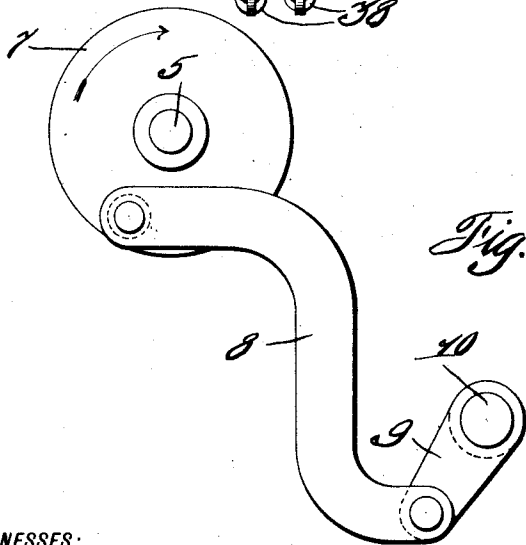
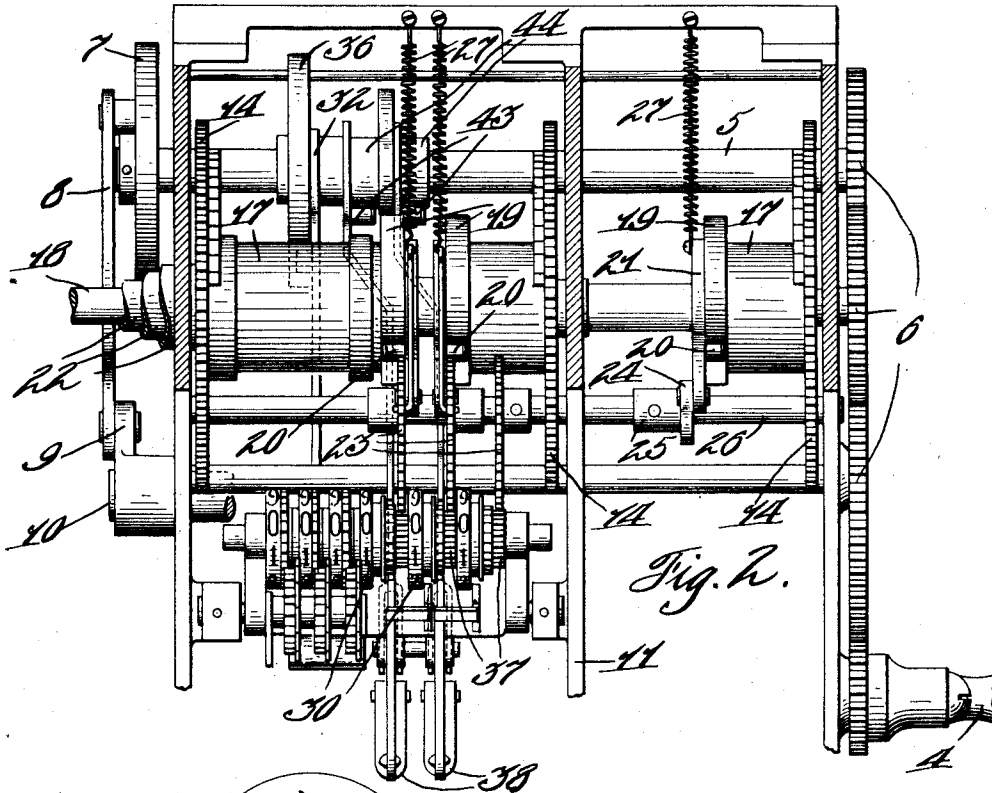
BY *W. H. H. H. H.*
and *R. H. H. H.*
ATTORNEYS

C. PALMER.
CASH REGISTER.
APPLICATION FILED MAR. 28, 1910.

1,011,997.

Patented Dec. 19, 1911.

2 SHEETS—SHEET 2.



WITNESSES:
G. H. Fairchild
Geo. S. Forderer

INVENTOR
Charles Palmer
BY *H. H. Huggins*
and *Reid & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES PALMER, OF LONDON, ENGLAND, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO, (INCORPORATED IN 1906.)

CASH-REGISTER.

1,011,997.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed March 28, 1910. Serial No. 552,047.

To all whom it may concern:

Be it known that I, CHARLES PALMER, a subject of the King of Great Britain and Ireland, residing at London, in the county
5 of Middlesex, England, have invented certain new and useful Improvements in Cash-Registers, of which I declare the following to be a full, clear, and exact description.

This invention relates to cash registers
10 and more particularly to the type of machine shown in the patent granted to Cleal and Reinhard, No. 580,378, April 13, 1897.

There is considerable demand for a small
15 sized machine, that is one of two or three banks of keys, that will perform all of the functions of the type of machine shown in the above mentioned patent, but owing to the wide separation of the movable elements of the totalizing mechanism, such a small
20 machine has so far been impracticable and the principal object of this invention is to provide the patented type of machine with a compact totalizing mechanism so that the total registering capacity thereof may be
25 greatly increased.

Another object of this invention is to provide such a type of machine with mechanism for operating a totalizing mechanism of the type shown in the patent granted to
30 Thomas Carney, No. 497,860, May 23rd, 1893, so that the parts of these machines, which are in extensive use, may become interchangeable, that is as far as the totalizing mechanism is concerned.

With these and incidental objects in view the invention consists in certain novel features of construction and combinations of parts the essential elements of which are set forth in appended claims and a preferred
40 form of embodiment of which is hereinafter described with reference to the drawings which accompany and form part of the specification.

Figure 1 is a central transverse sectional
45 view through a machine of the type shown in the Cleal and Reinhard patent with the improvements applied thereto. Fig. 2 is a partial top plan view of the totalizing mechanism and its cooperating parts. Fig. 3 is
50 a detail elevation of the main rotary shaft and its connection with the operating rock shaft.

Described in general terms the machine
55 comprises a series of banks of manipulative devices or keys which determine the move-

ment of oscillatory segments which are actuated upon the rotation of an operating crank handle. These segments mesh with intermediate gears which in turn mesh with pinions secured to indicators to indicate the
60 amount represented by the operated manipulative devices or keys. Connected to the intermediate gears are spiral cams which operate registering segments differentially. Previous to the movement of these register-
65 ing segments by the spiral cams, totalizing elements mounted in a rock frame are carried into engagement with said segments, so as to have the movement of the segments imparted to the movable elements of the total-
70 izing mechanism. At the beginning of the operation of the machine the spiral cams are returned to normal or zero position with the indicators, the segments in turn following the spiral cams by means of coil springs,
75 the totalizing elements in the meantime being disconnected from said segments. With this brief description of the mode of operation of the machine it is thought it will be much easier to follow the detailed de-
80 scription which follows.

The manipulative devices or keys 1 are held in their outermost position by springs 2 coiled about the shanks of said keys. Upon
85 depressing any one of these keys its inner end will project into the path of a pawl forming a part of the latching mechanism 3 attached to the registering segment of that particular bank of keys. Upon the operation of a crank handle 4 (see Fig. 2) a
90 main operating shaft 5 will be rotated through suitable intervening gears 6. At the end of the shaft on the opposite side of the machine from the crank handle 4 is a disk 7 to which is secured one end of a link
95 8, the other end of such link being secured to an arm 9 fast upon a shaft 10 which is suitably supported in the framework 11 of the machine. As the shaft 5 rotates in the direction of the arrow shown in Fig. 3 the
100 shaft 10 will rock first in one direction and then in the opposite direction. This rock shaft 10 carries segments 12 (see Fig. 1), only one of which is shown. When a key is depressed the segment 12 corresponding to that bank will engage with part of the latch-
105 ing mechanism 3 upon the return of said segment and carry the corresponding segment 13 with it until the pawl of the latching mechanism 3 contacts with the inner end
110

of the depressed key, at which time the latching mechanism will be disengaged from its segment 12 so as to allow the latter to complete its movement. Each of the segments 13, of which there is one for each bank of keys, engages with an intermediate gear 14, which in turn meshes with a pinion 15 suitably secured to an indicator 16. From this it will be seen that the differential movement of the segment 13 as controlled by its value keys will be imparted to its indicator 16 through the gearing just described. All of this mechanism is fully shown and described in the above mentioned Cleal and Reinhard patent, and for a further detailed description thereof reference may be had to said patent.

The intermediate gears 14 (see Fig. 2) are attached to hubs 17 which surround a horizontal shaft 18. Secured to one end of each of these hubs 17 is a spiral cam 19 which is arranged to engage with an anti-friction roller 20 projecting laterally from a fork-shaped arm 21. At its forked end each of these arms 21 is arranged to straddle sleeves 22 connected to the intermediate gears 14 and through which the type carriers, as shown in the Cleal and Reinhard patent, are set up. At its other end each of the arms 21 is connected to a segment or actuating device 23 for the totalizing mechanism but the arm 21 controlling the cents actuating segment 23, as shown in Fig. 2, is connected to an arm 24 projecting upwardly from a hub 25 which is secured to a transverse shaft 26 to which is also secured cents registering segment 23. The dimes and dollars registering segments are loosely mounted upon the shaft 26. The rollers 20 projecting from the arms 21 are held in contact with the periphery of the cams 19 by springs 27. The spring 27 of the cents registering segment is connected at one end to the arm 21 and its other end to the back frame of the machine, while the springs controlling the dimes and dollars segments are connected to the rear ends of links 28 projecting from the segments and to the back frame of the machine. From this description it will be seen that the movements of the intermediate gears 14 will through the spiral cams 19, rock the segments 23 a distance depending upon the extent of movement of the segments 13 which are geared to the intermediate gears 14.

Just previous to the registering movement of the segments 23 a frame 29 carrying totalizer wheels or elements 30 will be rocked about its pivots 31 by a link 32 which is connected at one end to an arm 33 extending downwardly from the frame 29. The rear end of the link 32 is forked and straddles the main shaft 5. Projecting from the link 32 is a roller 34 which extends into a cam groove 35 formed in a disk 36 secured

to the shaft 5. The shape of the groove 35 of the disk 36 is such that the pinions 37 secured to the wheels or totalizing elements 30 will be rocked into engagement with the segments 23 before their registering movement and held in such engagement during the movement of such segments 23 after which the pinions 37 will be rocked out of engagement to permit of an independent movement of the totalizing elements by their transfer pawls 38. These pawls are pivoted upon a short rod 39 mounted in the registering frame 29 and have downwardly extending portions which project into forked forward ends of links 40, the rearward ends of which are also forked so as to straddle the shaft 5 and be operated thereby. Near their forward ends the links 40 have upwardly and forwardly extending portions 41 which pass over a transverse rod 42 so as to guide the forward ends of such links 40. Each of these links is provided with a roller 43 which is operated by a cam 44 secured to the main shaft 5. These cams 44 are arranged upon the shaft 45 so as to actuate the transfer pawls 38 successively, as is well known in the art and fully described and shown in the before mentioned patent to Thomas Carney. The transfer pawls 38, of which there are two, are arranged to transfer from the units to the tens and from the tens to the hundreds. The transfers from the hundreds to the succeeding wheels are effected by Geneva stop movements, as is well known in the art. The links 40 are held in their rearward position with their rollers 43 in contact with the periphery of the cams 44 by coil springs 45 the ends of which are secured to hooks formed on the links and to a cross rod 46 mounted in the rear of the machine.

It will readily be seen that by providing one type of machine with parts that may be used in another type of machine, although the functions performed by one of the said machines are more comprehensive than the other, a considerable saving will be made in the amount of stock that is necessarily carried to build these machines and also repairing of said machine is more easily accomplished. Further, the machine as constructed with the type of totalizer herein shown is much narrower and therefore takes up much less space when placed in use.

While the form of mechanism herein shown and described is admirably adapted to fulfil the objects primarily stated it is to be understood that it is not intended to confine the invention to the one form of embodiment herein shown and described as it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:

1. In a cash register, the combination with a totalizing mechanism comprising a

plurality of movable elements, of actuating devices therefor, devices for differentially camming the latter, springs holding the actuating devices in contact with the camming devices, and manipulative devices for controlling the extents of movement of the camming devices.

2. In a cash register, the combination with a totalizing mechanism comprising a plurality of movable elements, of actuating devices therefor, the said mechanism and actuating devices being normally disconnected, means for connecting the totalizing mechanism and the actuating devices, and spiral cams operating the actuating devices when they are connected to the totalizing mechanism.

3. In a cash register, the combination with a totalizing mechanism of a movable frame in which said mechanism is mounted, actuating devices for the totalizing mechanism, means for moving the frame so as to connect the totalizing mechanism with the actuating devices, spiral cams operating the actuating devices when they are connected to the totalizing mechanism, and manipulative devices controlling the movement of the spiral cams.

4. In a cash register, the combination with

a totalizing mechanism, of a movable frame in which said mechanism is mounted, actuating devices for the totalizing mechanism, means for moving the frame so as to connect the totalizing mechanism with the actuating devices, spiral cams operating the actuating devices when they are connected to the totalizing mechanism, springs holding the actuating devices into contact with the cams, and manipulative devices controlling the movement of the spiral cams.

5. In a cash register, the combination with a totalizing mechanism, of a movable frame in which said mechanism is mounted, actuating segments for the totalizing mechanism, a cam disk and connections for rocking the frame so as to connect the totalizing mechanism with the segments, spiral cams operating the segments when they are connected to the totalizing mechanism, springs connecting the segments and cams, and keys controlling the movement of the cams.

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

CHARLES PALMER.

Witnesses:

A. E. MELHINSH,
W. E. BROWN.