

W. H. MUZZY.
CASH REGISTER.

APPLICATION FILED OCT. 3, 1904.

935,677.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.

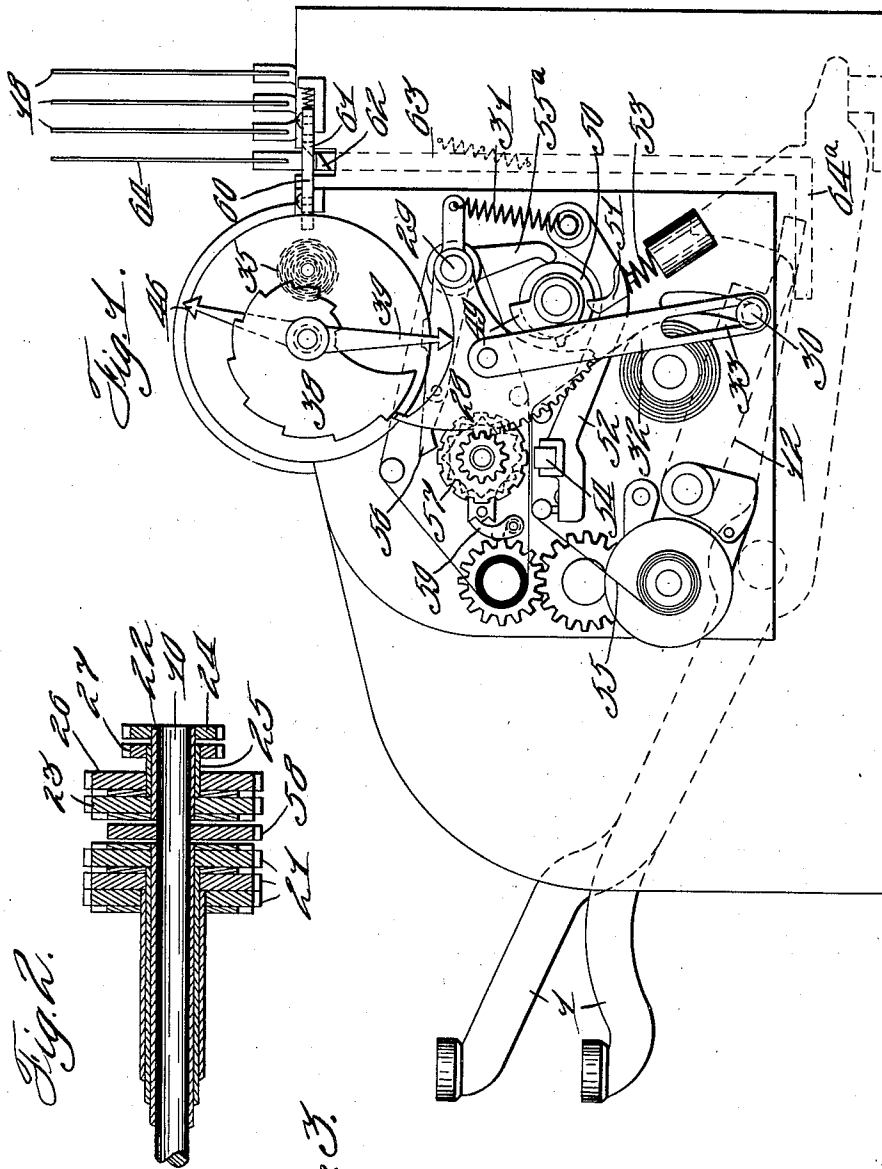


Fig. 2.

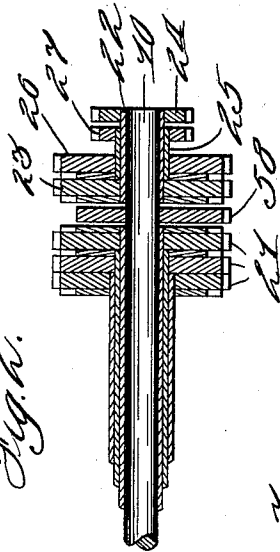
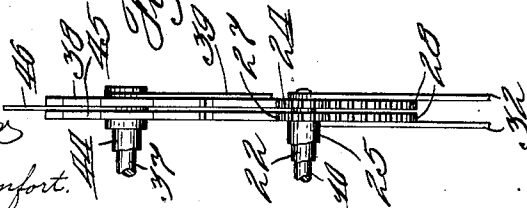


Fig. 3.



Witnesses

Wm. O. Henderson

Mildred Monfort.

Inventor

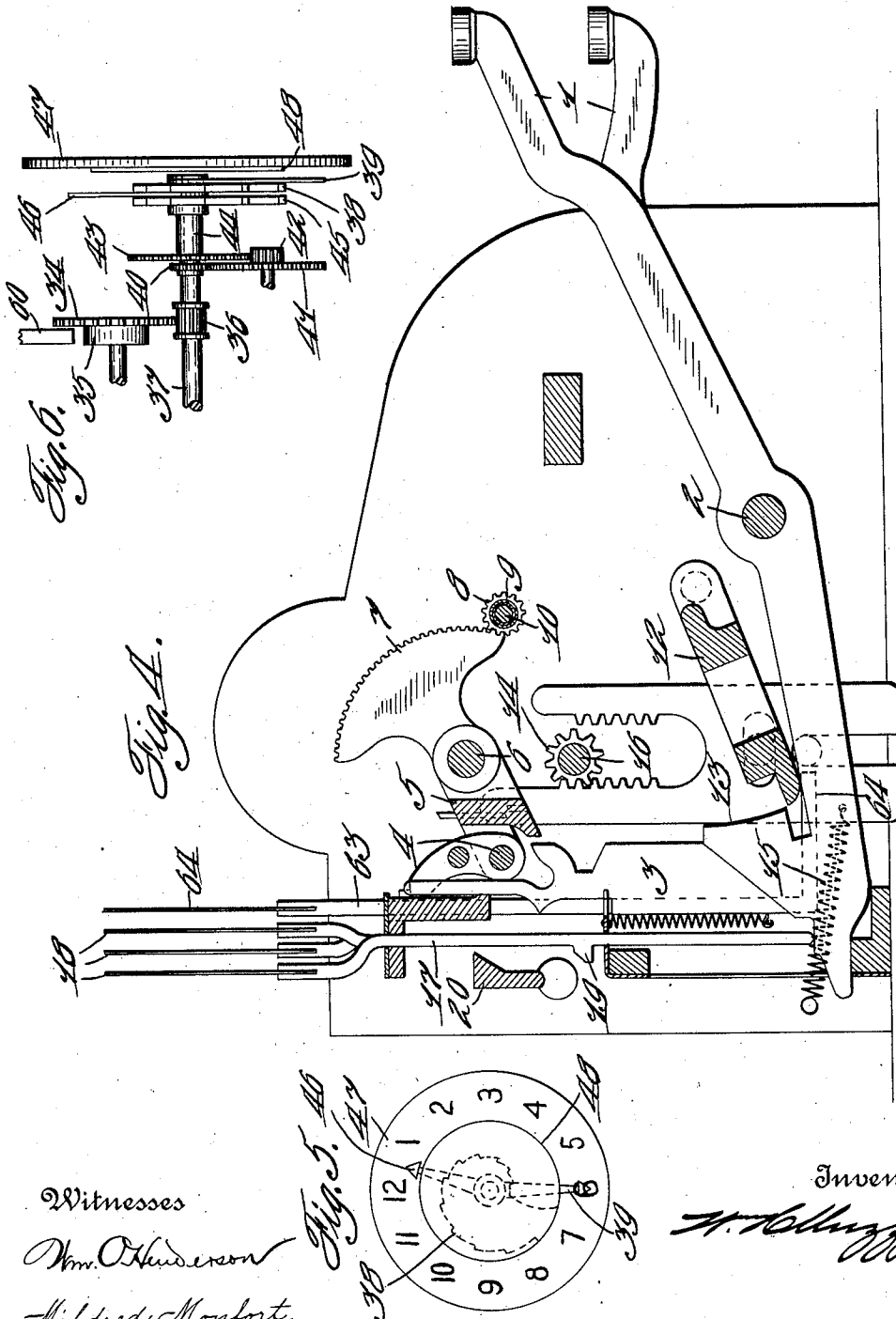
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2 SHEETS—SHEET 2.



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Mildred Monfort.

Inventor

W. H. Muzzy

UNITED STATES PATENT OFFICE.

WILLIAM H. MUZZY, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE
NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO,
(INCORPORATED IN 1906.)

CASH-REGISTER.

935,677.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed October 3, 1904. Serial No. 227,046.

To all whom it may concern:

Be it known that I, WILLIAM H. MUZZY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, 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 improvements in cash registers and has more particular relation to improvements in registers having time printing attachments.

The principal object of the present invention is to overcome the inaccuracy of present time printing devices caused by the said devices being driven directly by the clock mechanism, by providing an improved mechanism in which the clock train moves freely at all times and independent of the printing mechanism.

Another object of this invention is to indicate to the operator when the clock mechanism requires winding.

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 form of embodiment of which is hereinafter specifically described with reference to the drawings which accompany and form part of this specification.

Of said drawings: Figure 1, represents a side elevation of the type of machine shown in the patent to Carney, No. 683,877, October 10, 1901, with the present improvements applied thereto; the cabinet and cash drawer being omitted. Fig. 2, represents a detail longitudinal section of the amount and time printing wheels. Fig. 3, represents a detail front elevation of the pinions for setting the time printing wheels, their operating segments and step cams. Fig. 4, represents a transverse vertical section through the machine. Fig. 5, represents a detail front elevation of the clock dial and hands, and Fig. 6 represents a detail view of the main spring and the connecting parts of an ordinary clock movement.

In the drawings 1 represents a series of key levers which are pivoted on a transverse shaft 2; the rearward end of said levers having fast thereto vertical cam plates 3 which engage a cross bar 4 of a frame 5. This

frame is pivoted upon a transverse shaft 6 and is provided at one end with a segmental counter operating rack 7 which engages with a pinion 8 upon one end of one of a series of nested sleeves 9. All of said sleeves are provided with similar pinions for connection with similar racks.

Extending over the key levers 1 is a universal bar or coupler 12 which is connected to a double rack bar 13 by a slot and pin. The teeth formed upon one side or the other of this rack bar are constantly drawn into mesh with a pinion 14, by a coil spring 15 in a well known manner. This construction is such as to give the shaft 16 to which pinion 14 is made fast a complete revolution during each operation of the key levers 1. Upon the rear end of each of the key levers 1 rests a standard 17 which carries an indicator tablet 18. This standard has a nose 19 which rests upon the top of a back rod or wing 20, whenever said standard is raised by a key lever 1 so as to bring the indicator 18 into view.

The nested sleeves 9 which have secured to their inner ends pinions 8 are provided at the opposite ends with amount printing wheels 21. The said sleeves are mounted upon a supporting shaft 10 as shown in Fig. 2. The outer end of this shaft is surrounded by a sleeve 22 carrying at its inner end a five minute printing wheel 23; the outer end of said sleeve being provided with a pinion 24. Surrounding this sleeve 22 is another sleeve 25 carrying at its inner end an hour printing wheel 26 while its outer end carries a pinion 27 similar to the pinion 24. These pinions 24 and 27 are arranged to be operated to set the time printing wheels by spring drawn rack segments 28 which are mounted on a stub shaft 29 projecting from the side frame of the machine. A pin 30 projects from the coupler 12 through the casing of the machine, to normally hold the segments 28 against the tension of their springs 31, by means of link bars 32; said bars being provided with elongated slots 33, into which pin 30 projects, the objects of which will hereinafter be pointed out.

A pinion 34 of the clock mechanism to which the main spring 35 is attached engages a pinion 36 which drives a shaft 37 by frictional contact. The outer end of this shaft carries a step disk or cam 38 and a

minute hand or pointer 39. Fast to said shaft 37 is a pinion 40 which engages a gear 41 which has secured to it a pinion 42 which meshes with a gear 43 similar to gear 41. This gearing as is well known is arranged so that when the hand 39 makes a complete revolution the gear 43 will only make one-twelfth of a revolution. This gear 43 is secured to one end of a sleeve 44 which surrounds the shaft 37; the other end of said sleeve 44 carrying a step disk or cam 45 and the hour hand 46. Secured to the inner side of a transparent clock dial 47 is an opaque dial 48, the object of which is to hide the step disks 38 and 45. The disks 38 and 45 are mounted directly over the segments 28 as shown in Figs. 1 and 3, so as to be engaged by the latter when operated by their springs. It will be seen by reference to Fig. 1, that these disks rotate entirely independent of the segments 28 so that the clock mechanism is free of any retarding influence from the segments 28.

The revoluble shaft 16 has secured to its outer end cams 49 and 50. The former is arranged to engage a lug 51 carried by an arm 52 so as to first compress and then release spring 53 at the end of a half revolution of said shaft. The platen 54 carried by the forward end of arm 52 is brought into contact with the amount and time printing wheels upon the release of spring 53 and thereby impresses the amount and time upon a detail strip 55 which is fed forward at each operation of the machine in the manner as shown and described in the aforementioned patent. Cam 50 operates a bell crank lever 55^a which carries alining pawls 56 and forces the same into engagement with star wheels 57 carried by the amount and time printing wheels which insures the proper alinement of the said wheels. As the universal bar 12 is given a definite movement at each operation of the machine and the segments 28 are given a differential movement in accordance with the location of the contact surfaces of step disks or cams 38 and 45, the links 32 connected to the segments 28 are provided with slots 33. This construction is required on account of the different relative movements of the bar 12 and segments 28. On the return movement of the universal bar 12, pin 30 engages the bottoms of slots 33 and thereby returns the segments 28 to normal position and puts the springs 31 under tension. Between the amount and time printing wheels is located a manually operated printing segment 58 which has two types upon its periphery "A" and "P", which represent ante-meridian and post-meridian. This segment is held in its adjusted positions by a spring drawn pawl 59 which enters V-shaped notches formed on said segments.

When the main spring 35 of the clock

movement runs down it forces a pawl 60 rearwardly against a light spring tension, which movement of pawl 60 moves lug 61 formed thereon from over lug 62 formed upon a spring drawn standard 63, the upper end of which carries an indicator 64 bearing any suitable inscription such as, "Wind clock," or the like. A foot 64^a on said standard extends under the universal bar 12, so that when the standard 63 is released and the bar 12 is raised, indicator 64 will jump into view of the operator and is then returned with the bar 12. If the operator fails to wind the main spring the indicator 64 will continue to move to indicating position upon each operation of the machine. When the spring 35 is rewound, lug 61 is forced forward over lug 62 formed on standard 63 thereby latching indicator 64 in a non-indicating position.

It will be seen from the before-going description that the cams or disks 38 and 45 move forward freely with the clock movement and do no work whatever. When it is desired to print the time, the segments 28 are released by the key-couplers and allowed to take up positions corresponding to positions of the cams whereby the printing wheels are turned to bring the proper types into printing positions. By this means the accuracy of the clock movement is assured as the amount of work that must be accomplished by the clock is constant and involves nothing more than overcoming the inertia of the cams.

It will be understood that the present invention is applied to the form of machine here shown only for the sake of illustration, as it will be readily apparent that the invention can be applied to numerous forms of cash registers in which are employed a movable member which can be utilized for controlling the segments 28.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a cash register, the combination with a series of keys, of type wheels controlled by the same, a movable member actuated by the keys, a clock movement having printer controlling devices, time printing devices, and means controlled by the movable member for establishing and disestablishing co-operation between the time printing devices and the time controlling devices carried by the clock movement.

2. In a cash register, the combination with a series of keys, of a series of types controlled thereby, a clock movement carrying step cams, and time printing devices normally out of engagement with said cams with provisions for bringing them into engagement with the cams upon the operation of any one of the keys.

3. In a cash register, the combination with

a series of keys, of printing types controlled thereby, a clock movement, time printing devices, and connecting means between the clock movement and time printing devices normally disconnected with provisions for establishing the connection upon the operation of any one of the keys.

4. In a cash register, the combination with a series of keys, of type wheels controlled thereby, time printing types, a clock movement carrying graded cams, actuating devices for the time printing types normally out of connection with said cams, and means for bringing said actuating devices into engagement with the cams upon the operation of any one of the keys.

5. In a cash register, the combination with a printing mechanism and its setting devices, of time printing types, a clock movement, and actuating devices for the time types normally out of connection with the clock movement with provisions for bringing them into connection with the movement by the movement of the setting devices.

6. In a cash register, the combination with a printing mechanism and its setting devices, of time printing types, a clock movement having independent type controlling devices for the hours and minutes, and actuating means for the time printing types normally out of connection with the controlling devices with provisions for bringing them into connection therewith by the movement of the setting devices.

7. In a cash register, the combination with a printing mechanism and its setting devices, of time printing types, a clock movement having step cams, and actuating racks for the time printing types normally out of engagement with the step cams, with provisions for moving them into engagement with said cams upon the movement of the setting devices.

8. In a cash register, the combination with a printing mechanism, of setting devices therefor, time printing types, a clock movement, controlling devices for the time printing types carried by the clock movement, and means actuated by the setting devices for establishing at will a momentary cooperation between the controlling devices and the time printing types.

9. In a cash register, the combination with a printing mechanism, of setting devices therefor, time printing wheels, actuating racks for said wheels, a clock movement having controlling devices, and means for holding the racks normally out of engagement with the controlling devices with provisions for bringing the racks into engagement with the controlling devices upon the operation of the setting devices.

10. In a cash register, the combination with a series of operating keys, of printing devices controlled thereby, time printing de-

vices, a movable member operated by any of said keys, a clock movement, and actuating devices for the time printing types normally held out of engagement with the clock movement by the movable member.

11. In a cash register, the combination with a series of operating keys, of printing devices controlled thereby, a movable member actuated by any one of the keys, time printing wheels, racks for operating said wheels, springs for operating said racks, means connecting the racks to the movable member, and a clock movement and connections with which the racks are brought into connection to position them at will.

12. In a cash register, the combination with a printing mechanism, of setting devices therefor, a clock movement having step cams, time printing type wheels, racks for operating said wheels, springs for moving said racks, means operated by the setting devices and for normally holding the racks retracted against the tension of the springs, and a clock movement having controlling devices with which the racks cooperate when released.

13. In a cash register, the combination with a printing mechanism, of setting devices therefor, time printing types, racks for actuating said types, springs for moving the racks, a clock movement having step cams arranged to be engaged by the racks when released, and means operated by the setting devices, and normally holding the racks out of engagement with the cams.

14. In a cash register, the combination with an operating mechanism, of a printing mechanism, a clock movement for controlling the latter, and an indicator controlled by both the clock spring and the operating mechanism of the register.

15. In a cash register, the combination with an operating mechanism including a movable member, of a printing mechanism, a clock movement controlling the printing mechanism, a special indicator controlled by the clock spring, and means connecting said indicator to the operating mechanism whereby the indicator when released will be exposed upon each operation of the machine.

16. In a cash register, the combination with an operating mechanism, of a printing mechanism, a clock movement controlling the same, a special indicator, a latch for the indicator for holding it in its non-indicating position arranged to be operated by the clock spring, and means connecting the indicator to the operating mechanism.

17. In a cash register, the combination with a printing mechanism including a time printing type carrier, of a graduated element for determining the printing position of said type carrier, clock mechanism for driving said graduated element, keys and connections for taking impressions from said type

carrier, and devices controlled by said keys for moving said type carrier under control of said graduated element.

18. In a cash register, the combination
5 with a printing mechanism including a type carrier, of a determining mechanism for said carrier with means for adjusting same, an operating element for said type carrier, a controlling device for said element and keys
10 for giving said controlling device a constant excursion at each operation of any of said keys.

19. In a cash register, the combination
15 with a printing mechanism including a type carrier, of a position determining device for said carrier with means for moving said device, an operating element for said carrier with means holding same against movement, but adapted to release said element and allow movement thereof, and keys for operating
20 said holding means.

20. In a cash register, the combination
with a printing mechanism including a type carrier, of an adjusting device for said carrier, a controlling device for said adjusting device, means for driving same at a constant rate, and keys for moving said adjusting device to an extent determined by the controlling device.

21. In a cash register, the combination
30 with a printing mechanism including a time printing type carrier, of a clock mechanism, a graduated element controlled by said clock mechanism, an operating device for said type carrier limited in its movement by said graduated elements, a platen for taking impressions from said type carrier, and a series
35 of keys with connections from said keys for operating said platen and for actuating said type carrier operating device.
40

22. In a cash register, the combination with a type carrier, of an actuator therefor, means normally disconnected from the actuator for controlling the extent of move-

ment of the same, a series of keys for controlling the movement of the actuator into connection with its controlling means, and means for taking an impression from the type carrier actuated by said keys. 45

23. In a cash register, the combination
50 with a type carrier, of an actuator therefor, a graduated cam normally disconnected from the actuator for controlling the extent of movement of the same, a series of keys for controlling the movement of the actuator
55 into connection with its controlling cam, and means for taking an impression from the type carrier actuated by said keys.

24. In a cash register, the combination
60 with a printing mechanism including a time type carrier, of an actuator for said type carrier, a clock mechanism, means connected thereto but normally disconnected from the actuator for controlling the extent of movement of said actuator, a series of keys for
65 controlling the movement of the actuator into connection with its controlling means, and means for taking an impression from the type carrier actuated by said keys.

25. In a cash register, the combination
70 with amount and time recording devices, of a series of keys for actuating the amount recording devices, setting means for the time recording devices, clock controlled means normally disconnected from the setting
75 means for controlling the extent of movement of same, means under the control of said keys for bringing the setting means into connection with the clock controlled means, and means for taking an impression from
80 the recording devices actuated by the said keys.

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

WILLIAM H. MUZZY.

Witnesses:

WM. O. HENDERSON,
MILDRED MONFORT.