C. L. REDFIELD & T. ROSS.

CLOCK.

APPLICATION FILED APR. 30, 1914.

1,226,810.

Patented May 22, 1917.

2 SHEETS—SHEET 1.

Fig. 1

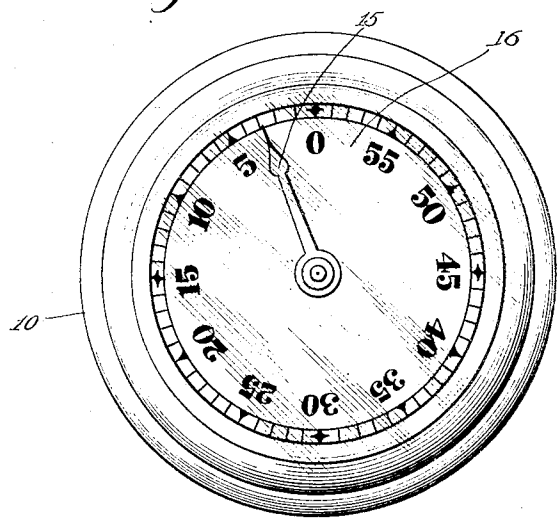
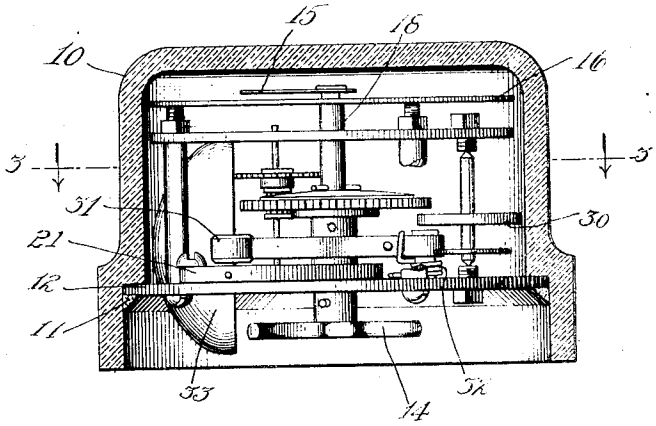


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 6

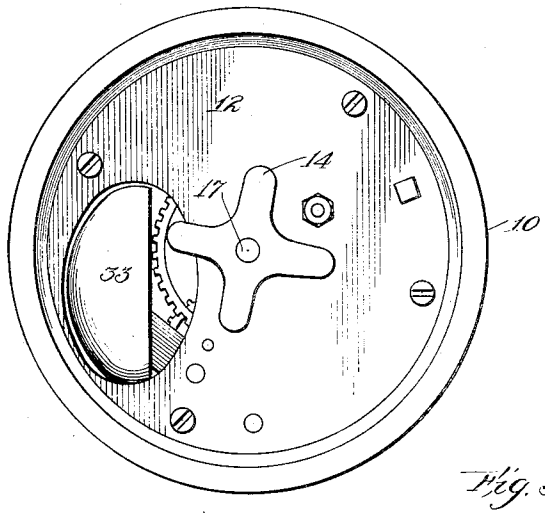


Fig. 5

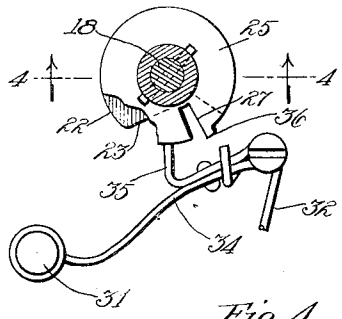


Fig. 3

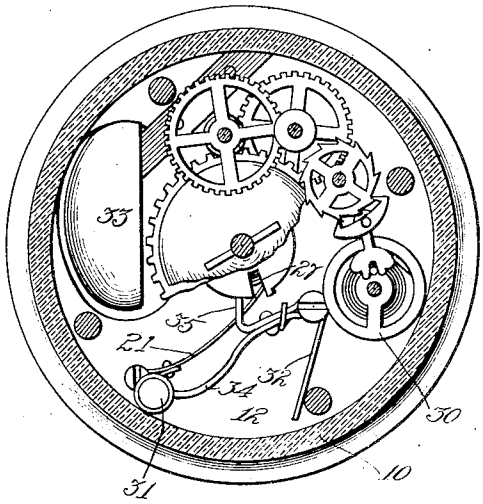
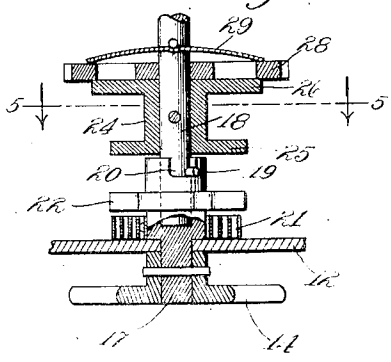


Fig. 4



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UNITED STATES PATENT OFFICE.

CASPER L. REDFIELD AND TOREY ROSS, OF CHICAGO, ILLINOIS.

CLOCK.

1,226,810. Specification of Letters Patent. Patented May 22, 1917.

Application filed April 30, 1914. Serial No. 835,364.

To all whom it may concern:

Be it known that we, CASPER L. REDFIELD and TOREY ROSS, citizens of the United States of America, and residents of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Clocks, of which the following is a specification.

Our invention relates to clocks to be used for short time reminder purposes, and has for its object the production of a device which may be conveniently set for any desired amount of time and which will, upon the completion of that period of time, strike an alarm and stop. For convenience, the mechanism of the clock is placed in a glass case in such form that, when not directly in use as a clock, it may be used as a paper weight. The object of this last is to make the device a double purpose one, the two purposes being closely related. Thus, a business man working at his desk makes frequent use of paper weights. Also, a man so working frequently has an appointment to meet within a short period of time. If his work requires close attention he is liable to forget his appointment. Whether he forgets or not, it is a burden to remember the appointment and a nuisance to be continually consulting his watch. Both cause a loss of time. If one of the instruments in use on his desk for other purposes can be instantly set for the number of minutes he has yet for work he can forget the appointment and concentrate his attention on his work. A single stroke of a not loud bell on the desk where he is working notifies him that the time is up and does not disturb others a short distance away. Specifically, it is one of the principal objects of the invention to meet these conditions by making a device suitable for this double purpose.

In the accompanying drawings

Figure 1 is a plan;

Fig. 2 is a vertical section partly in elevation;

Fig. 3 is a section on line 3—3 of Fig. 2:

Fig. 4 is an enlarged sectional elevation of the central part of the mechanism, the same being a section on line 4—4 of Fig. 5;

Fig. 5 is a section on line 5—5 of Fig. 4, and

Fig. 6 is a bottom view.

The mechanism is inserted in a pressed glass case 10 and secured there by any convenient means, as by cement 11 securing the plate 12 against a shoulder 13 of case 10. In the space under the base plate 12 is a thumb wheel 14 by which the hand 15 is manually set at any desired distance from "0" on the dial 16. The point "0" is the normal position at which the hand 15 rests when the clock is not running. In setting the hand 15 it is moved to the left to successively pass "5," "10," "15," etc., as far as desired. Thus, if the party having the clock has twenty-five minutes before he must leave his office to catch a train or to appear in court, he simply moves the hand to "25" on the dial and pays no further attention to the matter until he hears the bell. In thus setting the hand 15 he winds the clock, and upon releasing the wheel 14 the clock automatically starts into operation. By the time the twenty-five minutes have been ticked off the hand has moved in the reverse direction back to "0," the bell has struck and the clock stops.

The wheel 14 is secured to a stem 17 which extends through the plate 12 and has in its upper end a socket or step for the reception of the spindle 18. In the spindle 18 is a pin 19 which projects into a notch 20 cut in the upper end of the stem 17. The arrangement is such that the stem 17 and spindle 18 have a small rotational movement with respect to each other, but otherwise the stem drives the spindle and consequently the hand 15 secured to the spindle.

A spring 21 has one end secured to the plate 12 and the other end secured to the stem 17, and serves to drive said stem in a clockwise direction after it has been moved in the contrary direction by manually turning wheel 14. Secured to the stem 17, or integral therewith, is a disk 22 having one portion cut away to furnish a cam surface 23. Secured to the spindle 18 is a sleeve 24 having flanges 25 and 26. The flange 25 is preferably of the same diameter as disk 22 and is provided with a notch 27 located above that part of the disk 22 which is cut away to form cam 23. Loosely mounted upon the spindle 18 is a gear 28 which is held in frictional contact with the flange 26 by means of a friction disk washer 29 of usual construction. The gear 28 is connected, by means of a suitable train of gearing and an escapement, with the balance wheel 30.

Suitably pivoted on the plate 12 is a hammer or clapper 31 actuated by a spring 32 to strike a bell 33. Secured to the arm 34 of the clapper 31 is a prong 35 adapted to

enter the notch 27 when the hand 15 is at its normal position, and to be acted upon by the cam 23 to raise the clapper 31 when the hand is being set by turning wheel 14. Figs. 1, 3 and 5 show the relative position of parts when the hand 15 has about three minutes to go before the bell rings. Fig. 4 shows the position of the pin 19 in the notch 20 when the spring 21 is driving the hand 15.

In operating the device the wheel 14 is to move the hand 15 from normal position to a position in which the hand 15 will indicate the number of minutes it is intended shall elapse before the bell is struck. For convenience, this wheel 14 may be considered as a key for winding and setting the apparatus. During the first part of the movement of the wheel or key 14 the stem 17 moves on the pin 19 until the said pin is struck by the opposite side of the notch 20. Up to this point the hand 15 remains stationary, the play between the slot 20 and pin 19 being provided for the purpose of enabling the striking mechanism to be set before the hand is actually moved from normal position.

This preliminary movement of the stem 17 causes a similar movement of the disk 22 and cam 23. This cam acts on the prong 35 to move it out of the notch 27 and lift the clapper 31 from the bell 33. The instant that the prong 35 is clear of the notch 27, the side of the notch 20 engages the pin 19 to thereafter move the spindle 18 with the stem 17. As the notch 27 is in the flange 25, and as this flange is secured to and moves with the spindle 18, it will be evident that this movement of the spindle carries part of the periphery of the flange under the prong 35 to hold it up and consequently to hold the clapper 31 from the bell 33. In this movement of setting the hand 15, the gear 28 is not moved as that gear is connected by gearing to the escapement and is connected to the spindle 18 only by its friction with 26 and 29.

Upon releasing the wheel or key 14 at the end of the setting operation, the spring 21 moves the stem 17 until it engages the pin 19, as shown in Fig. 4, to drive the stem 18. This moves the hand 15 toward "0." Just as the hand reaches "0" the notch 27 comes under the prong 35 and permits the spring 32 to drive the clapper 31 against the bell 33. The entrance of the prong 35 into the notch 27 prevents the spring 21 from moving the hand 15 beyond "0" on the dial.

The dial 16 is graduated up to fifty-five minutes. To prevent the hand 15 from being moved beyond about fifty-six minutes, a lug or projection 36 is placed on the flange 25 adjacent to the notch 27. This projection coming in contact with the outer or left face of the prong 35 stops the flange 25 before said prong can drop into the notch 27. If the hand is moved too far to represent the desired interval of time it may be manually moved back toward "0" without affecting the operation.

What we claim is:

1. In a clock mechanism, a key for winding and setting the mechanism, a bell and hammer, a cam secured to the key and serving to raise the hammer from the bell, and a slipping connection between the key and the mechanism so arranged that the first part of a manual movement of the key serves to raise the hammer and further movement of the key serves to wind and set the mechanism.

2. In a clock mechanism, a central spindle, a key for turning the spindle, said key having a slipping connection so arranged that the key may have a small movement independent of the spindle, a motor spring connected to the key and operating through the slipping connection to drive the clock mechanism, a strike mechanism, means by which the clock mechanism is held stationary during the initial part of the key movement and is set for a desired period of time during the final part of the key movement, and connections for setting the strike mechanism during the initial part of the key movement.

3. The combination with a clock mechanism, a hand therefor, and a strike mechanism, of a key provided with connections for setting both the hand and the strike mechanism, and means inserted in said connection by which the hand is held stationary during that part of the key movement utilized for setting the strike mechanism.

4. The combination with a clock mechanism, a hand therefor, and a device for stopping the clock at normal position, of a key provided with connections for releasing the stopping device and setting the hand by the movement of said key, and means inserted in said connection by which the hand is held stationary until after the key movement has released the stopping device.

Signed at Chicago, Illinois, this 28 day of April 1914.

CASPER L. REDFIELD.
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Witnesses:
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WALTER H. REDFIELD.