

W. E. E. MILZ.
KEYLESS CLOCK.
APPLICATION FILED AUG. 10, 1911.

1,031,805.

Patented July 9, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

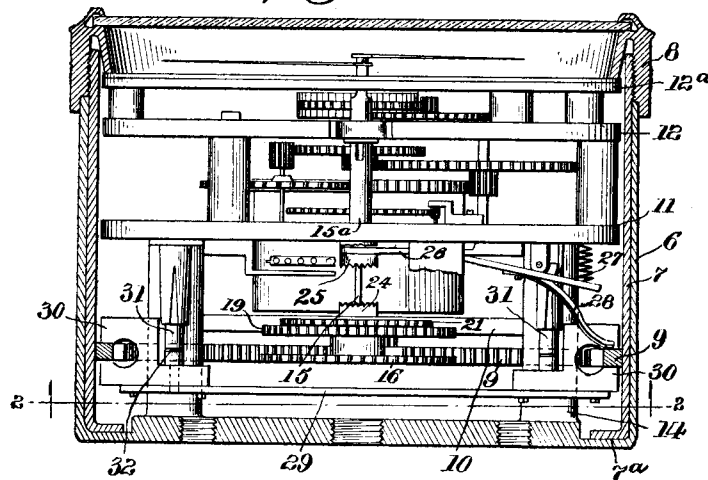
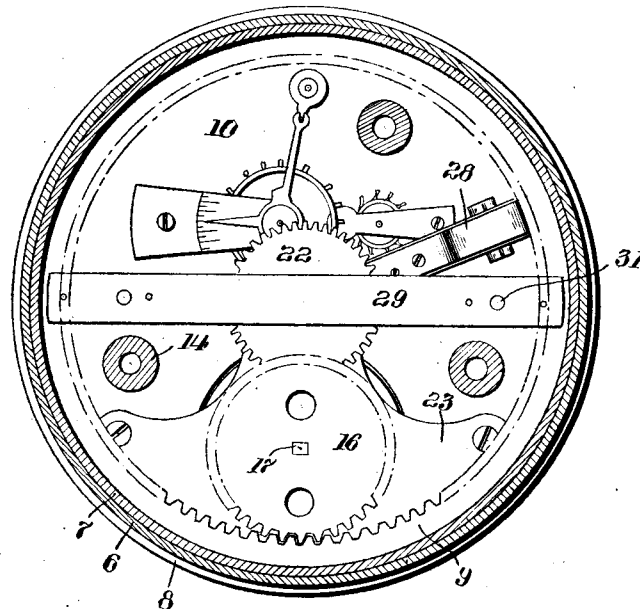


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

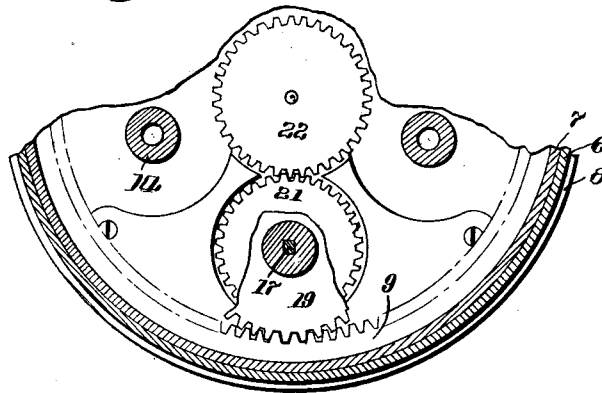


Fig. 4.

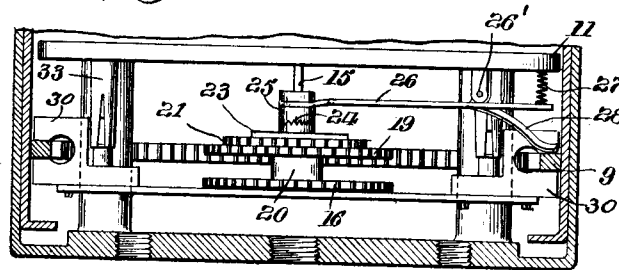


Fig. 5.

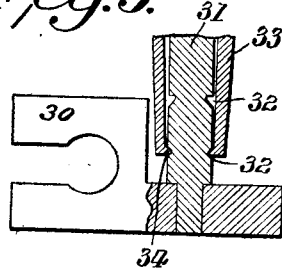
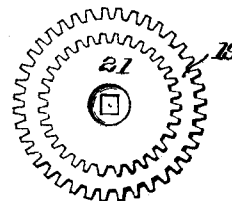


Fig. 6.



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UNITED STATES PATENT OFFICE.

WALTER E. E. MILZ, OF NEW YORK, N. Y., ASSIGNOR TO PHINNEY-WALKER KEYLESS
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KEYLESS CLOCK.

1,031,805.

Specification of Letters Patent.

Patented July 9, 1912.

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To all whom it may concern:

Be it known that I, WALTER E. E. MILZ, a subject of the Emperor of Germany, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Keyless Clocks, of which the following is a specification.

This invention relates to keyless clocks, and especially to a clock which can be either wound or set by manipulation of a turning rim mounted on the clock casing.

The invention is an improvement on or modification of those shown in my pending applications No. 617458 and No. 638343.

The object of the present invention is to provide improved means for winding the spring and setting the hands of the clock by means of the rotatable rim and casing. As in the former cases the inner casing is provided near its inner end with an annular gear which is normally in mesh with a gear mounted on the arbor of the spring so that when the casing is turned the spring is wound. The casing is also shiftable in and out to a limited extent, and when pulled out it is disengaged from the spring winding gear and is engaged with another gear which is operatively connected to the hands for the purpose of setting the same.

The present improvement comprises especially operating devices between the annular gear and the hands, said devices including a clutch which is thrown into engagement when the casing is pulled out, preparatory to setting the hands, said clutch being disengaged when the casing is pushed in to normal position.

The invention is shown applied to a movement of the Seth Thomas type which has a center arbor connected to the hands.

In the accompanying drawings—Figure 1 is a central longitudinal section of the clock casing, the movement being in elevation. Fig. 2 is a section on the line 2—2 of Fig. 1, looking upwardly. Fig. 3 is a detail in section showing the rear end of the movement, the parts broken away. Fig. 4 is a fragmentary section, similar to Fig. 1, but with

the clutch engaged. Fig. 5 is a detail in section of a device for holding the shifting casing in adjusted position. Fig. 6 is a detail of parts of the hand setting gearing.

Referring specifically to the drawings, 6 indicates an outer cup-shaped casing which may be mounted on any suitable base or support and is relatively fixed. Fitting at a working fit within this casing is a rotatable cylindrical inner casing 7 which may be turned in the outer casing and pulled in or out to a limited extent therein by means of a rim 8 fastened to the front end of the inner casing, which rim has a lap joint with the front edge of the outer casing. The rim carries the glass and the usual reflector ring around the dial. The inner casing is upset at its inner end, as indicated at 7^a, to rest against the bottom of the outer casing when pushed in. Near its inner or rear end the inner casing has an internal ring gear 9 fixed thereto. The back plate of the movement is indicated at 10, the middle plate at 11, and the front plate at 12, with a dial plate 12^a supported on the latter. The movement is quite fully illustrated in Fig. 1, but requires no detailed description, as it may be of any suitable or desired construction. A Seth Thomas movement is illustrated. It is fastened to the back of the outer casing 6 by means of screws which take into pillars 14 projecting from the back plate.

The ring gear 9, when the casing is pushed in, meshes with a spur gear 16 mounted on the squared end of the spring arbor 17, so that when the inner casing is turned in the proper direction the spring is wound, the spring barrel being indicated at 18, from which the movement is driven in the usual manner. The spring may thus be wound by turning the rim and the inner casing to which it is attached.

For setting the hands, the inner casing is pulled out to a limited extent, as above stated, and when so pulled out, as shown in Fig. 4, it engages a blind or idle wheel 19 which is located in front of the gear 16 and is mounted to turn freely on the hub 20 of

said gear. Said wheel 19 is fastened to another gear 21 which is in mesh with a gear 22 which is concentric with the center arbor 15 of the movement, said arbor being extended through the movement and connected to the hands in a known manner. The gear 22 is supported in position by a plate 23, the gear having a hub which extends through a hole in said plate, and the front end of said hub has teeth 24 forming one member of a clutch the other member of which consists of a slide sleeve 25 mounted on the squared part 15 of the center arbor 15^a, so that when the clutch is closed motion of the wheels 19 and 22 is communicated to said arbor, to set the hands.

When the inner casing is pushed in to wind the clock the clutch members 24 and 25 are disengaged by means of a forked lever or shifter 26 the end of which engages in a groove in the shiftable clutch member 25. This lever is pivoted at 26' to a support on the middle plate 11 and is pressed by a spring 27 so that when the inner casing is pushed in the spring lifts the movable clutch member and disengages the clutch. The lever also has a flat spring 28 the end of which rests against the front side of the gear 9. The flat spring is stronger than the coiled spring 27. When the inner casing is pulled out to engage the gear 9 with the gear 19 the lever is simultaneously turned, as shown in Fig. 4, to slide the clutch member 25 into engagement with the clutch member 24, which couples the gearing to the setting arbor 15. And when the casing is pushed in the pressure on the spring 28 is relieved, and the spring 27 then acts to open the clutch, as shown in Fig. 1. In order to hold the inner casing in inner or outer position I provide a bridge 29 which has forked blocks 30 at opposite ends. These blocks embrace opposite sides of the gear 9, and so move in or out when the gear is shifted. Each block has a pin 31 projecting forwardly therefrom, and provided with notches 32 adapted for engagement by lips 34 at the end of a split sleeve 33. Said sleeves are fastened to the plate 11 of the movement, which is relatively immovable, being fastened to the back of the outer casing as above described. When the inner casing is pushed in the lips 34 engage in the upper or outer notches on the pins, and when the casing is pulled out the lips spring out of said notches and engage in the lower notches 32, as shown in Fig. 4. Thereby the inner casing is held yieldingly in the position to which it is shifted. Normally the casing is pushed in, ready for winding, but when the hands are to be set it is pulled out to engage the setting gear and then turned in either direction to turn the hands.

Having thus described my invention,

what I claim as new and desire to secure by Letters Patent is:

1. In hand setting devices for a clock, the combination of a ring, rotatable around the clock movement and shiftable with respect to said movement, an arbor located at the central axis of the movement and extending through the same and operatively connected to the hands, and gearing between the ring and the arbor and operating to set the hands by turning the ring, said gearing including a clutch, one member of which is mounted on said arbor, and operated by the shift of the ring, and a gear wheel loose with respect to the arbor and provided with another clutch member adapted to be engaged by said clutch member when the ring is shifted.

2. In hand setting devices for a clock, the combination of a ring rotatable around the clock movement and shiftable with respect to said movement, an arbor located at the central axis of the movement and extending through the same and operatively connected to the hands, and gearing between the ring and the arbor and operating to set the hands by turning the ring, said gearing including a clutch member operated by the shift of the ring, said clutch member being located on the rear end of the arbor, and a loose gear wheel concentric with said arbor and having a clutch member attached thereto and adapted to be engaged by said clutch member when the ring is shifted.

3. In hand setting devices for a clock, the combination of a ring rotatable around the clock movement and shiftable in or out with respect to said movement, an arbor located at the central axis of the clock and extending through the movement, a clutch member slidably mounted on the rear end of the arbor, a cooperating clutch member located in position for engagement by the said sliding member, gearing between the ring and said cooperating clutch member and operating to turn said member by turning the ring, said gearing including a loose gear wheel at the rear end of the arbor, a spring tending to open the clutch members, and means controlled by the shift of the ring to close the clutch members.

4. In a clock, the combination of spring winding gearing, hand setting gearing, a ring rotatable around the clock movement and shiftable to engagement with either of said gearings to operate the same respectively, and means to hold the casing in either position to which it is shifted, comprising a pin shiftable with the casing, and a spring sleeve connected to the movement and engaging the pin.

5. In a clock, the combination of spring winding gearing, hand setting gearing, a ring rotatable around the clock movement

and shiftable to engagement with either of said gearings to operate the same respectively, and means to hold the casing in either position to which it is shifted, comprising a pin shiftable with the casing, and a spring sleeve connected to the movement and engaging the pin, said pin having inner and outer notches, and said sleeve having

lips which spring into either of said notches when the ring is shifted to either position. 10

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

WALTER E. E. MILZ.

Witnesses:

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ELIAS ISAACS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."