No. 673,053. Patented Apr. 30, 1901.

A. L. HENDERSON.

CLOCK.

(Application filed Oct. 3, 1900.)

(No Model.)

FIG. 1.

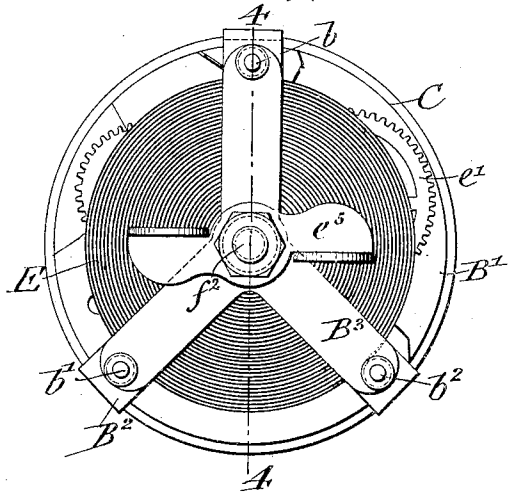


FIG. 2.

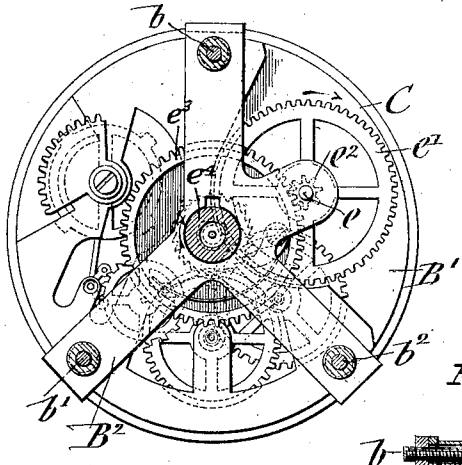


FIG. 3.

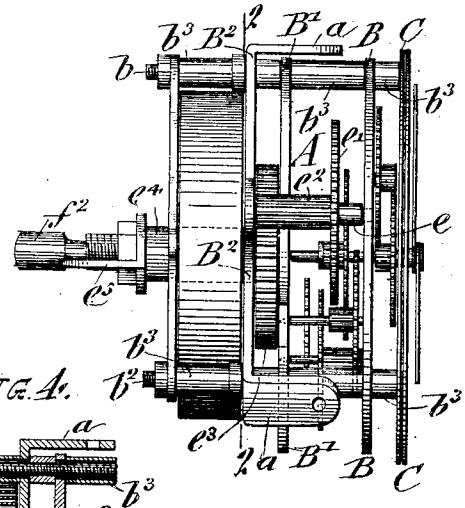
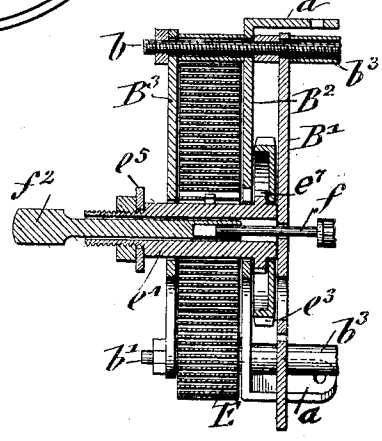


FIG. 4.



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UNITED STATES PATENT OFFICE.

ALEXANDER L. HENDERSON, OF NEW YORK, N. Y.

CLOCK.

SPECIFICATION forming part of Letters Patent No. 673,053, dated April 30, 1901.

Application filed October 3, 1900. Serial No. 31,904. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER L. HENDERSON, a citizen of the United States, residing in the city of New York, borough of Manhattan, in the State of New York, have invented certain new and useful Improvements in Clocks, of which the following is a specification.

This invention relates to improvements in clocks, and more particularly to improvements in clock winding mechanisms; and the object of the invention is to provide a simple, strong, and cheap winding mechanism for clocks.

The invention consists for this purpose of the combination, in a clock-movement, with the clock-frame, having a front plate, a rear plate, and intermediate plates, of a clock-train mounted in said frame, a mainspring located between the rear plate and adjacent intermediate plate, a winding-arbor connected with said mainspring and journaled in the rear plate and adjacent intermediate plate and abutting at its inner end against the next intermediate plate, a driving-gear loosely mounted on the arbor between the ratchet and said adjacent intermediate plate and having a thickened rim guided between the intermediate plates, a pawl on said gear engaging said ratchet, and a hand-setting arbor extending through the winding-arbor.

In the accompanying drawings, Figure 1 is a rear elevation of a clock to which my improved winding mechanism is applied. Fig. 2 is a vertical section on line 2 2, Fig. 3. Fig. 3 is a side elevation of Fig. 1; and Fig. 4 is a vertical transverse section on line 4 4, Fig. 1, through the winding mechanism.

Similar letters of reference indicate corresponding parts.

The frame of the clock is composed of the front plate B, intermediate plates B′ and B^2, the latter of which is provided with integral forwardly-bent fastening-lugs *a* for attachment of the movement to the clock-case, and a rear plate B^3, all of said plates being suitably connected by posts or pillars *b b′* b^2, carrying sleeves b^3 between the plates and between the front plate B and the dial C, which is applied to the front ends of the posts.

The mainspring E of the clock is mounted between the rear plate B^3 and the adjacent intermediate plate B^2 and is secured at its outer end to one of the posts of the frame and at its inner end to the hollow winding-arbor e^4 of the clock winding mechanism, which arbor is journaled in the rear plate B^3 and the adjacent plate B^2 and is provided at its outer end with a winding-key e^5. At its inner or front end said winding-arbor abuts against the intermediate plate B′ without, however, having a bearing in said plate. The winding-arbor carries between the plates B′ and B^2 a ratchet-wheel e^7, preferably made integral with the arbor, as shown, and abutting against the plate B^2. By this abutment of the end of the winding-arbor against the plate B′ the arbor is held in position against longitudinal movement, so that the remainder of the arbor can be made of one diameter without shoulders of any kind, thus rendering the arbor inexpensive to manufacture. The ratchet does not take up the whole width of the arbor between the two plates B′ and B^2, but a space is left between the ratchet and the plate B′, and in this space is located the driving-gear e^3, which is loosely mounted on the arbor and carries a spring-actuated pawl e^6, (indicated in dotted lines in Fig. 2,) which engages the ratchet. The rim of the driving-gear e^3 is made of the full width between the plates B′ and B^2, which has the advantage that the wheel, while loose upon the arbor, nevertheless is always guided so that its teeth squarely engage with the teeth of the pinion e^2 of the clock-train A and all wabbling or sidewise twist of the gear, even where the same becomes very loose upon the arbor by wear, is prevented. Upon the arbor of the gear-wheel e^2 is arranged a gear *e′*, which transmits the power of the spring to the remaining wheels of the train. The hand-setting arbor *f* extends through an opening in the plate B′ and into the winding-arbor e^4, where it makes connection with a hand-setting key f^2.

The operation of the winding mechanism will be readily understood from the foregoing description of the operation. Upon turning the key e^5 the arbor is turned in its bearings in the plates B^3 and B^2, causing the ratchet to pass beneath the click e^6, which snaps over the teeth of the same. The spring E is thereby wound up from the inner end. When wound, the pawl e^6 engages the teeth of the ratchet and the power of the spring

exerts itself through the driving-gear e^3 upon the time-train A of the movement, driving the same in the usual manner.

My improved winding mechanism is comparatively simple and inexpensive in construction and is strong and not liable to get out of order, so that it is adapted for use with springs of considerable size and strength, the one shown in the drawings being designed for running the clock eight days with one winding.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a clock-movement, the combination, with a clock-frame having a front plate, a rear plate, and intermediate plates B′ and B^2, of a clock-train mounted in said frame, a mainspring located between the rear plate and adjacent intermediate plate B^2, a winding-arbor connected with said mainspring and journaled in the rear plate and plate B^2, and abutting at its inner end against the next intermediate plate B′, a ratchet fixed on said winding-arbor and abutting against the plate B^2, a driving-gear loosely mounted on the arbor between the ratchet and the plate B′, and having a thickened rim guided between the plates B′ and B^2, a pawl on said gear engaging the ratchet, and a hand-setting shaft extending through the winding-arbor, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALEXANDER L. HENDERSON.

Witnesses:
PAUL GOEPEL,
JOSEPH H. NILES.