Feb. 12, 1924. 1,483,814

M. F. JURUICK

ELECTRIC CLOCK

Filed April 18, 1922

Fig. 1.

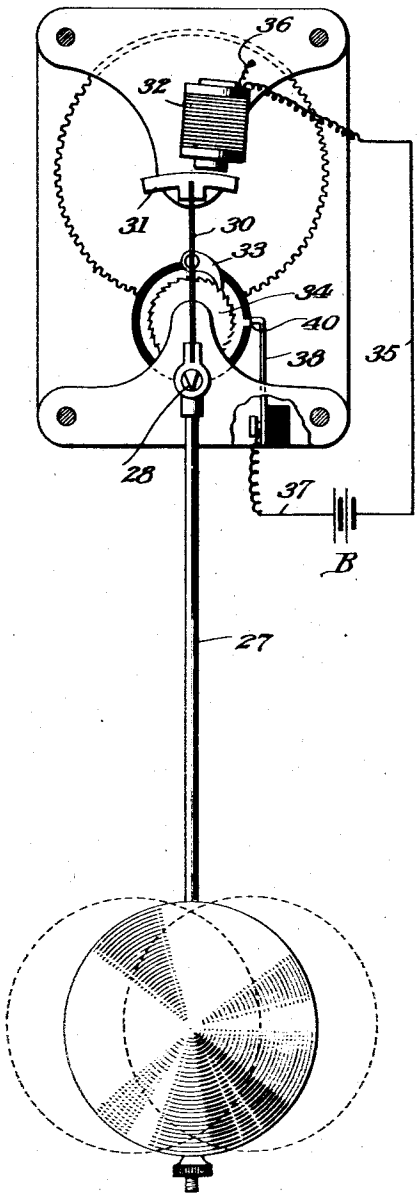


Fig. 2.

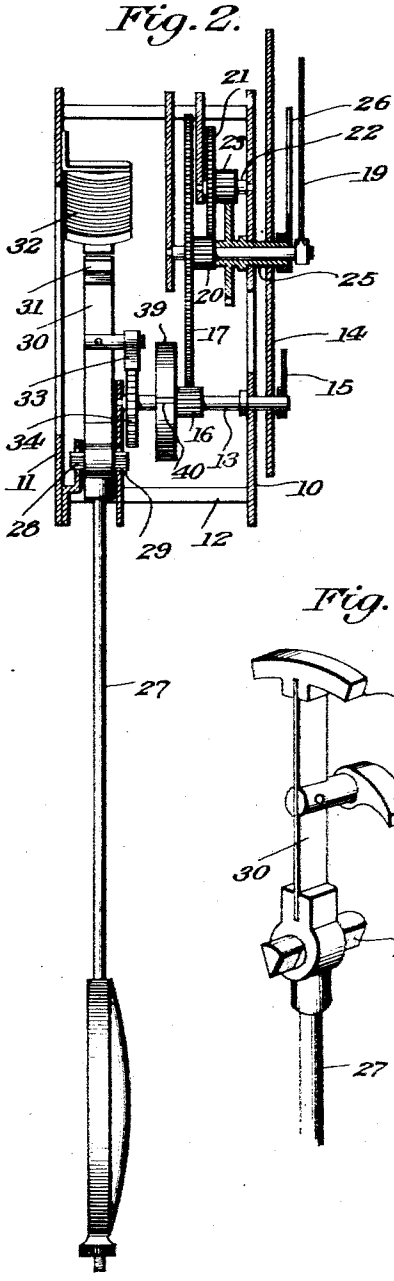


Fig. 3.

Fig. A. Ackman Jr.

WITNESS:

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UNITED STATES PATENT OFFICE.

MAXIMILIAN F. JURUICK, OF ALLENTOWN, PENNSYLVANIA.

ELECTRIC CLOCK.

Application filed April 18, 1922. Serial No. 554,429.

To all whom it may concern:

Be it known that I, MAXIMILIAN F. JURUICK, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented new and useful Improvements in Electric Clocks, of which the following is a specification.

This invention relates to improvements in electrically operated clocks.

An object of the present invention is the provision of means for preventing a sudden movement of the clock pendulum, such as usually occurs when a magnet is intermittently energized to impart movement to the pendulum and to accomplish this, an armature which is movable within the magnetic field, is so connected to the pendulum as to compensate for any suddenness of movement due to its attraction by the magnet.

Another object of the invention is the provision of novel means for transferring movement from the pendulum to the clock mechanism, the said means also acting to prevent sudden or jerky power impulses of the clock mechanism.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claim.

In the drawings:—

Figure 1 is a rear elevation of the invention with the clock casing removed.

Figure 2 is a side view of the same.

Figure 3 is a fragmentary perspective view showing the upper end of the pendulum and the yieldingly mounted armature and dog.

Referring in detail to the drawings, wherein like characters of reference denote corresponding parts, the reference characters 10 and 11 indicate respectively front and rear plates of the frame which is connected by bars or studs 12 and which is designed to support the clock mechanism. This mechanism includes a drive shaft 13 which extends through the front plate 10 and through the clock face 13 and may have mounted thereon a second hand 15.

The drive shaft 13 has secured thereon a pinion 16 which operates a gear 17 fast upon the arbor 18 of the minute hand 19, the said arbor 18 being mounted in suitable bearings provided in the frame. Also fast upon the arbor 18 is a pinion 20, which drives a gear 21, fast upon a shaft 22 mounted in bearings in the frame. The shaft 22 has secured thereon a pinion 23 which drives a gear 24, the last mentioned gear being fast to a sleeve 25 surrounding the minute arbor 18. The sleeve 25 provides an arbor for the hour hand 26. The ratio of the gears just described is such as to impart proper relative movement to the hands 15, 19 and 26.

Pivotally supported in the frame just described is a pendulum 27, which is provided at its upper end with oppositely extending knife trunnions 28, the latter entering openings 29 provided in the frame, so that the pendulum will be capable of free swinging movement. Extending upward from the upper end of the pendulum 27 is a resilient arm 30, which carries at its upper end an arcuate-shaped armature 31. This armature is located within the magnetic field of a magnet 32 which is supported by the frame. Also mounted upon the resilient arm 30 is a dog 33, which is adapted to engage the teeth of a ratchet 34, the latter being fast upon the drive shaft 13. Thus, when motion is imparted to the pendulum 27, the dog 33 will engage the teeth of the ratchet wheel 34 so as to rotate the shaft 13 and operate the hands of the clock. By mounting the dog 33 upon the resilient arm 30, the said arm will give sufficiently at the initial engagement of the dog 33 and the ratchet wheel 34 and prevent sudden or jerky movement of the clock mechanism. Further, by mounting the armature 31 upon this resilient arm 30, sudden or jerky movement of the pendulum is prevented. This is due to an independent movement of the armature 31 when the magnet 32 is first energized, continued movement of the armature imparting movement to the pendulum 27 in a smooth and easy manner, movement from the arm 30 being gradually transferred to the pendulum.

The magnet 32 is connected in circuit with a suitable source of current, such as a battery B, by means of a conductor 35 and the said magnet is grounded on the frame as shown at 36. The battery B is also connected by means of a conductor 37 with a contact 38, carried by and insulated from the frame and this contact engages the periphery of a wheel 39 which is fast upon

the drive shaft 13. The periphery of this wheel is insulated and this insulation is interrupted by a metallic rib 40 which forms a part of the wheel 39 and when this rib engages the contact 38, the magnet 32 will be energized to attract the armature 31 and impart an impulse to the pendulum 27. The interval between these impulses may be regulated by the number of teeth in the ratchet wheel 34. For example, should the ratchet wheel 34 be provided with sixty teeth, it will be moved the distance of one tooth upon each complete stroke of the pendulum, so that the pendulum will make sixty complete strokes (that is a stroke back and forth) to every impulse.

When the rib 40 engages the arm 38, current will flow from the battery through the conductor 35, the magnet 32, the ground 36 through the frame and the ratchet wheel 34, the rib 40, the contact 38 and the conductor 37 to the battery.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claim.

Having described the invention what is claimed is:—

In an electrically operated clock, a drive shaft, means operated by the drive shaft for operating the hands of the clock, a pendulum, a ratchet mechanism connecting the pendulum and drive shaft, an upwardly extending resilient arm carried by the pendulum, an arcuate-shaped armature carried at the upper end of the arm, a magnet included in circuit with a source of current, means controlled by the operation of the drive shaft for intermittently closing the circuit to energize the magnet and attract the armature and a dog also carried by the resilient arm and engaging the ratchet mechanism, whereby power will be intermittently applied to the drive shaft.

In testimony whereof I affix my signature.

MAXIMILIAN F. JURUICK.