Sept. 16, 1924.

1,508,527

W. E. PORTER

RESETTABLE TIMING MECHANISM

Filed Jan. 4, 1924

Fig. 1.

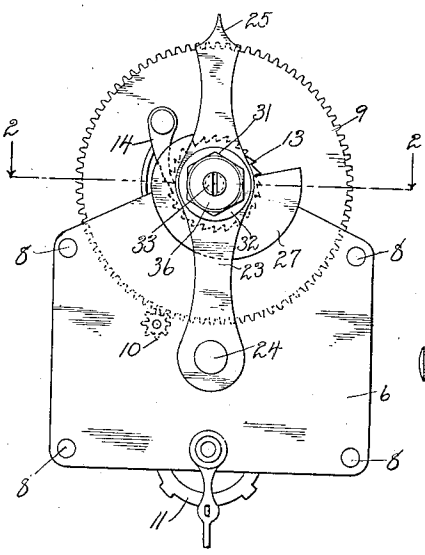


Fig. 3.

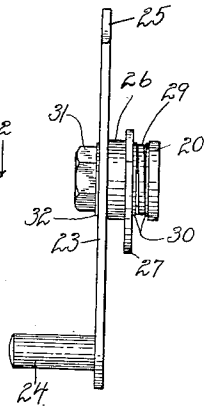


Fig. 4.

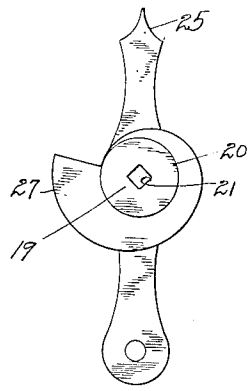
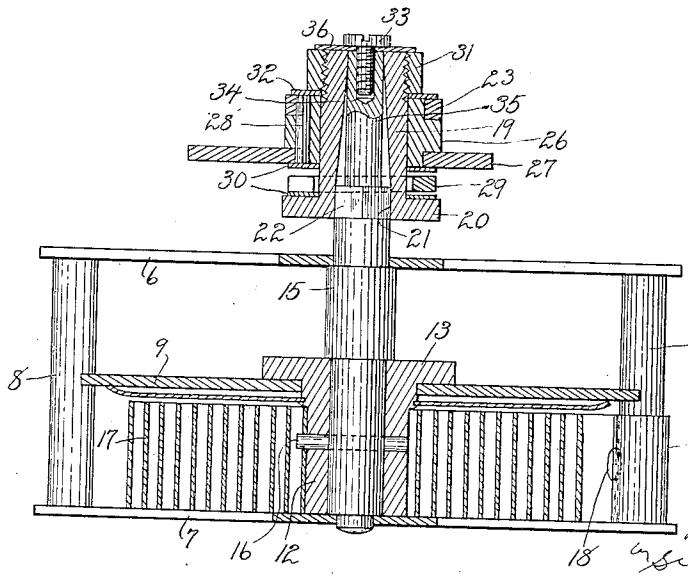


Fig. 2.



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Patented Sept. 16, 1924. 1,508,527

UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO NEW HAVEN CLOCK CO., OF NEW HAVEN, CONNECTICUT, A CORPORATION.

RESETTABLE TIMING MECHANISM.

Application filed January 4, 1924. Serial No. 684,439.

To all whom it may concern:

Be it known that I, WILSON E. PORTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Resettable Timing Mechanisms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Fig. 1 a view in front elevation of a resettable timing-mechanism embodying my invention.

Fig. 2 a view in transverse section on the line 2—2 of Fig. 1.

Fig. 3 a detached view in side elevation of the operating-lever unit.

Fig. 4 a view thereof in rear elevation.

My invention relates to an improved resettable timing-mechanism adapted for use in a variety of situations calling for a specific performance at a predetermined time, such as turning on and shutting off an electric current, or a supply of air, fuel or water, and so on, the object being to produce a simple, durable and convenient mechanism adapted to be applied to any standard clock-movement or kindred movement-train.

With these ends in view, my invention consists in a resettable timing-mechanism characterized by the application of a friction device to one end of its winding-arbor, whereby the operating-member turns the arbor in the direction of winding and turns independently of it in the reverse direction.

My invention further consists in a timing-mechanism having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

For the illustration of my invention, I have shown it as applied to an ordinary clock-movement having front and rear movement-plates 6 and 7 united by pillars 8 and mounting a movement-train of any approved construction and sufficiently illustrated herein by a main-wheel 9 meshing into a pinion 10 connected by intermediate train-members, not shown, with an escapement-wheel 11. The said main-wheel 9 is mounted so as to rotate freely upon a sleeve 12 formed integral with the usual ratchet-wheel 13, which is engaged by a spring-actuated pawl 14 carried by the main-wheel. The sleeve 12 aforesaid is pinned to the main-arbor 15 by a pin 16 passing transversely through them and projecting at one end from the sleeve for the attachment of the inner end of the main-spring 17, the outer end of which is wrapped around and secured by a rivet 18 to one of the movement-pillars 8.

The construction thus far described is standard time-train construction.

With reference now to my improved friction device, the same is localized, as it were, upon the projecting forward end of the winding-arbor 15, and comprises a sleeve-like socket-member 19, provided at its inner end with an annular friction-head 20 having a squared central opening 21 fitting over a corresponding squared member 22 forming an integral part of the winding-arbor 15, whereby the socket-member 19 is coupled for rotation therewith in either direction. The said member 19 mounts an operating-unit comprising an operating-lever 23 provided at one end with a handle 24 and at the opposite end with a pointer 25, which is intended to sweep over any suitable dial. The operating-unit also comprises a bearing-sleeve 26 shouldered at both ends, one end mounting the operating-lever 23 aforesaid and the other end mounting a cam 27 designed to co-operate with some part of the mechanism in conjunction with which my improved timing-mechanism is used. As shown, the lever 23, bearing-sleeve 26 and cam 27 are rigidly secured together by a pin 28. As thus constructed and mounted, the operating-unit turns upon the socket-member 19, which in its head 20 provides one of the two friction surfaces, the other of which is provided by the inner face of the cam 27 of the operating-unit, which represents the winding-key of the timing-mechanism.

For frictionally coupling the operating-lever 23 with the arbor 15 for winding the spring 17, I employ a spring friction-washer 29 which is interposed between the inner face of the cam 27 and the inner end of the sleeve 26, and the forward face of the annular friction-head 20, as clearly shown in Fig. 2. Preferably and as shown, the opposing faces of the cam 27 and friction-head 20 are protected from wear by the em-

ployment of hardened washers 30 placed against them and receiving the thrust of the ends of the washer.

The friction developed by the said washer 29 is governed by a nut 31 applied to the projecting, threaded, forward end of the socket-member 19, which is separated from the outer face of the lever 23 and the outer end of the bearing-sleeve 26 by a hardened washer 32.

The several parts described are held upon the arbor by means of a screw 33 entering a threaded hole 34 in an integral shank 35 forming the forward end of the arbor. A retaining-washer 36, held in place by the head of the screw 33, bears against the threaded outer end of the socket-member 19.

By adjusting the nut 31, the washers 30 are moved toward each other for the compression of the spring-washer 29, the tension of which will, in this manner, be regulated so as to develop enough friction to turn the arbor 15 against the resistance of the main-spring 17, which is thus wound when the lever 23 is turned counter-clock-wise.

If, now, it is desired, at any time, to reset the timing-mechanism, it is only necessary to turn the said lever 23 clock-wise, when the pawl 14 will prevent the clock-wise rotation of the arbor 15, the friction developed by the washer 29 permitting the operating-lever to be turned, despite the fact that the arbor 15 is positively held as described. In this manner, the relative positions of the operating-lever and its pointer and arbor may be changed, as required in resetting, without unwinding the main-spring.

It will be seen from the foregoing description that my improved friction resetting mechanism, by being localized in position upon the projecting forward end of the winding-arbor, calls for no modification whatever of the clock-movement or time-train mechanism, and permits any standard movement to be furnished with it.

I am aware that it is old in timing-mechanisms to frictionally couple a setting-mechanism with the winding-arbor of the timing-movement, and do not claim such a structure broadly, but

I claim:

1. In a resettable timing-mechanism, the combination with the winding-arbor of a time-train, of a combined winding-and-setting lever mounted upon the projecting outer end of the said arbor and having a tripping-cam rigidly connected with it, and a friction device also mounted upon the outer end of the arbor adjacent to the said combined winding-and-setting lever and frictionally connecting the same with the arbor.

2. In a resettable timing-mechanism, the combination with the winding-arbor of a time-train, of a socket mounted upon the projecting end thereof for rotation therewith, an operating-member rotatably mounted upon the said socket, and a friction-spring interposed between the said socket and operating-member, and yielding to permit the turning of the former upon the latter.

3. In a resettable timing-mechanism, the combination with the winding-arbor of a time-train, of a socket mounted upon the projecting forward end of the said arbor, so as to be rotatable therewith, and provided with a friction-head, an operating-member mounted upon the socket-member to turn thereupon and having an operating-lever, a friction-spring interposed between the said friction-head and operating-member, and means applied to the socket for adjusting the tension of the said friction-spring.

4. The combination with the winding-arbor of a time-movement, of a friction device localized upon the forward end of the said arbor and comprising a socket non-rotatably connected therewith and having a friction-head, an operating-unit mounted to turn upon the said socket and comprising a bearing-sleeve, an operating-lever and a cam; a friction-spring interposed between the said head and cam, and an adjusting-nut mounted upon the projecting end of the socket, in position to regulate the tension of the said spring.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILSON E. PORTER.

Witnesses:

FREDERIC C. EARLE,

MALCOLM P. NICHOLS.