

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CALENDAR-CLOCKS.

Specification forming part of Letters Patent No. **210,704**, dated December 10, 1878; application filed July 20, 1878.

To all whom it may concern:

Be it known that I, THOMAS HOYT MOTT, of the city, county, and State of New York, have invented certain Improvements in Calendar-Clocks, of which the following is a specification:

My invention is designed to prevent the liability of displacement of the revolving dial or register which indicates the month.

One part of the said invention consists in the combination, with the shifting-pawl, or the lever or other device by which motion is given to said shifting-pawl, of a scapement, which allows the shifting-pawl to be withdrawn to catch upon the next tooth of the ratchet-wheel without releasing the detent, but which operates upon the detent on the return of the shifting-pawl, to allow the latter to move the dial or register forward, substantially as hereinafter set forth.

Another part of the said invention consists in so constructing the parts, substantially as described, as to form an inclined surface or path for the pawl, a perpendicular or overhanging surface at the end of said path, and extending above or beyond it, and a lock in both directions, to prevent the revolving dial from moving in either direction, in combination with the revolving dial and the shifting-pawl, substantially as set forth.

Referring to the accompanying drawings, Figure 1 is a front elevation, showing the principal parts involved in this invention. Fig. 2 is an under-side view. Fig. 3 is a side view, laid down upon the back, of the principal parts. Fig. 4 is a detail view on a plane parallel to that of Fig. 3.

A A are parts constituting a frame or support, to which other parts are hung or attached. B is the usual day-calendar wheel, which is moved one notch each day to indicate the days of the month, the parts by which it is operated and its motions regulated, and which are already known, being omitted, as not being essential to the description of the present invention.

C is a cam on the shaft of the wheel B, which cam engages with a pin, *a*, extending from the lever D, which latter is hung upon a shaft, E, and pressed down to its work by the coiled spring *b*. An arm, *c*, of the lever D carries the pawl

F, which engages with the ratchet-wheel G, to turn the month dial or register H to indicate a new month, the cam C operating to draw the pawl back to engage with the teeth of the wheel, and the weight of the lever D and the pressure of the spring *b* returning the pawl F and operating the register H.

So far the parts do not essentially differ in their functions and operations from what is already known. To prevent, however, any liability of the register H being turned improperly, either by the inertia of the parts or by improper handling, I attach another wheel, I, upon the shaft of the register H, which wheel is similar to the wheel G, excepting that the inclined and perpendicular sides of its teeth are arranged in opposite directions from those of the teeth of the wheel G, and excepting also that it has a perpendicular notch cut at the root of each tooth, to receive the pin or arm *d*, projecting from the pawl J, which latter is hung upon a shaft, *e*, to the fixed frame. Said pawl J is kept in contact with the wheel I by a spring, *f*.

An arm, *g*, attached to the pawl J carries a trip, K, pivoted to it at *h*, which trip has a lip, *i*, which bears against the under side of the arm *g*, to prevent the said trip being turned any farther in that direction, said lip being kept up against the arm *g* by a spring, *k*.

It will be observed that the upper face of the trip K, or that at the left hand in Figs. 3 and 4, is inclined, while the lower face is nearly or quite at right angles to the pawl.

l is an arm, which projects upward from the lever D, and terminates at its upper end in a lip, *m*, which, as the lever D is raised by the cam C, comes in contact with the trip K, and turns it back till the lip *m* can pass it, when said trip falls back to the position shown in the drawings. While this is being done the pawl F has passed far enough to engage one of the teeth of the wheel G, and sufficiently more than that to give room for the lip *m* to operate on the inclined upper surface of the trip K, which raises the pin or arm *d* out of the notch in the detent-wheel I, to allow the pawl F, on its return, to turn the register a notch forward.

As soon as the cam C passes the pin *a* the lever D falls, carrying with it the pawl F and

lip *m*, which latter, as it passes the trip *K*, releases the detent, as above indicated, to allow a tooth of the detent-wheel *I* to pass as it is turned by the pawl *F*. As soon, however, as such tooth has fairly passed, the trip *K* passes the lip *m* and releases the pawl *J*, which allows it to fall back against the wheel *I*, when, as the wheel continues to turn, the pin *d* follows down the incline of the tooth on which it rests, and catches with certainty against the perpendicular face of the next tooth, preventing any liability of the register being turned too far, and as the parts come to rest the pin *d* falls into the notch at the base of the tooth and locks the wheel in both directions.

It will be obvious that the form, and in some degree the construction, of some of the parts may be modified without departing from the substance of my invention—as, for example, a perpendicular slide might be substituted for the lever *D*, or pins inserted in the side of the wheel *G* substituted for the wheel *I*, and the detent-pawl *J* notched with perpendicular and inclined surfaces, to correspond with and

give the same effect as the notches in the wheel *I*, when used in connection with the pins above suggested; or the trip *K* might be attached to the arm *l* of the lever *D*, and operate upon a pin or lip projecting from the pawl *J*.

I claim as my invention—

1. The combination of the register *H*, shifting-pawl *F*, ratchet-wheel *G*, detent-wheel *I*, adapted to lock the register *H* in both directions, and having faces of its teeth rising perpendicularly, or substantially so, above and in the path of the pawl or its equivalent, and the pawl *J*, substantially as hereinbefore set forth.

2. The combination of the pawl *F*, wheel *G*, register *H*, detent-wheel *I*, pawl *J*, and trip *K*, substantially as set forth.

Witness my hand this 23d day of July, A. D. 1878.

THOMAS HOYT MOTT.

Witnesses:

W. L. BENNEM,
THOS. S. ADEE.