M. H. PADDOCK.

CALENDAR FOR CLOCKS AND WATCHES.

No. 176,043. Patented April 11, 1876.

Fig. 1.

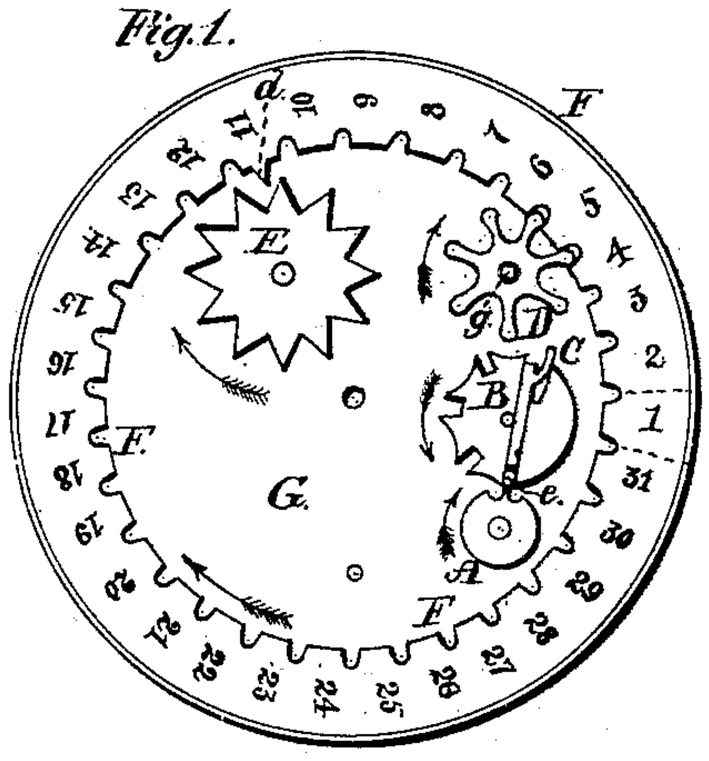

Fig. 2.

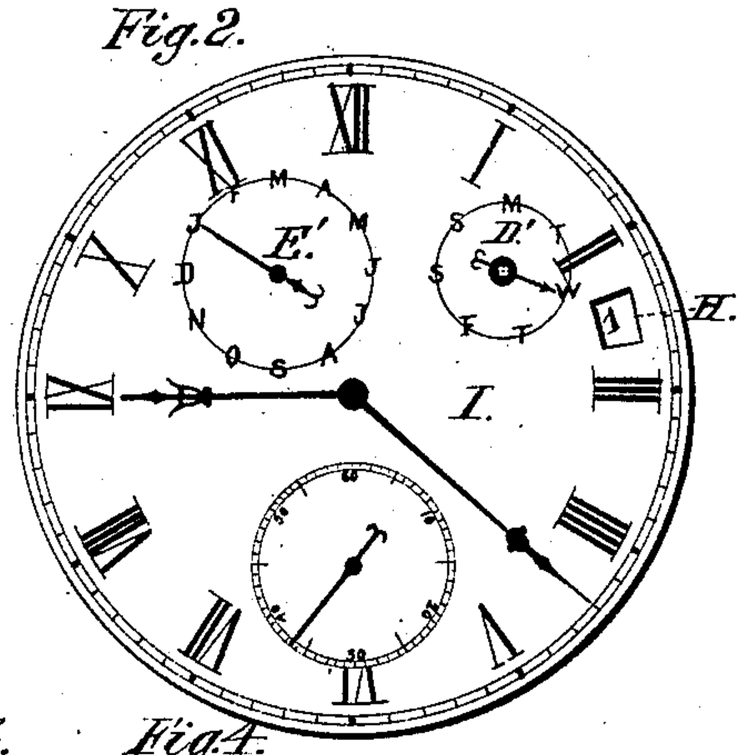

Fig. 3.

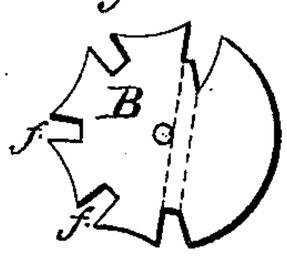

Fig. 4.

Witnesses:
Alfardner,
Edw. W. Donn

Inventor:
Milton Hamlin Paddock

UNITED STATES PATENT OFFICE

MINER H. PADDOCK, OF EAST CLARKSON, NEW YORK.

IMPROVEMENT IN CALENDARS FOR CLOCKS AND WATCHES.

Specification forming part of Letters Patent No. **176,043,** dated April 11, 1876; application filed March 17, 1876.

To all whom it may concern:

Be it known that I, MINER H. PADDOCK, of East Clarkson, in the county of Monroe and State of New York, have invented a new and Improved Combined Calendar and Time-Piece; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a view of the calendar devices with the dial removed, the said devices being located between the dial and the operating parts of the watch; Fig. 2, a front view of the dial. Figs. 3 and 4 are details of the stop and connecting mechanism through which the calendar devices are operated.

My invention relates to the improved construction and arrangement of a calendar in a time-piece, so combined therewith as to indicate the day of the week and month, and the month of the year.

My improvement consists in making the calendar devices independent of the effect of the mainspring, so that instead of being operated thereby they are actuated by the hand of the operator through the winding-stem, by means of which arrangement the fact of the winding of the watch is indicated upon the dial-face, and the question as to whether the watch has been wound or not is easily ascertained by reference thereto.

My improvements also serve to simplify the operating parts of the calendar, and consequently render its construction cheaper, and its operation more reliable.

In the drawing, Fig. 1 shows the calendar mechanism, which is located just between the dial I and the rear portion of the watch containing the time-movement, the said calendar mechanism being attached either to a separate cap, G, as shown, or to the upper surface of the movement.

E is a toothed wheel, which I call the "month-wheel," because it is provided with twelve teeth corresponding to the twelve months of the year, which wheel is arranged to move one tooth for each month, and revolve once a year. This wheel is pivoted to the cap G, and is provided with a stem, which projects up through the dial I, and carries an index-hand, E′, which, as the wheel revolves, points successively to the twelve initial-letters forming the month dial. D is a second toothed wheel, which I call the "week-wheel," because it is provided with seven teeth corresponding to the seven days of the week, which wheel is arranged to move one tooth each day, and revolve once a week. This wheel is also pivoted to the cap G, and is provided with a stem that projects through the dial I, and carries an index-hand, D′, which, as the wheel revolves, points successively to the different letters indicating the days of the week, and forming the week-dial.

F is an annular calendar or day-wheel, arranged upon the outer edge of cap G, concentric therewith, and having upon its inner perimeter notches or teeth, which are thirty-one in number to correspond to the greatest number of days in a month. This annular calendar bears upon its face numbers ranging from 1 to 31, which pass successively beneath the opening H in the dial, and are visible one at a time through the same, for the purpose of indicating the days of the month. Projecting inwardly from the annular calendar F is a tooth, *d*, which, as it passes in its revolution once a month, strikes the teeth of the month-wheel E and rotates it one tooth to set its index-hand for the next month. The said annular calendar gears continuously with the week-wheel D, and moves with it one tooth or notch each day, the said motion being imparted through wheel D by the following mechanism: A is a disk, bearing upon its periphery a single tooth, *e*. This disk is located upon the winding-shaft, which receives the key, and moves therewith. B is a disk forming a stop mechanism, which is constructed, as usual, with alternate notches, *f*, and curved faces, the said notches, as shown, being five in number for five complete revolutions of the winding-stem and disk A. The disk B I construct with a transverse groove, in which slides a bar, C, having projections at *b* and *c* to prevent it from slipping out, and a tooth, *a*, which, when this end of the bar is projected, strikes against the teeth of wheel D and rotates it one tooth. The tooth *a* is placed to one side of the central line of the bar C, so that its end at *b* may form the bot-

tom of the fifth notch, for the purpose about to be described. The device, as shown, represents the watch or clock run down, or nearly so, and about to be removed, the arrows indicating the direction of the wheels for the said winding. The tooth *a* having been projected by the unwinding of the watch, and the consequent striking of end *c* of the slide by the tooth *e*, the next revolution of the stem brings the tooth *e* into the next notch, and tooth *a* is made to turn the wheel D and its connected annular day-wheel F the distance of one notch or tooth. The successive revolutions of the stem in winding them brings tooth *e* in the other remaining notch *f*, until it strikes the last notch, formed partly by *a b* of the slide C. This slide is then driven back by tooth *e*, so that while the spring is running down during the day the tooth of the slide does not engage reversely with the wheel D, and the slide is in position to be projected by the striking of the end *c* of the slide by the tooth *e* as the latter enters the notch in which *c* is located.

I would have it understood that although I have shown the slide C as the preferable mode of imparting the motion to the wheel D, I do not confine myself to the same, as a pin may be placed upon stop B, and arranged to operate upon a lever, to produce the same general effect.

From the above description it will be seen that the winding of the time-piece operates simultaneously but independently upon both the calendar and the mainspring, to set the one and wind the other, which winding may be effected either through an ordinary key or by a set of stem-winding devices.

The winding of the watch also records itself upon the dial-face, so that whenever the question as to the winding is in doubt it is not necessary to apply the key to ascertain the fact.

In order to compensate for the irregularity arising out of the different number of days in the different months, the hand D′ upon the week-wheel is made adjustable in its connection with wheel D, and the wheel so arranged that the annular day-wheel may be set thereby. For this purpose the stem *g* of the wheel D is made square, or otherwise constructed so as to permit the wheel and its connected annular calendar to be turned by a key or other device, made to correspond to the shape of said shaft, the index-hand being made independently adjustable.

The devices as so far described have especial reference to watches, but the same construction and arrangement of parts are intended to be applied to clocks and independent calendars.

Having thus described my invention, what I claim as new is—

1. The combination, with a time-piece, of a calendar, adapted to be operated through the winding-stem, independently of the effect of the mainspring, for the purpose described.

2. The combination, with the watch-dial having perforation H, of an annular numbered calendar, F, substantially as described.

3. The combination, with the calendar devices and the winding-stem, of a self-adjusting device, which alternately makes and breaks the connection between the said calendar devices and stem, according to the direction in which the stem is turned, substantially as described.

4. The combination of the annular calendar F, having tooth *d*, with the month-wheel E, carrying an index-hand, substantially as described.

5. The disk A, located on the winding-stem, and having tooth *e*, in combination with the stop B, having slide C or its equivalent, as and for the purpose described.

6. The combination of annular internally-notched calendar F, having tooth *d*, the month-wheel E carrying an index-hand, the week-wheel D carrying an index-hand, the stop B having slide C, and the disk A attached to the winding-stem, and having tooth *e*, substantially as and for the purpose described.

7. The annular calendar F, having internal teeth or notches, in combination with the wheel D, meshing therewith, and having a stem, made square or otherwise shaped, to permit the easy setting of the annular day-calendar by hand, as described.

MINER HAMLIN PADDOCK.

Attest:

S. A. LATTIMORE,

A. MOORE.