D. J. MOZART.

Calendar-Watches.

No. 141,161. Patented July 22, 1873.

Fig. 1.

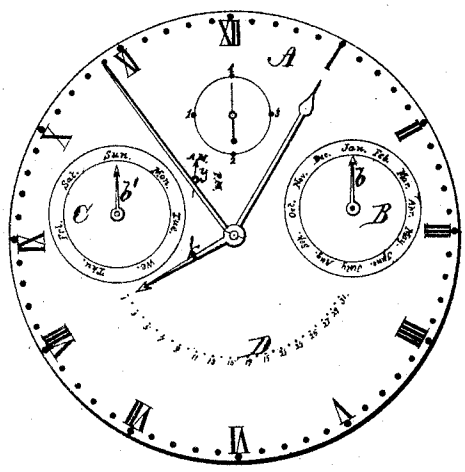

Fig. 2.

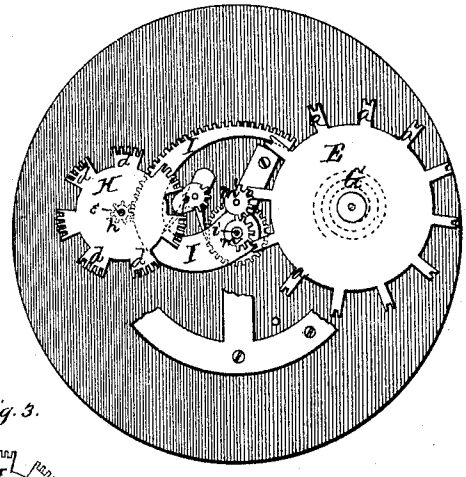

Fig. 3.

Fig. 4.

Fig. 5.

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DON J. MOZART, OF ANN ARBOR, MICHIGAN.

IMPROVEMENT IN CALENDAR-WATCHES.

Specification forming part of Letters Patent No. **141,161**, dated July 22, 1873; application filed May 14, 1873.

To all whom it may concern:

Be it known that I, DON J. MOZART, of Ann Arbor, in the county of Washtenaw and in the State of Michigan, have invented certain new and useful Improvements in Calendars for Watches and Clocks; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a calendar for watches and clocks, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a face view of the dial of a watch or clock. Fig. 2 is a plan view of the works of the calendar; and Figs. 3, 4, and 5 are views of detached parts of the same.

A represents the dial of a watch or clock, in which are made other dials, B, C, and D. The dial B is divided in twelve equal parts, and marked for the twelve months in the year. The dial C is divided in seven equal parts, marked for the days of the week. The dial D is merely segmental, divided in thirty-one equal parts, to show the date of the month. My calendar is actuated by works separate and independent from those of the watch or clock, driven by a separate spring, and held stationary until at the proper time it is released momentarily by the works of the watch or clock, so as to make the desired change. E represents a wheel of suitable dimensions, provided with twelve projecting arms or teeth, *a a*, each of which is cut with two prongs at the outer end. This wheel E has a spring, G, wound around its shaft, which spring operates the calendar-works; and the shaft passes up through the center of the dial B, and has a hand, *b*, attached to it. H represents a wheel of suitable dimensions, provided with seven projecting arms, *d d*, each of which is cut at its outer end to form five teeth, as shown in Fig. 2. This wheel H is placed on a shaft, *e*, and connected to the same by a pawl and ratchet, *f*. On the shaft *e*, immediately under the seven-armed wheel H, is attached a seven-cogged pinion, *h*, which gears with and is operated by a segment, I, having thirty-one cogs. This segment is pivoted by a sleeve, *i*, around the center shaft of the watch or clock, to which the calendar is attached, said sleeve passing up through the center of the dial A sufficiently to receive a hand, *k*, which operates on the dial D to show the date of the month. On the sleeve *i*, immediately above the segment I, is secured a pinion, *m*, having seven cogs, extending or covering about one-half of the circumference, while the other half is blank. This pinion gears with a similar pinion, *m'*, which, however, has only six cogs instead of seven around one-half of its circumference. Both of these pinions, *m* and *m'*, are cut out below the cogs to form a single cog or tooth, *o*, as shown in Fig. 4. It should be remarked that the shaft *e* of the seven-armed wheel H projects up through the center of the dial C, and has a hand, *b'*, attached to it to show the day of the week on said dial. A suitable distance from the seven-armed wheel H is located a shaft, *n*, upon which is secured an eccentric, *p*, having upon a part of its circumference five cogs, as shown in Figs. 2 and 5, which cogged part is to work in the cogged or toothed arms *d d* of the wheel H, while the main part of the eccentric works between said arms and acts as a stop for the calendar-works. On the shaft *n* is also secured a plate, *t*, having two prongs, *s s'*, which are to be operated upon by a side tooth or flange, *x*, on the hour-hand wheel *v* of the watch or clock to which the calendar is attached. The shaft *n* passes up through the dial A, and has a hand, *y*, attached to it, which is to show on the dial whether it is before meridian or after.

The operation of the calendar is as follows: The spring G being wound up and the calendar properly set, it will be seen that the main part of the eccentric *p* on the shaft *n* will be between two of the arms *d d* on the wheel H, acting as a stop, while the pressure of the spring G is exerted, by means of one of the arms *a* of the wheel E, upon the single cog *o* of the pinion *m*. As the hour-hand of the watch or clock reaches twelve o'clock in the day, the tooth *x* on the hour-hand wheel *v*

strikes the prong *s* on the plate *t*, and turns the shaft *n* sufficient to change the hand *y* from the mark A. M. to P. M. Then, when the hour-hand reaches twelve o'clock at night, the tooth *x* will strike the prong *s'*, this prong having been set properly by the previous movement just described, and turn the shaft *n*, so that the main part of eccentric *p* will come out from between the arms *d d*, releasing the works and allowing the spring to move all the parts; but at the same time, as the main part of the eccentric clears the arms, the cogged part engages with one of the toothed arms *d*, and as the wheel H revolves, the eccentric is turned around till the main part thereof enters the next space in the wheel, and thus stops the motion of the works. The movement thus instantaneously effected has turned the wheel H one-seventh of a revolution, changing the hand *b'* the same distance, or, in other words, changed the hand to show the next day. The segment I has been moved just one cog, changing the position of the hand *k* to show the next date. In like manner the hands *b'* and *k* are changed at twelve o'clock at night until the last day of the month, when the hand *b'* only is changed in the same manner. At this time the arm *a*, which during the whole month has been operating on the single cog *o* of the pinion *m*, will be released from the same, and at once engage with the corresponding single cog of the pinion *m'*. This reverses the motion, and by reason of the pawl-and-ratchet device *f* connected with the wheel H, segment is allowed instantaneously to return to its original position, the next arm *a* of the wheel E coming against the pinion *m* to engage with the single cog thereon, and thus stop the reverse motion just as the hand *k* will indicate the first of the month again. The wheel E has at this movement changed its position one-twelfth of a revolution, so that the hand *b* will indicate the new month.

By regulating the size of the ends of the arms *a a* on the wheel E, the change of the wheel E and reverse motion of the segment I may be effected at the 28th, 30th, or 31st day, as the length of the month will necessitate.

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

1. The twelve-armed wheel E and spring G, operating in combination with the single cogs *o* on the pinions *m m'*, substantially as and for the purposes herein set forth.

2. The cogged segment I, operated by the pinions *m m'* in the manner herein described, in combination with the seven-cogged pinion *h*, shaft *e*, seven-armed wheel H, and ratchet device *f*, substantially as and for the purposes herein set forth.

3. In combination with the seven-armed wheel H, the shaft *n*, with cogged eccentric *p*, and plate *t* with prongs *s s'*, operated by the tooth *x* on the hour-hand wheel *v*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of May, 1873.

DON J. MOZART.

Witnesses:
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