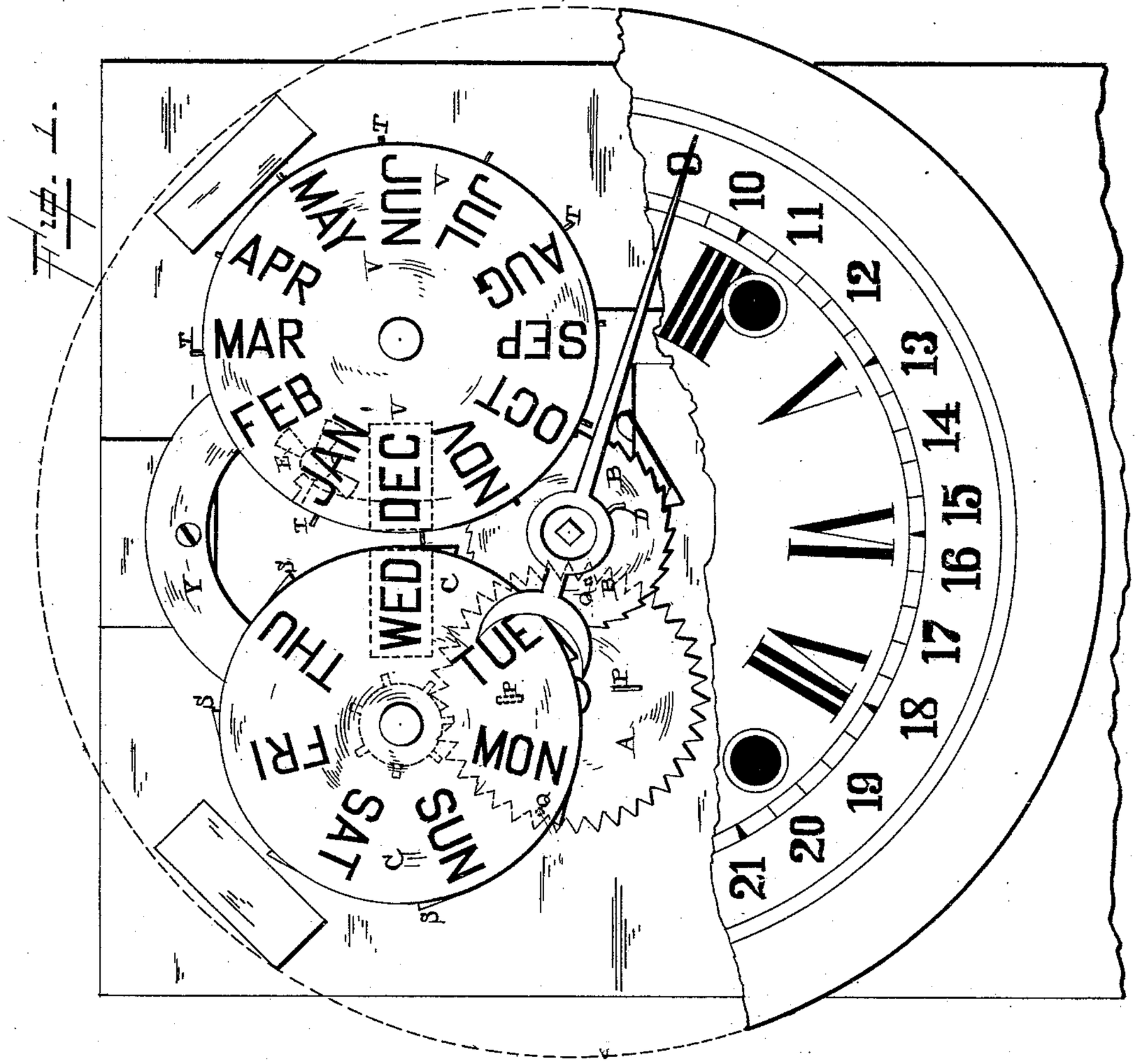
(No Model.) 2 Sheets—Sheet 1.

J. E. YOUNG.

CALENDAR CLOCK.

No. 279,850. Patented June 19, 1883.



Witnesses.

Louis L. Gardner

J. W. Garner

Inventor.

Jas. E. Young

per

F. A. Lehmann

Atty.

(No Model.) 2 Sheets—Sheet 2.

J. E. YOUNG.

CALENDAR CLOCK.

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Fig. 4.

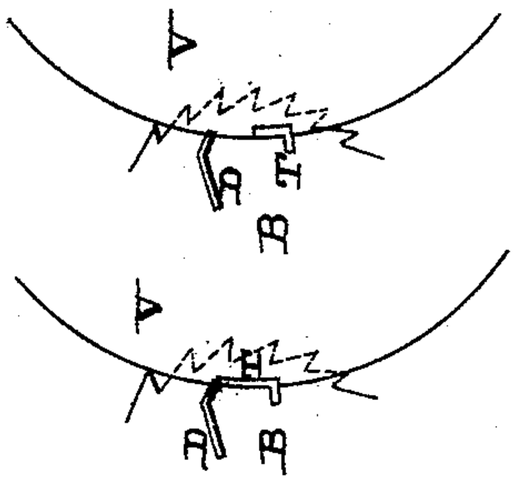


Fig. 2.

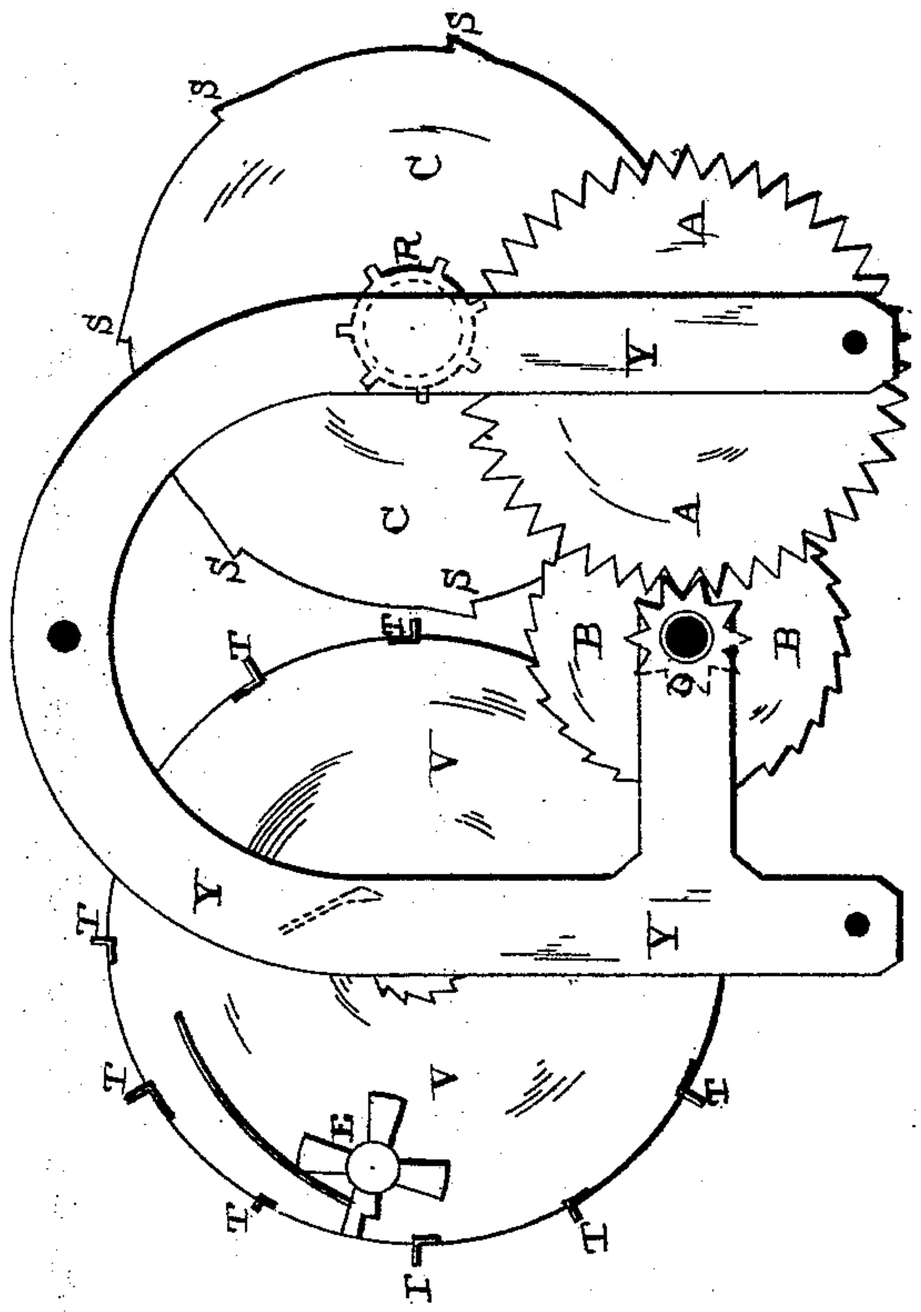
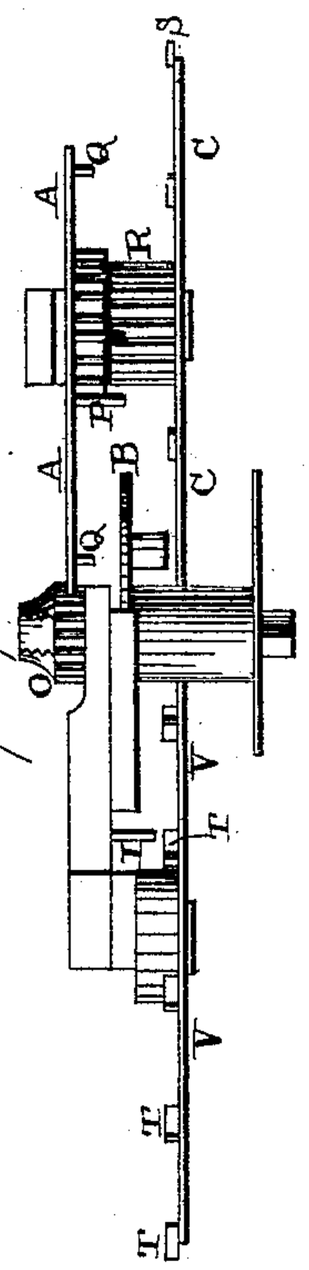


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES E. YOUNG, OF GENOA, NEW YORK, ASSIGNOR OF ONE-HALF TO ORLANDO M. AVERY, OF SAME PLACE.

CALENDAR-CLOCK.

SPECIFICATION forming part of Letters Patent No. 279,850, dated June 19, 1883.

Application filed December 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. YOUNG, of Genoa, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Calendar-Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in calendars to be attached to watches and clocks; and it consists, first, in the combination of a wheel provided with projections for operating the ratchet-wheel and the day-wheel, the day-wheel provided with projections and the pinion connected to the shaft of the day-wheel, the ratchet-wheel provided with a projection for operating the month-wheel, and the month-wheel provided with projections of unequal length and carrying a February-wheel; second, in the combination of the wheel having projections upon its face for moving both the ratchet-wheel and the day-wheel, the ratchet-wheel provided with a projection for moving the month-wheel, and the month-wheel provided with projections of unequal length on its outer edge, and having a February-wheel attached to its under side, the February-wheel being operated by a projection formed on the frame, as will be more fully described hereinafter.

The object of my invention is to provide a calendar which is adapted to be applied to both watches and clocks, and in which the parts are very few and simple and not liable to get out of order.

Figure 1 is a plan view of a watch or clock to which my invention is applied, a portion of the dial being broken away for the purpose of showing the internal mechanism. Fig. 2 is a reversed view of the calendar mechanism. Fig. 3 is an edge view of the same. Fig. 4 is a detail view, showing the difference between the short and long projections on the month-wheel.

Y represents a suitable metallic frame upon which the mechanism of the calendar is secured. This whole mechanism is to be attached to a clock or a watch by means of the small pinion O, which is attached to the sleeve of the hour-wheel of the clock or watch. This pinion meshes with the wheel A, which makes one revolution every forty-eight hours. This wheel A has secured upon its face the two flat projections P, which are placed just far enough from its center, so that when the wheel sweeps around these projections P engage with the teeth of the ratchet-wheel B and move it forward one tooth every twenty-four hours; also, projecting from the face of the wheel A, but placed farther outward from the center, are the two projections Q, which engage with the ratchet R on the shaft of the day-wheel C, and thus move the day-wheel one-seventh around every twenty-four hours. This movement of the day-wheel takes place at twelve o'clock at night, and each time that it is moved another day is shown through the opening in the dial. This day-wheel has the projections S formed upon its edge for the purpose of engaging with the projections T upon the month-wheel, and moving the month-wheel around when the day-wheel is turned by hand, and thus have the two to always correspond.

The ratchet-wheel B, which is operated by the projections P on the wheel A, is provided with a projection, D, which strikes against the projections T on the month-wheel V at every revolution that is made by the wheel B. As this wheel B has thirty ratchets, and is moved forward one ratchet every twenty-four hours by the projection P, it will be seen that the projection D will only come in contact with the month-wheel V, so as to move it around once a month. In order to regulate the time when the month-wheel V is moved by the projection D, so as to correspond to the number of days in a month, the projections T upon the edge of the month-wheel are made of different lengths. Where the months have only thirty days the projections T are made longer than the projections which are made opposite the months having thirty-one days, and thus as the wheel B sweeps around the projection D will strike against the longer projections T sooner than it will strike against the shorter ones. These projections are regulated in length so as to make a difference of one day; hence when the projection D strikes against the long projection, which is just opposite a month having only thirty days, the month-wheel V will be

turned one-twelfth around one day sooner than it would have been moved had the month had thirty-one days. As shown in Fig. 5, it will take a longer time for the projection D to reach a short projection on the month-wheel as the wheel B sweeps around than it will to reach a long one, and this difference in time is equal to one day, and hence makes a difference of one day in the movement of the month-wheel. The projection T, which represents or is opposite the month of February, is made much shorter than any of the others, and hence the projection D will take a shorter time to reach this one, and so will make a difference of two or three days, according to the position of the February-wheel E. Each time the wheel B is moved one tooth forward the pointer is made to point to another day, and each time the projection D on the wheel B moves the wheel V forward one tooth a new month is shown through the opening in the calendar. As the day-wheel C revolves its teeth S come in between the projections T, formed upon the edge of the month-wheel V. Should it be desired at any time to change the day-wheel by hand, so as to adjust the calendar, the teeth of the day-wheel will catch against the projections T on the month-wheel and move the month-wheel correspondingly around, so that if it is toward the end of the month the month will be changed at the same time as the day. In this manner the day and month wheels are always made to correspond. The February changes are provided for by a four toothed or pronged wheel, E, on the under side of the month-wheel. This wheel E is held from turning by a detent, but is carried around by the month-wheel, so that when February shows through the opening in the dial the wheel E will be in the right position for the projection D on the wheel B to move the month-disk the night of the 28th. The prongs or arms of the wheel E extend out just flush with the edge of the month-wheel, so that they will be struck by the projection D on the wheel B, the same as the projections T. This wheel E is secured to the month-wheel at such a point that the projection D will strike one of the arms of the wheel E sooner than it would strike the corresponding projection on the edge of the wheel, and the consequence is that the month-wheel is shifted sooner at the end of February than the wheel would be shifted were it not for the wheel E. In order to have twenty-nine days for leap-year, one of the prongs of the wheel E is cut away enough to make one day's difference, so that the projection D on the wheel B is one day longer in reaching it. In order to have the leap-year tooth to the wheel come outside, a pin, I, is formed upon the calendar-frame, under the month-wheel and in such a position that when the month-wheel is moving around, the tooth of the February-wheel comes against the pin, and as the month-wheel moves around causes the February-wheel to move around one tooth, thus causing the leap-year tooth to come around once in four years. The wheel A makes one revolution every two days. The wheel B has thirty-one teeth and makes one revolution each month. The wheel C makes one revolution each week, and the month-wheel makes one revolution each year. The February-wheel makes one revolution in four years. The post to which the pointer is attached represents the hour-wheel of the clock, and should always be turned the way the hands of the clock go. The ratchets are provided with suitable detents or stops of any kind, which prevent them from moving backward. The pinion-wheel is put on the sleeve of the hour-wheel and threaded, so that it may be taken off, if necessary. The wheel B is moved by the projection P before the day-wheel C moves.

When it is desired to change by hand from the last day of the month to the first of the next, the projection D on the wheel B comes in contact with the projection T on the month-wheel V and moves the month-wheel around the distance of one tooth on the wheel B. This movement of the month-wheel brings the projections around, so that, when the day-wheel moves, the teeth will catch against the projections of the month-wheel and carry it around one-twelfth.

The projections S come into use for moving the month-wheel when the changes are made by hand, and not when the clock is in operation.

Having thus described my invention, I claim—

1. The combination of the wheel A, having the projections P Q, pinion R, and wheel C, provided with the projections S, with the wheel B, provided with projection D, and wheel V, provided with projections T, and carrying a February-wheel, substantially as shown.

2. The combination of the wheel A, having projections upon its face for moving both the day-wheel and the wheel B, the wheel B being provided with the projection D, with the month-wheel having projections of unequal length formed upon its edge and carrying the February-wheel, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. YOUNG.

Witnesses:

WILLIE T. MOE,

ALFRED A. MASTIN.