W. S. SHIRK.

Actuating Mechanism for Calendar Clock.

No. 204,508. Patented June 4, 1878.

Fig. 1.

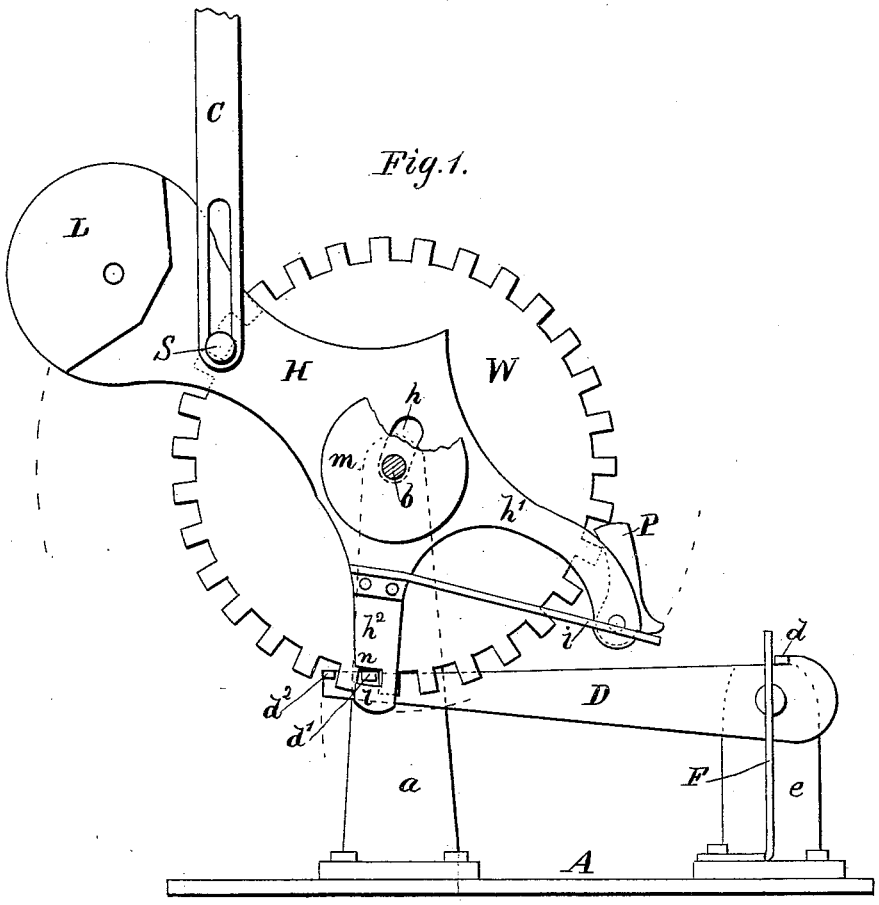
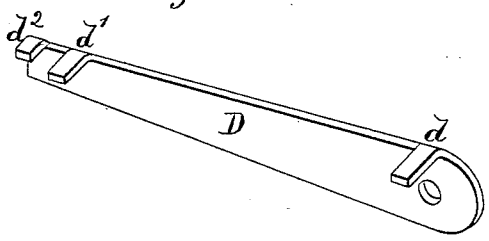


Fig. 2.



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WILLIAM S. SHIRK, OF ANDERSON, INDIANA.

IMPROVEMENT IN ACTUATING MECHANISMS FOR CALENDAR-CLOCKS.

Specification forming part of Letters Patent No. **204,508**, dated June 4, 1878; application filed May 11, 1878.

To all whom it may concern:

Be it known that I, WILLIAM SNIDER SHIRK, of Anderson, in the county of Madison and State of Indiana, have invented new and useful Improvements in Calendar-Clocks, of which the following is a specification:

My invention relates to certain improvements which are adapted to be applied to the mechanism actuating the hands for indicating the month, the day of the month, and the day of the week.

The invention consists in a novel construction, arrangement, and combination, with each other and with the time-movement of a calendar-clock, of a system of levers, springs, pawls, and ratchets, whereby the accurate movements of the indicating-hands are effectually secured; and in certain details of construction and operation, hereinafter more particularly described and set forth.

In the accompanying drawing, Figure 1 represents a side view of the mechanism employed in carrying out my invention, and Fig. 2 a detail perspective view of one of the parts.

Similar letters of reference indicate corresponding parts.

A represents a portion of the calendar seat-piece, provided with arms *a*, in which is journaled a shaft or arbor, *b*, carrying a hand for indicating the months, the days of the month, or the days of the week, and also carrying a toothed wheel, W, attached to and turning with said shaft, the number of teeth on said wheel being according to the service which the hand carried by the shaft is to perform.

The wheel W shown herein represents one intended to indicate the days of the month, and the number of teeth is thirty-one. If intended to indicate the months, the number of teeth would be twelve, and if for the days of the week, the number would be seven.

D represents a detent for engagement with the teeth of the wheel W. (See Fig. 2.) It is provided near one end with a laterally-extending lug, *d*, and near the other end with two similar lugs, d^1 d^2. The detent D is pivoted to an arm or standard, *e*, attached to the plate A, so as to allow the lugs d^1 d^2 to engage with one of the teeth of the wheel W; and to preserve such engagement, a spring, F, is provided, one end of which is fixed, and the other end bears against the lug *d*, with a tendency to keep the detent pressed against the wheel W.

H represents a lever, the short arm of which is forked or divided into two branches, h^1 h^2. The branch h^1 carries a pawl, P, for engagement with the teeth of the wheel W, said pawl being pivoted to said arm, and provided with a spring, *i*, for preserving its engagement. The branch h^2 has near its end, and transversely to its length, a fork or notch, *l n*, for engagement with the lug d^1 of the detent D, as hereinafter described.

In the lever H, about midway of its length, is a transverse slot, *h*. The lever thus formed is placed in position against the side of the wheel W, with the shaft or arbor *b* passing through the slot *h*, and forming the fulcrum for the lever, and a flange or plate, *m*, on the arbor serves to guide the lever and hold it in place against the wheel.

The mechanism above described is connected with the time-movement of the clock by means of a rod, C, the upper end of which engages with the time-movement, and the lower end is provided with a slot, through which a pin or stud, *s*, passes into the long arm of the lever H, which long arm may be provided with a weight, L.

The operation is as follows: The time-movement of the clock through the connecting-rod C raises the long arm of the lever H until the lower end of the slot *h* bears against the shaft or arbor *b*, whereupon, as said long arm continues to rise, the short arm begins to descend. The downward motion of the short arm causes the pawl P, carried by the branch h^1, to gradually withdraw from the tooth with which it has been engaged, and to slip over and engage with the tooth next below it, any retrograde movement of the wheel W being prevented by the engagement of the lugs d^1 d^2 of the detent with said wheel. At the same time that the pawl P is slipping over and engaging with said next tooth, as described, the branch h^2 is gradually approaching the lugs d^1 d^2; and as soon as said pawl becomes properly engaged with said next tooth the lug d^1 is fairly engaged with the notch *l n*, and the upper movement of the lever H ceases. The parts remain in this position until the proper time arrives for the hand carried by the shaft or arbor *b* to move, whereupon the

time-movement of the clock releases the rod C and allows it to drop. The lever H then being no longer held up by the rod C, the weighted long arm of said lever descends suddenly, and with two motions. The first motion presses the branch h^2 downward, so as to cause the portion n of the fork or notch to disengage the lugs d^1 d^2 from the wheel, and leave it free to turn. As soon as the upper end of the slot h bears upon the shaft or arbor b the second motion begins; and this second motion causes the pawl P to turn the wheel W a distance of one tooth, and at the same time it moves the fork l n clear of the lug d^1, so as to allow the detent D to again spring up and the lugs d^1 d^2 to engage with the wheel.

When a calendar-clock provided with this improvement is packed for transportation, the lever H should be held in its highest position, so as to cause the branch l of the fork or notch to prevent displacement of the detent from the wheel W.

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

1. The detent D, constructed as described, with the lugs d d^1 d^2, and provided with a spring, F, in combination with the wheel W, substantially as and for the purpose shown and set forth.

2. The combination, with the detent D and its lug d^1, of the branch h^2 of the short arm of the lever H, provided with the fork or notch l n, substantially as and for the purposes shown and described.

3. The lever H, provided with the slot h, and having its short arm forked or divided into two branches, h^1 h^2, one branch carrying a pawl, P, and the other branch being provided with a fork or notch, l n, in combination with the time-movement of a calendar-clock, a detent, and a toothed wheel on a hand-carrying shaft or arbor, substantially as and for the purpose herein described.

WILLIAM SNIDER SHIRK.

Witnesses:
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