D. J. MOZART.

Calendar Clock.

No. 46,577. Patented Feb. 28, 1865.

Fig. 1.

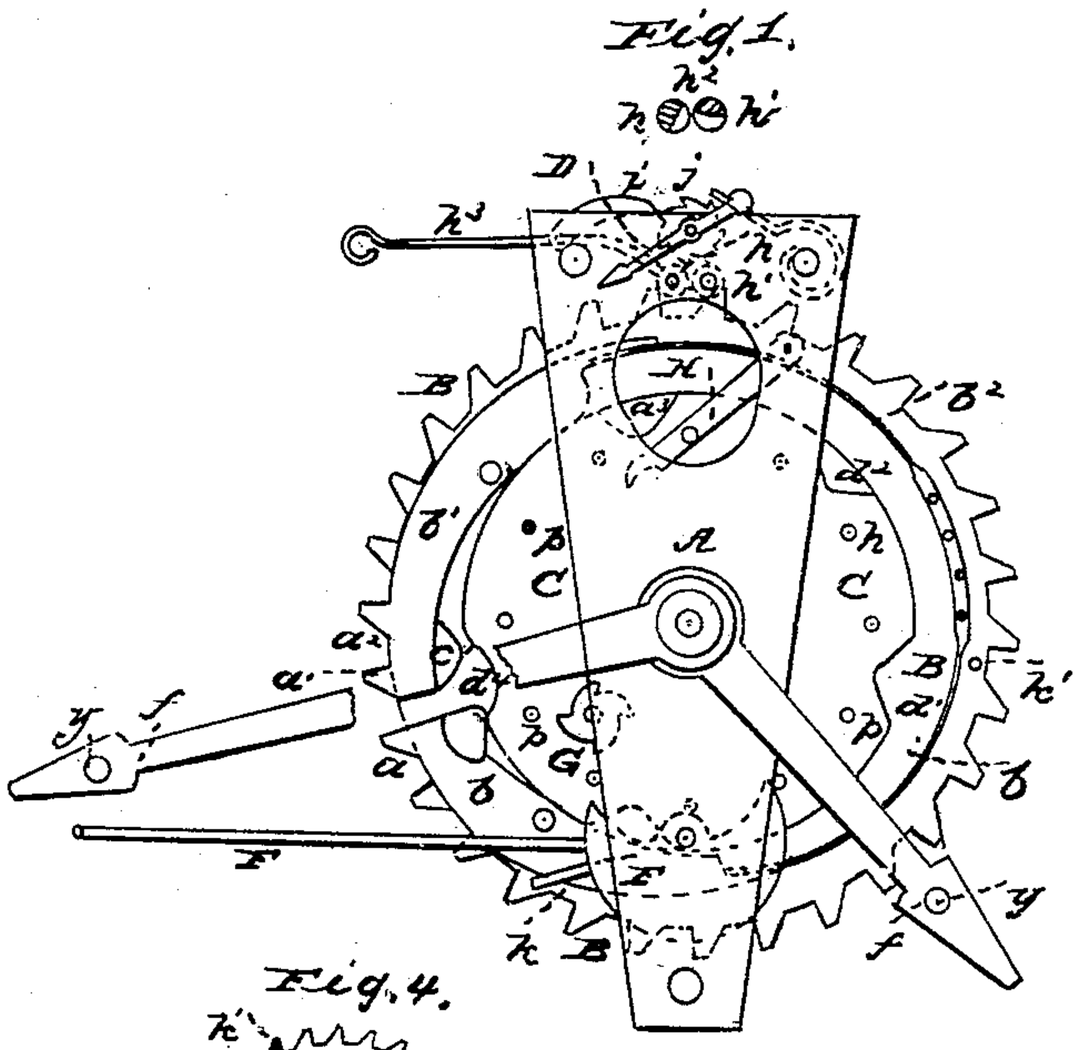


Fig. 2.

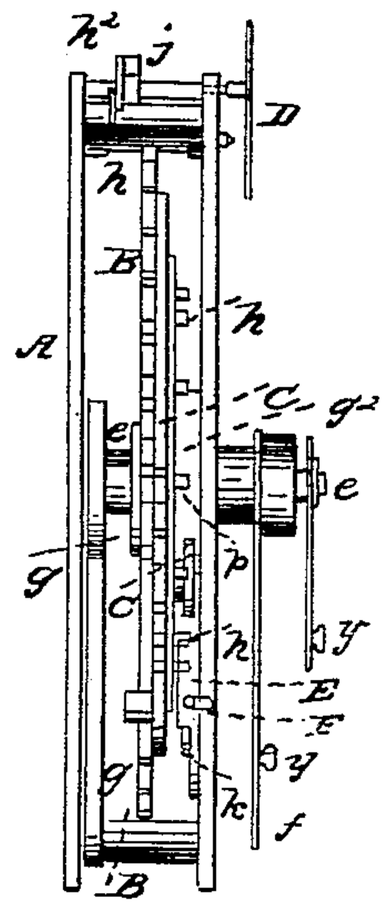


Fig. 3.

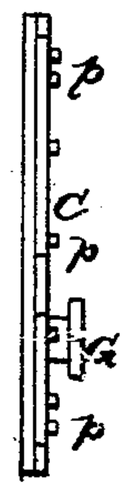


Fig. 4.

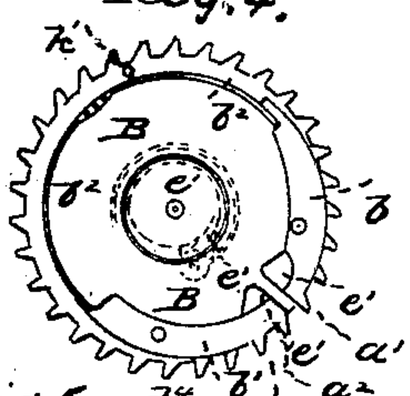


Fig. 5.

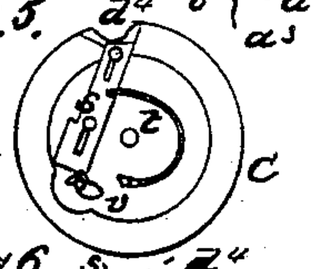


Fig. 6.

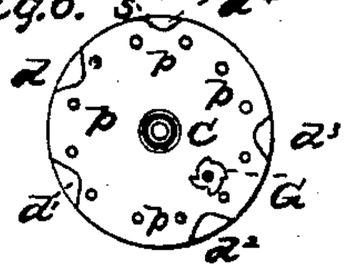


Fig. 7.

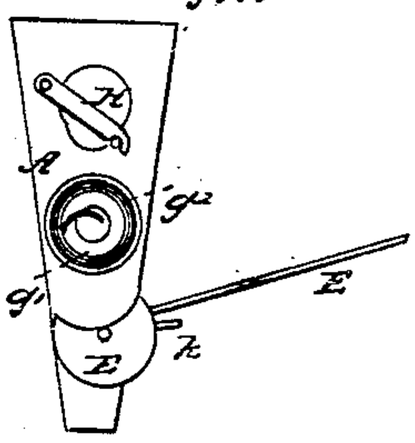
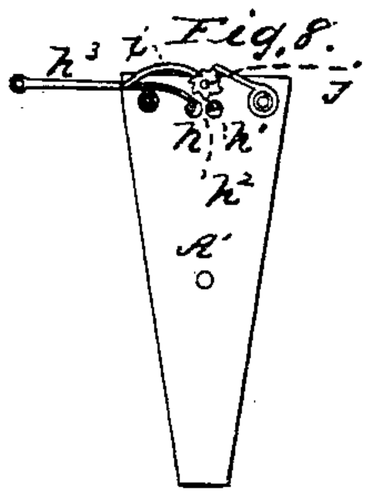


Fig. 8.



Witnesses:
R. F. Campbell
E. Schaefer

Inventor:
Don J. Mozart
by his atty
Munn Kennedy & Lawrence

UNITED STATES PATENT OFFICE.

DON J. MOZART, OF NEW YORK, N. Y.

IMPROVEMENT IN CALENDAR-CLOCKS.

Specification forming part of Letters Patent No. **46,577**, dated February 28, 1865.

To all whom it may concern:

Be it known that I, DON J. MOZART, of the city and county of New York, State of New York, have invented a new and Improved Calendar for Clocks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front view of the calendar mechanism. Fig. 2 is a view of one side thereof. Fig. 3 is an edge view of the month-disk. Fig. 4 is a view of the face of the day-of-the-month wheel. Fig. 5 is a view of the back side of the month-disk. Fig. 6 is a front view thereof. Fig. 7 is a back view of the front frame-plate with the spring of the month-disk applied to it. Fig. 8 is a front view of the back frame-plate with the day-of-the-month and day-of-the-week escapements applied to it.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to obtain a simple and compact calendar, which, when applied to the mechanism of a clock and wound up, will register upon a dial-plate the day of the week, day of the month, name of the month and year, and which will also register the extra day in the month of February of the bissextile year.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the face-plate, and A′ the back plate, of the frame which supports the calendar mechanism. B represents a wheel having thirty-one teeth, corresponding to the months having thirty-one days. Three of these teeth, *a a′ a²*, are formed on levers *b b′*, which are pivoted to the face of the wheel B, as shown in Figs. 1 and 4, and which are acted upon by a bow-spring, *b²*, that is also secured to wheel B, and which tends to force the toothed ends of said levers inward or toward the axis of said wheel. These levers *b b′* are also provided with lugs *c c′* on the edges opposite their teeth, which lugs are pressed by the spring *b²* against the periphery of a disk, C, which has notches *d d′ d² d³ d⁴* cut in its edge, as shown in Figs. 1, 3, 5, and 6, for receiving the lug on the levers *b b′* as the wheel B revolves. The notches *d*, *d′*, *d²*, and *d³* are cut into the outer face and edge of the disk C about half through the thickness thereof; but the notch *d⁴* is cut entirely through said disk. The notches thus formed in the month disk C are intended to allow the day-of-the-month wheel B to jump past its escapement one, two, or three teeth, according to the number of days in the month. For instance, the notch *d⁴* allows three teeth to escape for the month of February, when there are but twenty-eight days in this month. The other notches in wheel C allow but one tooth to escape the escapement, as will be hereinafter described.

The day-of-the-month wheel B is attached to a central staff, *e*, by means of circular notched plate *e′*, which is caught by a click, *e²*, when the staff is turned to the right, but which allows the wheel B to be turned to the right. This click *e²* is shown in dotted lines in Fig. 4. The staff *e* receives upon it the hub of the notched month-disk C, which latter rests upon the surface of the wheel B, and is allowed to turn thereon. The index-hand *f*, which points to the day of the month is, keyed to the outer extremity of the staff *e*, and the hand *f′*, which points to the month, is keyed to the hub of the month-disk, so as to move with this disk. Both the wheel B and disk C are acted upon by springs, which can be wound up by simply turning the hands *f f′* in an opposite direction to that which they move when acted upon by their respective escapements. The mainspring *g* of the wheel B is attached at one end to the frame A A′ and at the other end to the hub of the detent or click plate *e′*. The spring *g′*, which actuates the disk C, is inclosed within a barrel, *g²*, which is attached to the frame-plate A, as shown in Figs, 2 and 7, and acts upon the hub of said disk.

The escapement for the day-of-the-month wheel B consists of two semi-cylindrical pallet-staffs, *h h′*, which are attached by a pin, *h²*, so that when the staff *h* is oscillated the movement will be transmitted to the staff *h′*. These two staffs *h h′* are pivoted very close together and arranged in such relation to the toothed edge of the wheel B that when these staffs are oscillated by vibrating an arm, *h³*, they will allow the teeth of said wheel to es-

cape, one at a time. A pawl, *i*, is pivoted to the vibrating arm h^3, and rests upon a wheel, *j*, having seven teeth, corresponding to the seven days in a week. When the arm h^3 is elevated, the pawl *i* moves the wheel *j* the distance of one tooth, and registers one day upon a dial, by means of a jointer, D. Simultaneously with this operation the wheel B moves the distance of one tooth, and registers the day of the month upon its dial-plate.

The escapement for the month-disk C consists of a crescent-shaped plate, E, which is pivoted to the back side of the frame plate A, and allowed to oscillate a certain distance. The disk C is provided on its face with twelve pins, *p*, arranged at regular intervals apart in a circle which is concentric with the axis of their disk, as shown in Figs. 1 and 6. The crescent-plate E has a pin, *k*, projecting from its edge, which is struck by a pin, *k'*, projecting from the wheel B every time this wheel makes one revolution, and moves the plate E so as to release one pin *p*, and allow the disk C to move through a space equal to the distance of the pins *p* apart. When the pin *k'* on wheel B moves the plate E and releases one of the pins *p*, this pin will return said plate back to its former position, and cause it to arrest another pin *p*. In this way the day-of-the-month wheel B moves the month wheel or disk C through a space equal to one-twelfth of its circumference every time said wheel B completes one revolution.

I apply a stiff arm, F, to the plate E for the purpose of enabling a person to move said plate and set the month-hand *f*, at any desired point, without removing the calendar-plate.

The month-disk C has applied to it a contrivance for causing the wheel B to register the extra day in February of a leap-year. This contrivance consists of a ratchet-wheel, G, having four teeth, which engage with a pawl, H, applied to the frame A every time the disk C makes one revolution, and gives said ratchet-wheel a one-quarter turn. When the disk C revolves four times—equal to four years—and the wheel G makes one revolution, it thrusts out a slide, *s*, so that its outer end will partially close the notch d^4, and hence two of the teeth a a' a^2 on one of the movable levers of wheel B will escape the escapement and cause this wheel to register twenty-nine days.

Before the wheel B moves around again to register another month the pawl H will move the slide *s* back so as to allow the three teeth a a' a^2 to escape and register twenty-eight days for the succeeding month of February.

The operation of the calendar is as follows: A wire is used to connect the arm h^3 with a contrivance which is applied to a clock, so that at every revolution of the day-wheel of the clock this arm h^3 will be elevated and caused to move the day-hand D, and also the day-of-the-month hand *f*. The latter hand moves around with the toothed wheel B until the pin *k'* on this wheel strikes the pin *k* on the escapement-plate E, and causes this plate to release one of the pins *p*, and with it the month-disk C and the month-hand *f'*. For the month of January the thirty-one teeth of the wheel B are acted upon in their regular order, and thirty-one days are registered. When the thirty-first day is registered in this manner, the pin *k'* releases the disk C and allows it to move its hand *f'* to the space in the calendar-plate indicating the month of February, which operation brings the notch d^4 of disk C in a position to receive the three teeth a a' a^2, and to allow these teeth to escape the escapement, thus registering twenty-eight days for the month of February. The index hand *f* will jump from the number 28 on the dial-plate to number 1, or the first day of March. Where the thirty days occur in a month, only one of the movable teeth of wheel B will jump past the escapement.

In order to facilitate the winding up of the calendar, I have applied knobs *y y* to the outer extremities of the hands or pointers *f f'*, as shown in Figs. 1 and 2.

By reference to Fig. 5 it will be seen that a spring, *t*, is applied to the slide *s* for retracting it when released by the small cam *v* on the spindle of the ratchet-wheel G.

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

1. Causing the wheel B to release the month-disk C once in every revolution of said wheel by means of a pin, *k'*, acting upon the escapement E of said disk, substantially as described.

2. The pivoted crescent-shaped escapement E, in combination with the pins *p* on a notched disk, C, when these parts are arranged and operated substantially as described.

3. The pinion G, cam *v*, and spring-slide *s*, in combination with the notched disk C and pawl H, substantially as described.

4. The notched disk C, constructed as set forth, in combination with levers *b b'*, having teeth a a' a^2 and lugs *c c'* formed on them, and which are acted upon by a spring, b^2, substantially as described.

5 Operating the day-hand D by means of the tripping-arm h^3, pawl *i*, and ratchet-wheel *j*, when said arm is attached to and actuates the escapement of the wheel B, substantially as described.

DON J. MOZART.

Witnesses:
WM. H. SHURTLEFF,
CHARLES S. CAPRON.