Sheet 1, 2 Sheets.

D. J. Gale.

Calendar Clock.

No. 96,792. Patented Nov. 16, 1869.

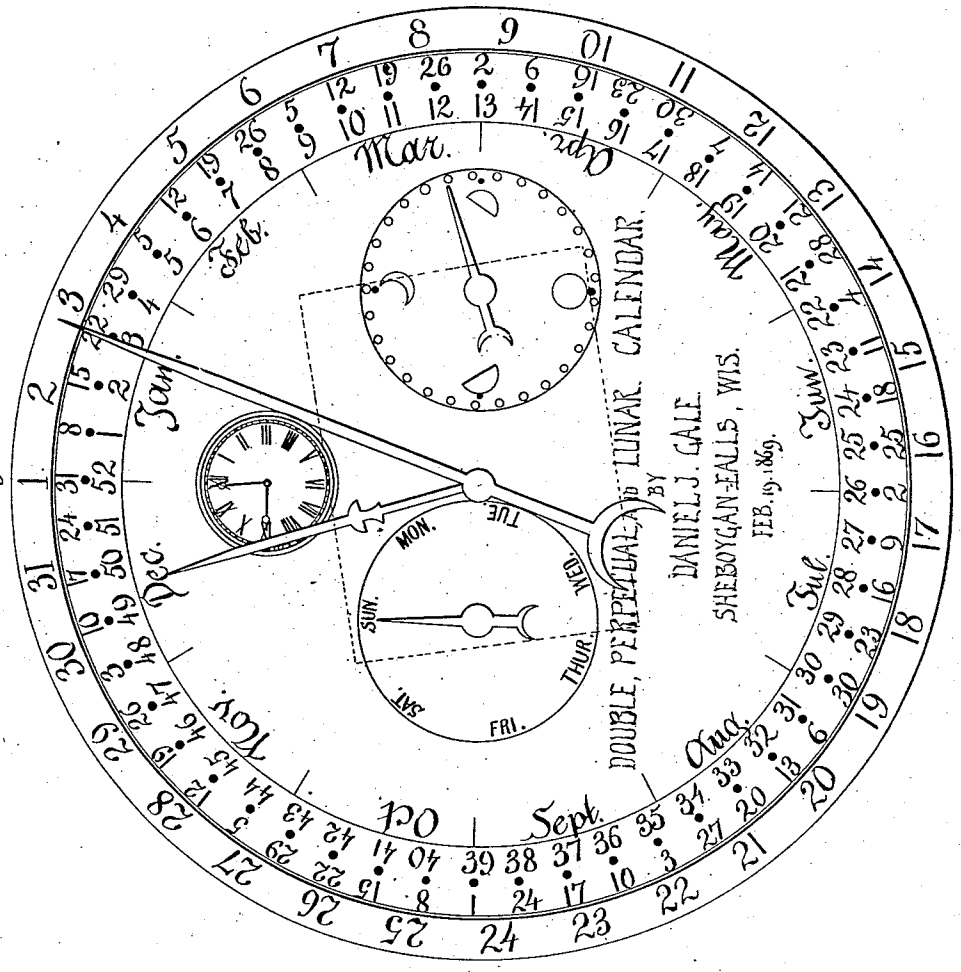


Fig. 1.

Witnesses,
Chas. Chamberlin
Almon Clark

Inventor.
Daniel J. Gale.

Sheets, Sheets.

D. J. Gale.

Calendar Clock.

No. 96,792. Patented Nov. 16, 1869.

Fig. 4.

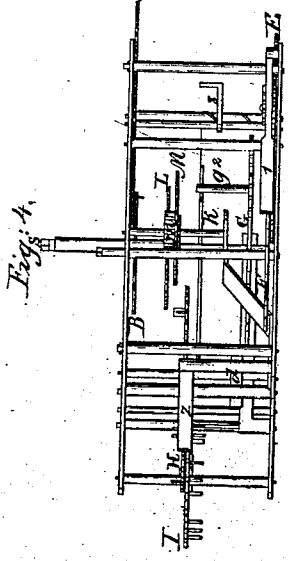


Fig. 6.

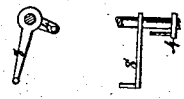


Fig. 5.

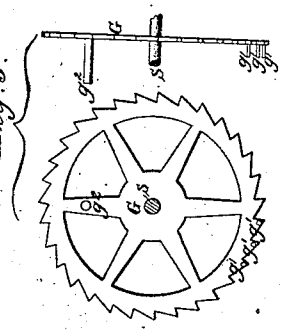


Fig. 2.

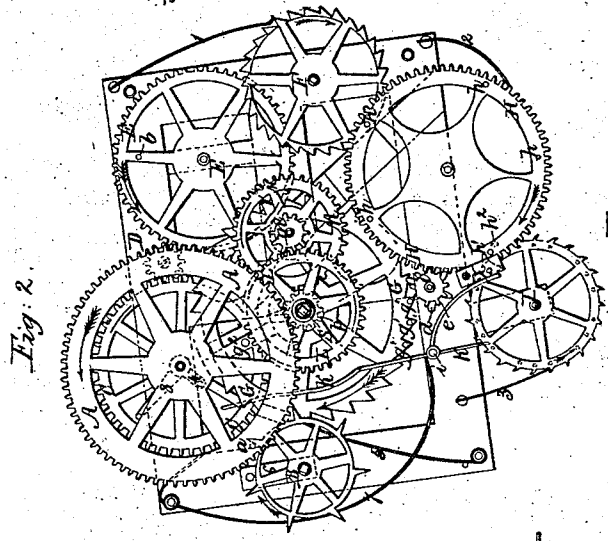


Fig. 3.

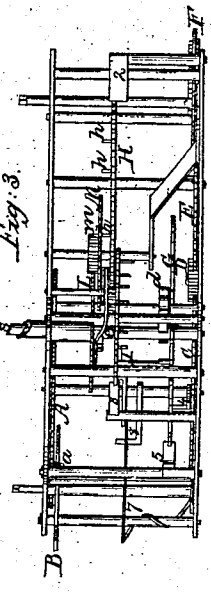
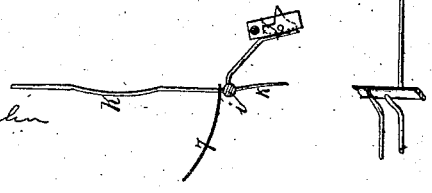


Fig. 7.



Witnesses;
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Inventor;
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United States Patent Office.

DANIEL J. GALE, OF SHEBOYGAN FALLS, WISCONSIN.

Letters Patent No. 96,792, *dated November* 16, 1869.

IMPROVEMENT IN CALENDAR-CLOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, DANIEL J. GALE, of the village of Sheboygan Falls, in the county of Sheboygan, and State of Wisconsin, have invented a new and useful Double, Perpetual, and Lunar Calendar-Attachment to a Clock; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing.

A, in the drawing, represents a large spur-wheel, which is caused to revolve with the shaft S once in twenty-four hours, and is provided with eighty teeth.

On the same shaft also revolve a spur-wheel, G, having thirty-one teeth, and a pinion, *p*, with twelve teeth.

On the said wheel A is a pin, marked *a*, so arranged as to move wheel B one point at each revolution of shaft S.

This wheel B has seven long teeth, to correspond to the number of days in each week.

C is a wheel with fifty-five teeth, and drives the pinion D and wheel E, which has fifty-six teeth.

On wheel E is a pin, marked *b*, which moves F one point at each revolution.

F has twenty-nine teeth, to correspond to the number of days in a lunar month, and is detained in position by spring No. 1.

On the wheel G is a group of three pins, marked *g'*, which move the coarse-toothed pinion *d*, on shaft O, three points at each revolution of said wheel.

On the shaft O is also a fine-toothed pinion, *c*, which revolves wheel H once, while G revolves twelve times; that is to say, the wheel G revolves once in a month, while H revolves once in a year.

This wheel H has seventy-two teeth, and is provided with six pins, marked h h^1 h^2, five on one side and one on the other.

The function to be performed by the pins h h^1 is to move the hinge X, and they represent the relatively short months of the year, h^1 being for February 29.

The purpose of h^2 is to move wheel I on February 28 of each year, except leap-year.

The spur-wheel I has twenty-four teeth, and is provided with eighteen pins.

One of these pins moves the shortest arm *k*, on the lever-shaft *i*, on the night of February 28, except when leap-year occurs.

Hinge X moves the longest arm *k* on lever-shaft on the night of February 29 of leap-year, and also on the night of the 30th of each month, when that is the final day thereof.

Wheel H has a detaining-spring, No. 2.

The wheel I describes a complete circle or orbit once in a cycle of twenty-four years, is successively moved therein by pin h^2, and held into every new position gained by detainer-spring No. 3.

K is a long lever, attached fixedly at one end to the shaft *i*, while the other end is allowed to come in contact periodically with a pin or arm, 8, of main shaft S.

The said lever K, being engaged by arm 8, is carried against the large pin g^2, on wheel G, and thereby causes the longest hand to move away from the last day of every month having less than thirty-one days, over to the 1st of the succeeding month.

This lever has also a retracting-spring, No. 7, which, as soon as it is disengaged from arm 8, carries it back to its place.

L is a wheel, fast to a sleeve on the shaft S, has forty teeth, and gears with pinion *m*, which is located on the same shaft with the wheels M M.

L, with its sleeve, makes one revolution to twelve of wheel G.

M M is driven by the pinion *p*, and has thirty-six teeth, for the purpose of reducing the velocity of wheel L.

The wheel G is also provided with spring No. 5, which is so adjusted that said wheel can move forward or backward.

The shaft which carries wheel B has also a detaining-spring, No. 6.

The above constitutes the arrangement of shafts, gear-wheels, and actuating-pins, to produce the different movements required upon the dial-plate.

The dial is perforated at the points shown, to admit the ends of as many driving-shafts through its upper surface.

The central shaft S carries a long hand, to point out the days of the month, adjusted by the machinery so as to allow for the monthly inequalities.

The hollow shaft or sleeve which encircles said shaft S carries the hand next in length, and indicates, by appropriate notations, the month, week, and corresponding day of month on which a given week occurs, from the first to the fifty-second.

The long hand, of course, makes twelve revolutions while the other makes a single one.

The notations arranged in the middle circle, as shown on the dial, exhibit clearly each week to itself, and the month, and day of the month on which it occurs, from New Year's day to the end of the year.

The movements of the machinery are so timed that the hands change position at night, and never require any manipulation, directly or indirectly.

The hand which is employed to denote the different phases of the moon, is operated by a wheel, F, as is apparent from the drawing.

From the above description it will be observed that I have invented a clock-attachment, which points an unerring finger to the day of the week and month, to the date on which each week commences throughout the year, to the number of weeks which have already

expired, and to the particular phase in which the moon may be at any time.

To the manufacturer and capitalist who pay hands at a weekly rate, or to the farmer, who looks to the moon as in some degree an index of the weather, and of the time to sow and harvest, the value of my attachment cannot be overrated.

Having now described all that is necessary to a full understanding of my improvement,

What I esteem to be of my invention, and desire to protect by Letters Patent, is—

1. A calendar-attachment for clocks, comprising the above-described trains of mechanism, constructed and arranged with reference to one another in the manner specified, so as to indicate, by appropriate notations upon a face or dial-plate, the day, the week, and month, the date on which each week commences, the number of weeks expired, and the phases of the moon, all operated by the same actuating-power, and automatically, as set forth.

2. The wheel F, having twenty-nine teeth, the wheel E, having fifty-six teeth, and the wheel C, having fifty-five teeth, combined, arranged, and operated as and for the purpose specified.

3. The arrangement of pins h h^1 h^2, hinge X, wheel I, and the eighteen pins thereto attached, arms k K, and the shafts O i, to adapt the movement of indicator to the difference in the length of the several months, as specified.

DANIEL J. GALE.

Witnesses:

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CHAS. CHAMBERLIN,

ALMON CLARKE.