3 Sheets--Sheet 1.

G. MARANVILLE.

Improvement in Dials for Calendar Watches.

No. 124,691. Patented March 19, 1872.

Fig. 1

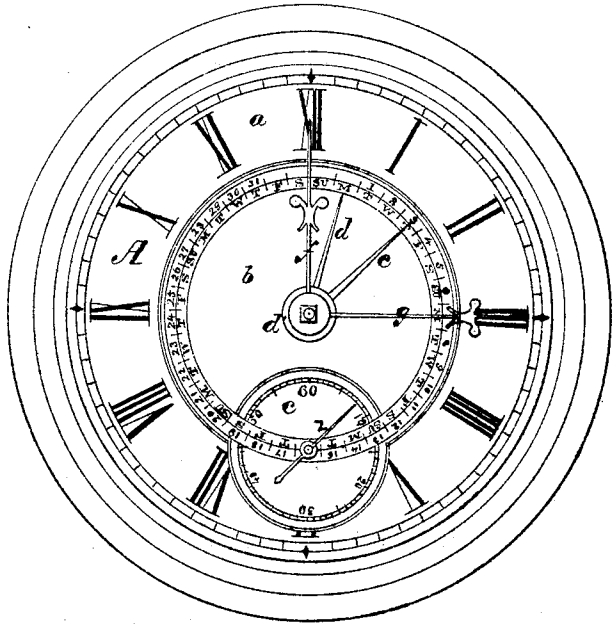
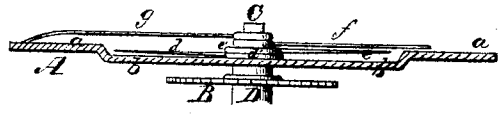


Fig. 2



Witnesses.
P. H. Campbell.
J. N. Campbell.

Inventor
Galusha Maranville
by his Attys
Mason Fenwick & Lawrence

3 Sheets--Sheet 2.

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Fig. 3

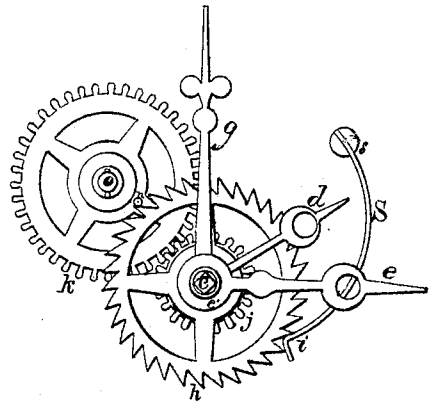
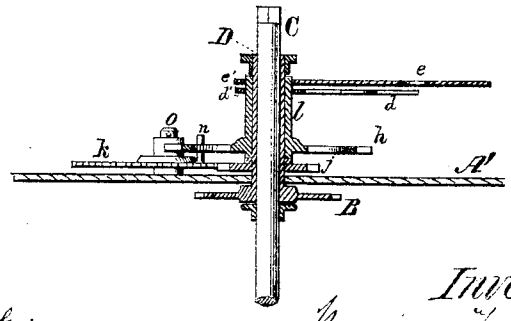


Fig. 4



Witnesses.
R. F. Cunsbell.
J. N. Campbell.

Inventor. Galusha Maranville
Mason Fenwick & Lawrence
his Attys

3 Sheets--Sheet 3.

G. MARANVILLE.

Improvement in Dials for Calendar Watches.

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Fig. 5

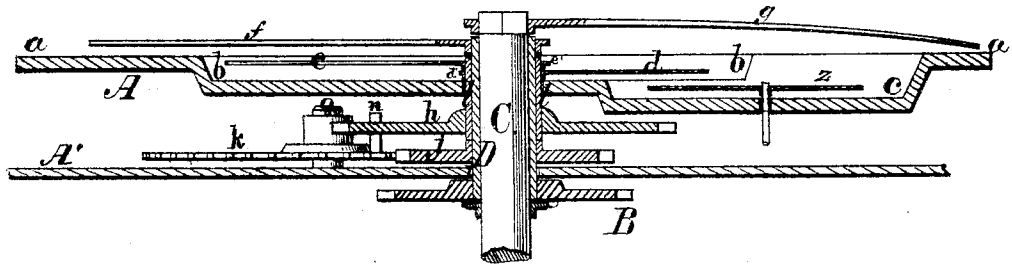
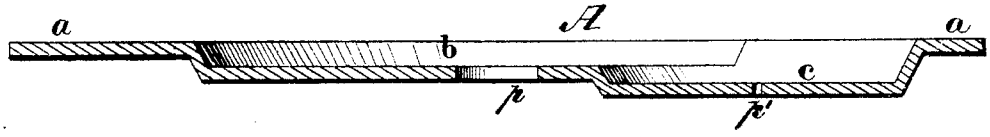


Fig. 6



Witnesses.
R. F. Campbell.
J. F. Campbell.

Inventor
Galusha Maranville
by
Mann, Fenwick & Semmes.

UNITED STATES PATENT OFFICE.

GALUSHA MARANVILLE, OF RUTLAND, VERMONT, ASSIGNOR TO CHARLES E. KILBY, OF WASHINGTON, DISTRICT OF COLUMBIA, AND DAVID B. CHANNELL, OF RUTLAND, VERMONT.

IMPROVEMENT IN DIALS FOR CALENDAR-WATCHES.

Specification forming part of Letters Patent No. 124,691, dated March 19, 1872.

To all whom it may concern:

Be it known that I, GALUSHA MARANVILLE, of Rutland, in the county of Rutland and State of Vermont, have invented a new and useful Improvement in Calendar Time-Pieces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is a view of the watch-dial indicating the hour and minute hands, and also the day-of-the-week and day-of-the-month hands, and the second-hand. Fig. 2, Plate 1, is a diametrical section through the dial-plate. Fig. 3, Plate 2, shows the train of wheels for operating the day-of-the-week and day-of-the-month hands. Fig. 4 is a diametrical section through the same. Fig. 5, Plate 3, is a diametrical section through the watch-dial, showing the three planes of the dial in connection with the relative arrangement of the several hands, and also the calendar mechanism. Fig. 6 is a similar view of the dial.

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

In making a calendar-watch, it is desirable to accommodate its construction as far as possible to the appearance of the approved well-known dial in common use, which has a minute and hour and second hand only thereon, and to which the public are accustomed. With this object in view my calendar-watch is made to present the second-hand to the eye of the casual observer in the same relation in regard to the hour and minute hands, as in the ordinary watch above alluded to. In doing this, however, I also make the dial consonant with the employment of two calendaring-hands in addition to the ordinary hour and minute hands, which calendar-hands, by reason of the particular construction of the dial, are not liable in their revolution to interfere either with the revolution of the hour and minute hands or the revolution of the second-hand; and while by my improvement I accomplish these objects, I also am enabled to avoid not only multiplying parts out of which to make the dial, but also avoid making any more perforations through my dial than in the ordinary watch above alluded to; in other words, by my invention I am enabled not only to make my dial of a single piece, (either of metal or other appropriate substance,) but avoid all openings through the dial through which dust is liable to enter other than the ordinary central perforation for the main post of a watch and the opening for the post of a second-hand, while at the same time I utilize two calendar-hands for designating the day of the month and week in addition to the use of the hour, minute, and second-hands of a common watch; and I would further state that while I accomplish all this I render the ordinary length of the central post of a class of watches now in common use available for said purposes, thereby avoiding an objectionable increased thickness to my watch, or what is commonly known as the "bull's-eye" form.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawing, A represents the dial-plate, made of a single piece of the usual well-known material or combination of materials, and which presents an external annular elevated surface, *a*, on which is marked the hours and minutes, and a central circular depression, *b*, on which the days of the week and days of the month are marked in two separate circular rows, as shown in Fig. 1. There is also another circular depression, *c*, still lower than the surfaces *a* and *b*, on which is marked the seconds. The depression *c* is of such depth as will allow the second-hand *z* to turn freely below the depressed surface *b*, and the depression *b* is of such depth as will allow two calendar-hands, *d* and *e*, to turn freely beneath the hour and minute hands *f g*, and thus insure the traverse of all of the hands without interference with each other. The annular elevation *a* and the circular depression *b* are both concentric to the axis of the hour and minute hand post C, and this depressed space internal to the numbers indicating the hours of the day is in part utilized for the day-of-the-week and day-of-the-month dial. The internal circle of letters on the depressed surface *b* indicate the days of the week, five weeks being represented, and the external row of figures indicate the days of the month, with

four spaces below the hour XII. The numbers and letters indicating the days of the month and days of the week cross the depressed surface *c* without materially interfering with the marks indicating seconds, as represented in Fig. 1. This depressed surface *c* for the second-hand *z*, while being of greater depth than is usual for the second-hand of a watch is nevertheless located in the same position usually occupied for the second-hand of watches in common use, and to the eye of the casual observer appears of no greater depth.

In Figs. 2, 3, 4, and 5, I have represented the mechanism for operating the two calendar-hands *d* and *e*. The minute-hand post C and the train of wheels connected therewith, together with other parts necessary to move the minute and hour hands, are or may be precisely the same as is found in any of the well-known or improved watches hitherto constructed.

The mechanism for operating the calendar-hands *d* and *e* is as follows: On a tube, *l*, which is around the tube D of the hour-hand *f*, I apply two calendar-hands, one of which, *e*, points to the figures indicating the days of the month, and the other, *d*, to the figures indicating the days of the week around the annular elevation *a*. The circular collars *e'* and *d'* of said hands embrace the tube *l* with sufficient firmness to cause the hands to turn with their tube *l*, but not so firmly as to prevent them from being adjusted around on this tube by the human hand whenever it is necessary to change them to any day of the week or day of the month; for instance, the hand *e* is to be moved over the blank space beneath the hour XII from the last day of one month to the first day of the succeeding month. It will be understood that on the last or first day of every month the hands *d* and *e* are to be adjusted on their arbor, after which they move simultaneously every twenty-four hours and point to the day of the week and day of the month. On the lower end of the hour-hand tube D is a pinion, *j*, which engages with the teeth of the tripping or relief-wheel *k* that turns around a stud, *o*, rising from the frame A' of the watch. On this wheel *k* is a pin, *n*, which at every revolution of its wheel engages with its tooth or a ratchet or cam-wheel, *h*, and moves the hands *d* and *e* a distance equal to the spaces marked off on the depressed face *b*. The wheel *h* is fast on the tube *l* of the hands *d* and *e*, so that these hands will move synchronous with the said wheel *h*. To prevent wheel *h* from moving except when acted on by the pin *n*, a friction-pressure spring, S, which is fastened to a stud, *s*, is applied to it, so that its bent end *i* will engage with its teeth, as shown in Fig. 3. By bending the spring S, as at *i*, the wheel *h* can be adjusted around in either direction. On the lower end of the hour-wheel tube D is shown one of the wheels B of the regular watch-train.

It will be seen from the above description, in connection with the drawing, that I have a closed calendar-dial, through which dust cannot pass into the interior works of the watch, except at *p p'*, and that I utilize a depressed space within the circle of numbers indicating hours by proper notations to signify the days of the week and days of the month, and employ two hands therein for pointing to such notations. These calendar-hands *d* and *e* being arranged below the elevation *a* in a depression, *b*, will not interfere with the hour and minute hands, and the second-hand Z being arranged in a depression, *c*, which is deeper than the depression *b*, also allows said calendar-hands *d* and *e* to revolve without interfering with the second-hand; in other words, by constructing my dial with an elevation, *a*, a depression, *b*, and a still deeper depression, *c*, the several hands *g f e d z* may all revolve without liability to interfere with each other; and while this advantage is gained by reason of such construction of the dial, I am at the same time enabled to utilize the ordinary length of the central post of watches having flattened crystals, on which to apply the two extra hands *d* and *e* for calendaring the days of the week and month; and in addition to such features a further advantage remains, (due to my particular construction of the dial-plate A,) in that while I furnish the means for indicating the days of the week and month, in addition to the indication of the hours, the minutes and seconds, as shown by the ordinary watches in common use, my dial is at the same time not only made of a single piece, but also closed at all points against the ingress of dust, which would derange the works, except by two perforations, *p p'*, the same as in the watches in common use; and, finally, with my particular construction of the dial, I am also enabled to maintain the appearance of the usual location of the second-hand *z*, with reference to the minute and hour hands, while at the same time said second-hand is not liable to be interfered with by the calendar-hands.

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

I claim a dial for a calendar-watch, which is made of a single piece having an outer annular elevation, *a*, a depression, *b*, of sufficient depth to receive two calendar-hands, *d* and *e*, below the elevation *a*, and out of contact with the minute and hour hands *g f*, and a depression, *c*, deeper than the depression *b*, in which to place the second-hand *z*, below the depression *b*, and out of contact with the calendar-hands, substantially as described.

GALUSHA MARANVILLE.

Witnesses:
J. N. CAMPBELL,
R. T. CAMPBELL.