

(No Model.)

2 Sheets—Sheet 1.

J. PALLWEBER.

TIME PIECE.

No. 312,754.

Patented Feb. 24, 1885.

Fig. 1.

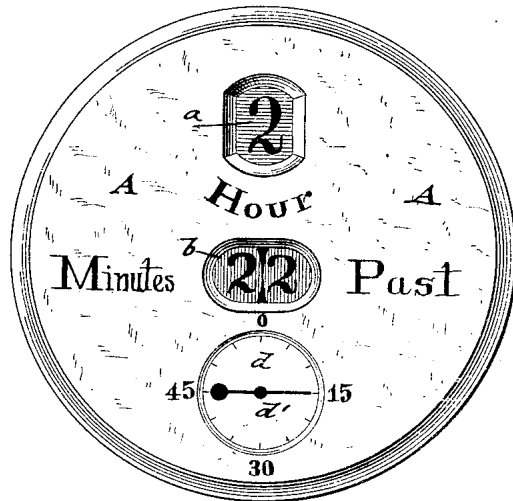


Fig. 3.

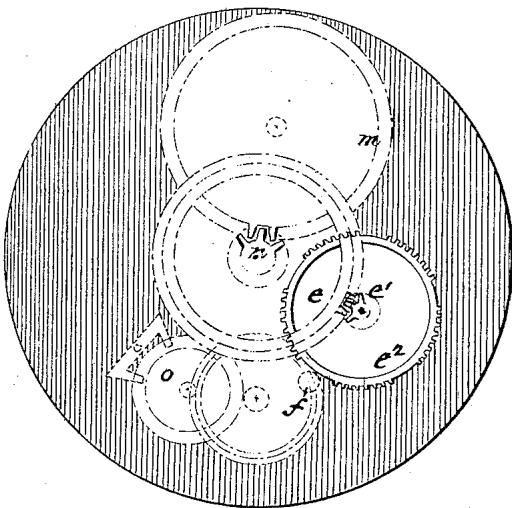
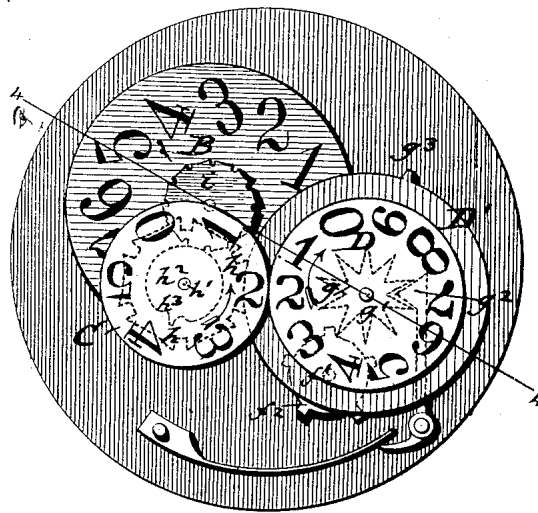


Fig. 2.



WITNESSES:

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INVENTOR.

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ATTORNEYS.

(No Model.)

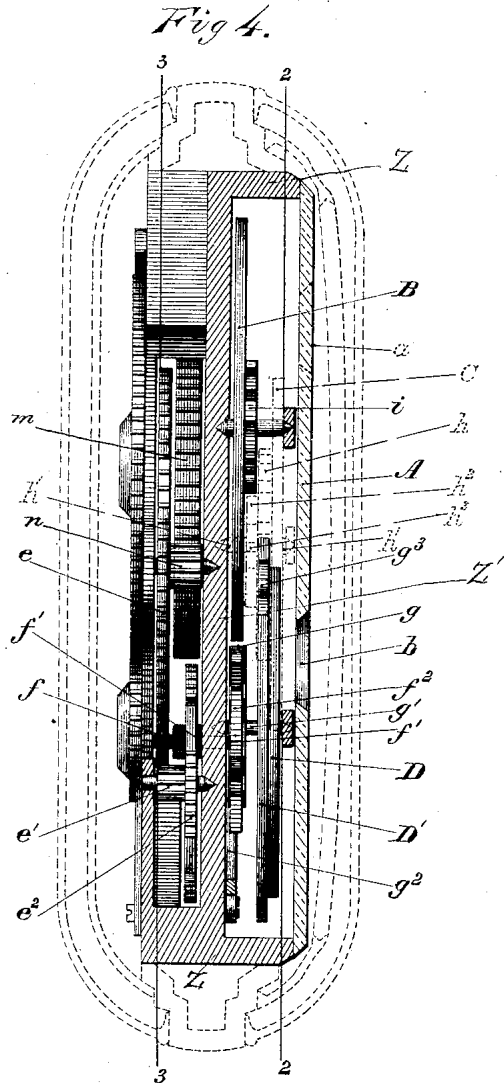
2 Sheets—Sheet 2.

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TIME PIECE.

No. 312,754.

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WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

JOSEF PALLWEBER, OF SALZBURG, AUSTRIA-HUNGARY.

## TIME-PIECE.

SPECIFICATION forming part of Letters Patent No. 312,754, dated February 24, 1885.

Application filed September 10, 1883. (No model.) Patented in England July 8, 1883, No. 5,863.

To all whom it may concern:

Be it known that I, JOSEF PALLWEBER, of Salzburg, Empire of Austria-Hungary, watch-maker, have invented certain new and useful Improvements in Watches and Clocks, (which have been patented to me in Great Britain by Letters Patent No. 5,863, dated July 8, 1883,) of which the following is a specification.

This invention relates to a watch or clock in which rotary disks having numerals near their peripheries are employed in connection with a plain slotted dial or face-plate, instead of hour and minute hands in connection with a graduated dial.

In the accompanying drawings, Figure 1 is a front view of the face of a watch or clock constructed in accordance with this invention. Fig. 2 is a view on line 2 2 of Fig. 4, looking to the left, the face-plate being removed. Fig. 3 is a section on line 3 3 of Fig. 4, looking to the right. Fig. 4 is a diametrical section on line 4 4 of Fig. 2, the watch-case being indicated in dotted lines.

Similar letters of reference indicate corresponding parts.

The watch or clock may have any ordinary or suitable actuating mechanism.

In the drawings, the dial or face-plate A is provided with a slot or opening, *a*, near its upper edge, through which the figure or figures indicating the hour are visible, and with a slot or opening, *b*, near the center of the dial, through which the figures indicating the minutes past the hour are visible. The word "Hours" is written adjacent to the opening *a*, and the word "Minutes" above or below the opening *b*. The dial is also provided at its lower part with a graduated circle, indicating the seconds, over which an ordinary second-hand traverses. The moving parts of the watch are supported in a frame, Z, divided into two compartments by a partition, Z'. A rotary disk, B, provided near its circumference with figures from 0 to 11 is pivoted within the casing, and so adjusted relatively to the dial A that said figures may be visible in succession through the opening *a*. This disk is rotated intermittently at intervals of one hour each. For a twenty-four-hour clock or watch the disk will have figures from 0 to 23. Two minute-disks, C and D, are also pivoted within the casing, so that their edges meet opposite

the opening *b*. The minute-disk D is provided near its circumference with figures from 0 to 9, inclusive, for indicating the units of minutes, this disk being actuated intermittently a distance of one figure at intervals of a minute. The disk C is provided near its circumference with figures from 0 to 5, to indicate the tens of minutes, and is turned on its axis a distance of one figure every ten minutes. One figure of each of these minute-disks is visible through the opening *b*.

The mechanism for actuating these several disks may be of any suitable construction and arrangement. The mechanism herein shown for this purpose will now be described. The main driving-gear *m* on the shaft, to which a mainspring is attached, meshes with the pinion *n*, on the shaft of which latter is fixed the transmitting gear-wheel *e* of the watch or clock train. The gear-wheel *e* meshes with a pinion, *e'*, on the shaft of which is a gear-wheel, *e''*. The circumference of the gear-wheel *e''* is provided with five toothed sections of eight teeth each, said sections being separated from each other by spaces equal in length to four of the teeth of the toothed sections. The toothed sections *e''* engage a pinion, *f*, to the shaft *f'* of which is attached a spur-wheel, *f''*, having five teeth equidistant from each other. The teeth of the spur-wheel *f''* take into the teeth of a ten-pointed star-wheel, *g*, on a shaft, *g'*. The spring-pawl *g''* engages the teeth of the star-wheel *g*, and admits the forward motion of the star-wheel *g* for a distance of one tooth at a time. The units minute disk D is attached to a disk, D', which is keyed to the shaft *g'*. The disk D' has one tooth, *g''*, at a point where a radial line passing through the figure 9 of the disk D intersects the circumference of the disk D'. At each revolution of the disk D' the tooth *g''* engages a six-toothed gear-wheel, *h*, on the shaft *h'*, to which the tens minute dial C and the disk *h''* are attached. At each revolution of the disk *h''* the tooth *h''* thereon engages a wheel, *i*, having twelve teeth and intermediate spaces. The hour-disk B is attached to the shaft of the wheel *i*.

By the transmitting mechanism described the units minute disk D is intermittently moved once every minute, so that its figures are consecutively displayed through the open-

ing *b* of the dial A. The tens minute disk C is moved every ten minutes, so as to display its figures in consecutive order, which figures, in connection with the figures of the units  
5 minute disk D, indicate the minutes past the hour. The hour-disk B is moved once in every hour for the distance of one figure, so as to indicate the hours through the opening *a* of the face-dial A.

10 The seconds are indicated on the main dial by the second-hand *d*, which receives its motion by the train of gear-wheels.

The time indicated on the watch represented in the drawings is twenty-two minutes and  
15 fifteen seconds past two o'clock.

The advantages of this improved construction are, that it can be applied to any system of watches or clocks, that the mechanism employed is simple and not liable to get out of  
20 order, and that the time can be read off at a glance with great facility.

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

The combination of a face-dial provided  
25 with two openings or slots, through which respectively the hours and minutes may be exhibited, a rotary hour-disk actuated intermittently at intervals of one hour each, and provided near its circumference with figures arranged  
30 ranged to indicate the hourly divisions of a

day, which figures are displayed consecutively through the hour-opening to indicate the hour, a rotary tens minute disk actuated intermittently at intervals of ten minutes each, provided near its periphery with figures from 0 to  
35 5, which figures are displayed consecutively through the minutes-opening to indicate the tens of minutes, a rotary units minute disk actuated intermittently at intervals of one  
40 minute each, provided with figures near its periphery from 0 to 9, inclusive, which figures are also displayed consecutively through the minutes-opening to indicate the units of minutes in connection with the figures of the tens  
45 minute disk, a time-movement, and motion-transmitting mechanism consisting of a gear-wheel, *e*<sup>2</sup>, having toothed sections, pinion *f*, spur-wheel *f*<sup>2</sup>, star-wheel *g*, minute-dial D, having tooth *g*<sup>2</sup>, minute dial C, gear-wheel *h*,  
50 disk *h*<sup>2</sup>, having a tooth, *h*<sup>3</sup>, and hour-dial B, having a gear-wheel, *i*, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 14th day of August,  
55 1883.

JOSEF PALLWEBER.

Witnesses:

JOSEF TIRVNERK,

HEINRICH SCHMOLKE.