3 Sheets—Sheet 1.

T. WEISSER.

Calendar-Clock.

No. 211,816. Patented Jan. 28, 1879.

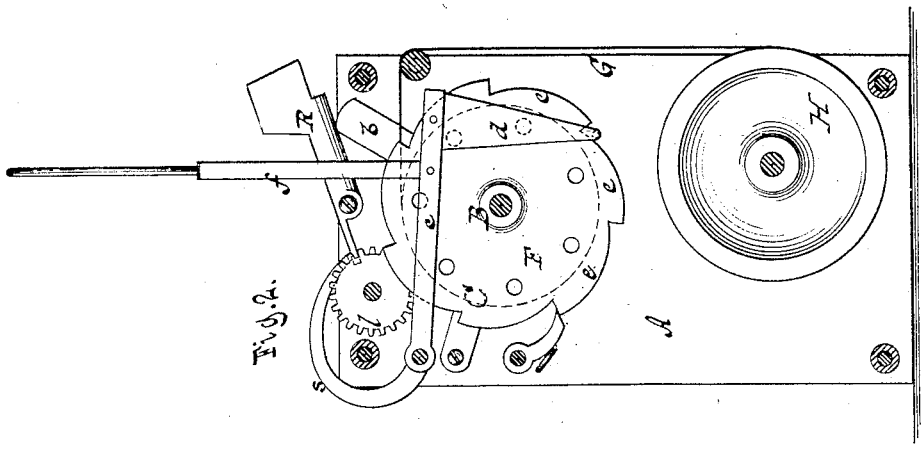

Fig. 2.

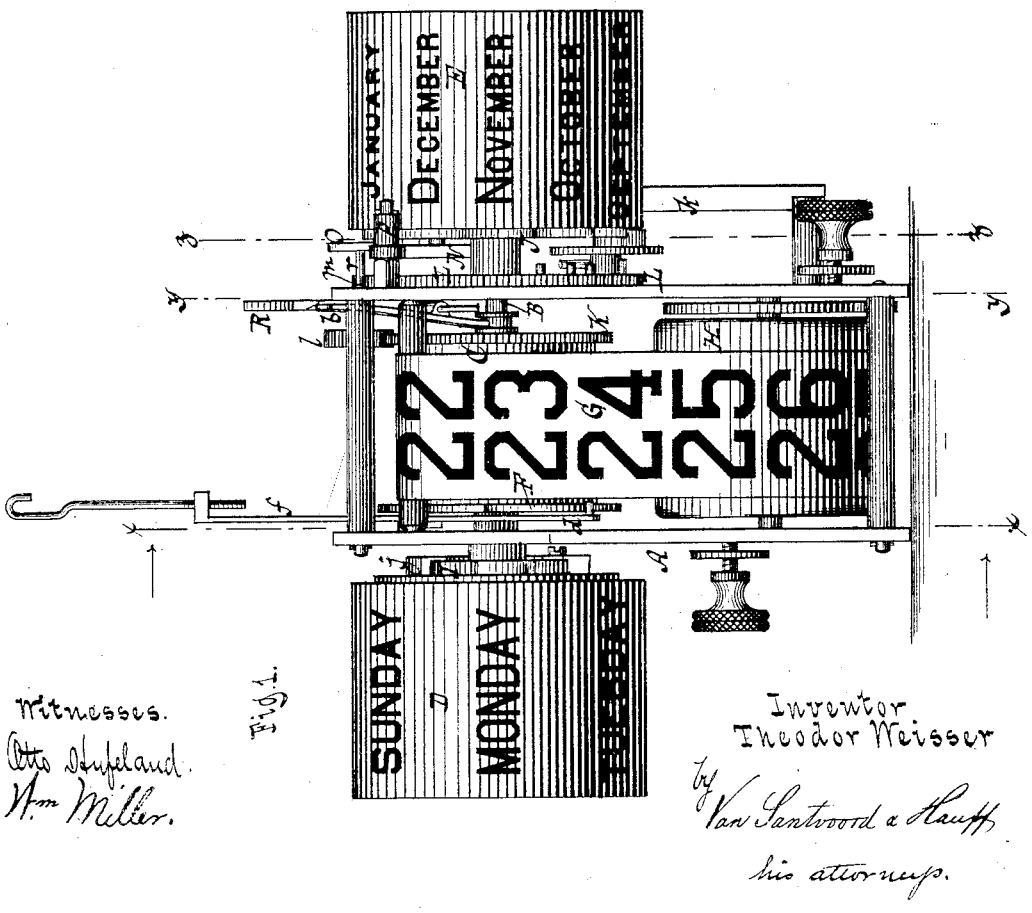

Fig. 1.

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Fig. 5.

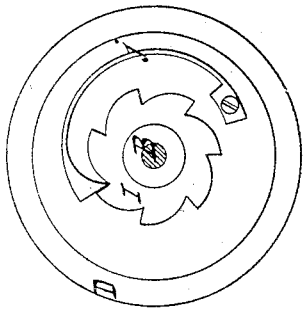


Fig. 4.

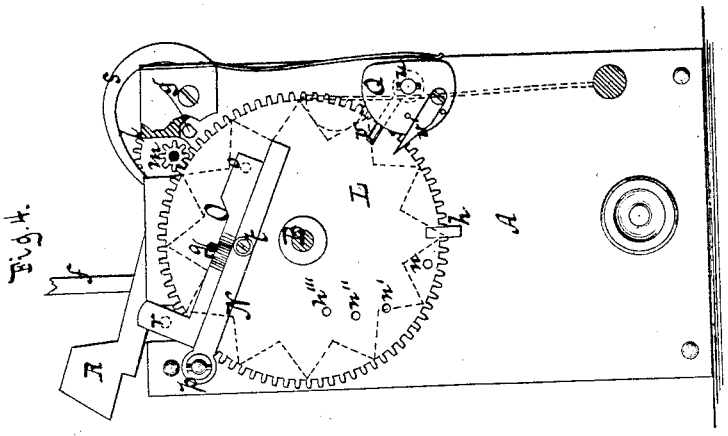
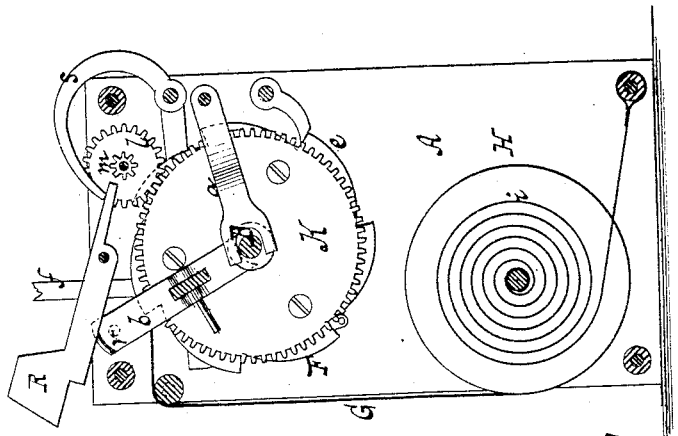


Fig. 3.



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3 Sheets—Sheet 3.

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Fig. 7.

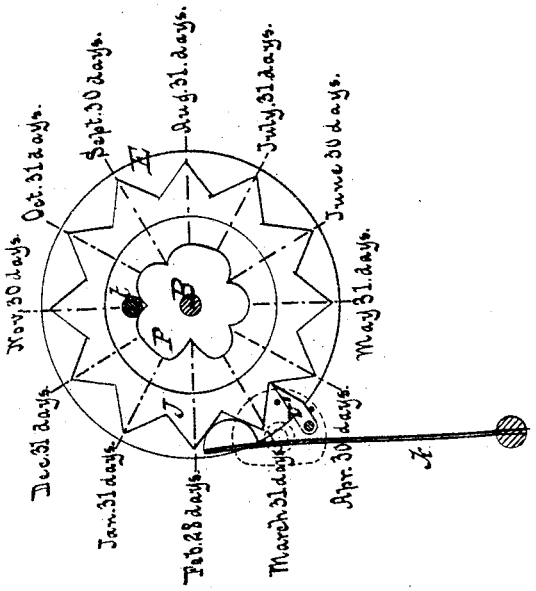
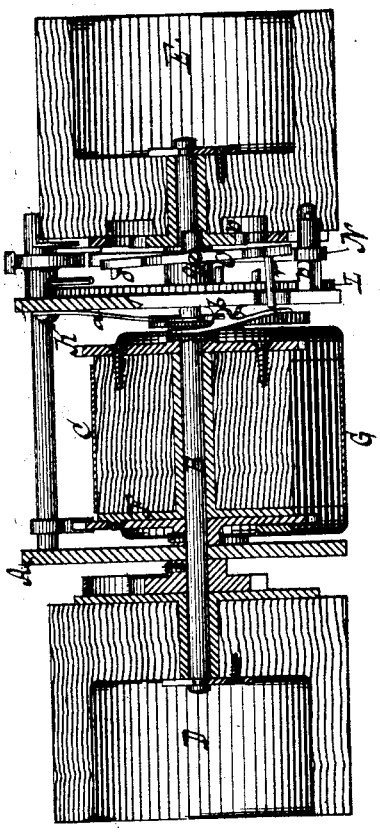


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODOR WEISSER, OF FURTWANGEN, ASSIGNOR TO JUNGHANS BROTHERS, OF SCHRAMBERG, WÜRTEMBERG, GERMANY.

IMPROVEMENT IN CALENDAR-CLOCKS.

Specification forming part of Letters Patent No. **211,816**, dated January 28, 1879; application filed December 11, 1878; patented in England, October 14, 1878.

To all whom it may concern:

Be it known that I, THEODOR WEISSER, of Furtwangen, in the Grand Duchy of Baden and Empire of Germany, have invented a new and useful Improvement in Clock-Calendars, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of my calendar. Fig. 2 is a vertical cross-section in the line *x x*, Fig. 1. Fig. 3 is a like section in the line *y y*, Fig. 1. Fig. 4 is a like section in the line *z z*, Fig. 1. Fig. 5 shows the inner side of the day-drum. Fig. 6 is a plan view of the calendar, partly in section. Fig. 7 shows the inner side of the month-drum.

Similar letters indicate corresponding parts.

My invention relates to certain improvements in the construction of calendars for attachment to clocks; and it consists in the combination of the following instrumentalities—to wit: a roller carrying a band on which are marked numerals to indicate dates of the month, a prime mover adapted to be connected with a clock-movement for actuating the band-roller and date-band, mechanism for releasing the band-roller, and a spring or weight having a tendency to retract the date-band, with these parts being also combined two drums, one containing the names of the days of the week and partaking of the forward motion of the band-roller and band, and the other containing the names of the months of the year, and the releasing-mechanism being also adapted to set the month-drum, so that if the band-roller is actuated once during every twenty-four hours, the date-band is as often partially wound thereon, and thereby moved forward to show successive numerals, while the day-drum performs a like movement; and when the band-roller has been actuated a certain number of times—namely, either thirty-one, thirty, or twenty-eight times—corresponding to the number of days in that month whose name is exposed, the band-roller is set free, the band is returned to its starting-point, and the month-drum is shifted to expose the name of another or successive month.

In the drawings, the letter A designates the frame of my calendar supporting a shaft or arbor, B, on which are mounted the band-roller C, the day-drum D, and the month-drum E. The band-roller C is loose; but in its normal position it is caused to move with the shaft B, through the agency of a clutch-head, F, which is secured on the shaft, and with which the roller is caused to engage by the action of a spring, *a*. The band-roller is thrown out of gear with this clutch-head F at a certain period, hereinafter designated, by means of a lever, *b*.

The letter G designates the date-band, which is attached to the band-roller C at its upper end, and on the outer face of which are marked the numerals 1 to 31, beginning at the top of the band. With the band-roller C is combined a moving device consisting of a lever, *c*, (see Fig. 2,) from which is suspended an arm, *d*, engaging with ratchet-teeth *e*, formed on the periphery of the clutch-head F, the teeth being seven in number. To the lever *c* is connected one end of a rod, *f*, the other end of which, in practice, is connected with a clock-movement in such a manner that said lever is lifted and allowed to fall once during every twenty-four hours, whereby the band-roller C is turned step by step, and the apron G is wound thereon, the roller making one-seventh of a revolution each time it is actuated, so that the date-band is moved forward, and its numerals are exposed in proper order. This movement of the band-roller C and date-band G is continued till the end of a month, when the roller is disengaged from the clutch-head F, as presently described, so that it is free to rotate, and the band is allowed to unwind therefrom sufficiently to bring the numeral 1 to the starting-point. This position of the date-band is determined by a stop, *g*, (see Fig. 4,) secured to the machine-frame in conjunction with a counter-stop, *h*, projecting from a wheel which is geared with the band-roller C, and which forms part of the releasing mechanism. The date-band G is retrated, and thereby unwound from the band-roller C by a spring, *i*, (or by a weight,) acting on a reel,

H, to which the lower end of the band is attached.

The day-drum D is loose, and carries a spring-dog, *j*, (best seen in Fig. 5,) which engages with a toothed wheel, I, secured on the shaft, B, so that the day-drum is caused to turn with the shaft, but is susceptible of being turned back and regulated; and since the shaft B turns only during the forward motion of the band-roller C and date-band, the day-drum partakes of such forward motion, but remains stationary during the retrograde motion of the roller and band.

The month-drum E also is loose, but it is held stationary on the shaft B by a yielding stop, *k*, (best seen in Fig. 7,) acting on a notched wheel, J, which is secured to the inner end of said drum. This wheel has twelve notches.

The band-roller C is released by the following mechanism: To the band-roller C is secured a cog-wheel, K, which gears by means of pinions *l m* with a cog-wheel, L, mounted loosely on the shaft B, so that this loose wheel L turns with the band-roller, both in the forward movement and in the retrograde movement of the latter. The gearing of the loose cog-wheel L with the cog-wheel K of the band-roller is such that to every one-seventh revolution of the latter said loose wheel makes one thirty-first of a revolution, and hence when the date-band G is wound up or unwound from the band-roller, as before stated, the loose cog-wheel makes one complete revolution.

The loose cog-wheel L carries three spurs, *n' n'' n'''*, on its outer surface, (best seen in Fig. 4,) the same being situated at unequal distances from the axis of the wheel. The outermost spur, *n'*, corresponds in its operation to those months having thirty-one days, the next or intermediate spur, *n''*, to those having thirty days, and the third or inner spur, *n'''*, to that having twenty-eight days. These spurs *n' n'' n'''* respectively actuate one part of a compound lever, N O. The part N of this lever has its fulcrum on a pivot, *p*, secured to the machine-frame, and swings in a vertical direction, while the part O of said lever swings horizontally on a pivot, *q*, projecting from the other part of the lever, as clearly shown in Fig. 4. The horizontal portion of the compound lever N O is provided with a beveled lug, *o*, Figs. 4 and 6, at one end, and with a pin, *r*, at its other end. This pin *r* impinges upon the upper portion of the lever *b*, by which the band-roller C is thrown in and out of gear with its clutch. During the forward motion of the loose cog-wheel L, either of the spurs *n'*, *n''*, or *n'''* strikes against the beveled lug *o*, according to the position of the compound lever, and the horizontal portion, O, of said lever is displaced, so that the clutch-lever *b* is pushed back by the pin *r*, and the band-roller C is released. The position of the compound lever N O is determined by a cam, P, (best seen in Fig. 7,) which is secured to the inner end of the month-drum E, and on the face of which the compound lever is supported by means of a pin, *t*, projecting from the lower or vertical portion of said lever. This cam P is so shaped and arranged relatively to the spurs *n' n'' n'''*, and to the names marked on the periphery of the month-drum E, that when, for instance, the name of the month of February is exposed, the compound lever occupies its lowest position, the innermost spur, *n'''*, actuates the same, and the band-roller E is released on the day when the proper maximum numeral on the date-band is exposed, while the parts are likewise liberated at the end of the other or remaining months. This will be better understood by reference to the diagram shown in Fig. 7.

Each time the band-roller C is released and the date-band G is retracted the month-drum E is actuated to bring forward the name of another or successive month. This is accomplished by combining with the month-drum a dog or segment, Q, (see Fig. 4,) which rocks on a pivot, *u*, secured to the machine-frame, and has two projections, *v v'*, one of which engages with the notched wheel J of the month-drum, while the other is arranged in the path of a pin, *w*, projecting from the outer surface of the loose cog-wheel L. When the date-band G is retracted or unwound from the roller C, and the loose cog-wheel L is rotated, the pin *w* comes in contact with the projection *v* of the dog Q, the latter is displaced, and the projection *v'* acts on the notched wheel J, whereby the month-drum is set. By this arrangement the setting of the month-drum is caused to take place simultaneously with the liberation of the band-roller and band.

The lever *b* of the releasing mechanism is caught or held by a pivoted weight, R, when the same is brought into play, and said weight is raised at the proper time by the action of a tappet, S, connected with the prime mover of the machine.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of lower and upper band-rollers, H C, to which the ends of a band having printed thereon numerals 1 to 31 are attached, a clutch detachably connected with one end of the upper roller, and two mechanisms, such substantially as described, one of which is adapted to be connected with a clock-movement and with the clutch-head for rotating the roller C step by step at the expiration of every twenty-four hours, and the other adapted to automatically release the roller C from the clutch to permit the lower roller to rewind the said numerical band, as specified.

2. The combination, in a clock-calendar, of a roller carrying a band on which are marked numerals to indicate dates of the month, a prime mover adapted to be connected with a clock-movement for actuating the band-roller, a spring or weight having a tendency to re-

tract the date-band, with two drums, one containing the names of the days of the week and partaking of the forward motion of the band-roller, and the other containing the names of the months of the year, and mechanism whereby the band-roller is released and the month-drum is set simultaneously, all constructed and operating substantially as described.

In testimony whereof I have hereunto set my hand this 6th day of April, 1878.

THEODOR WEISSER.

Witnesses:
FRANZ WIRTH,
FRANZ HASSLACHER.