(Model.)

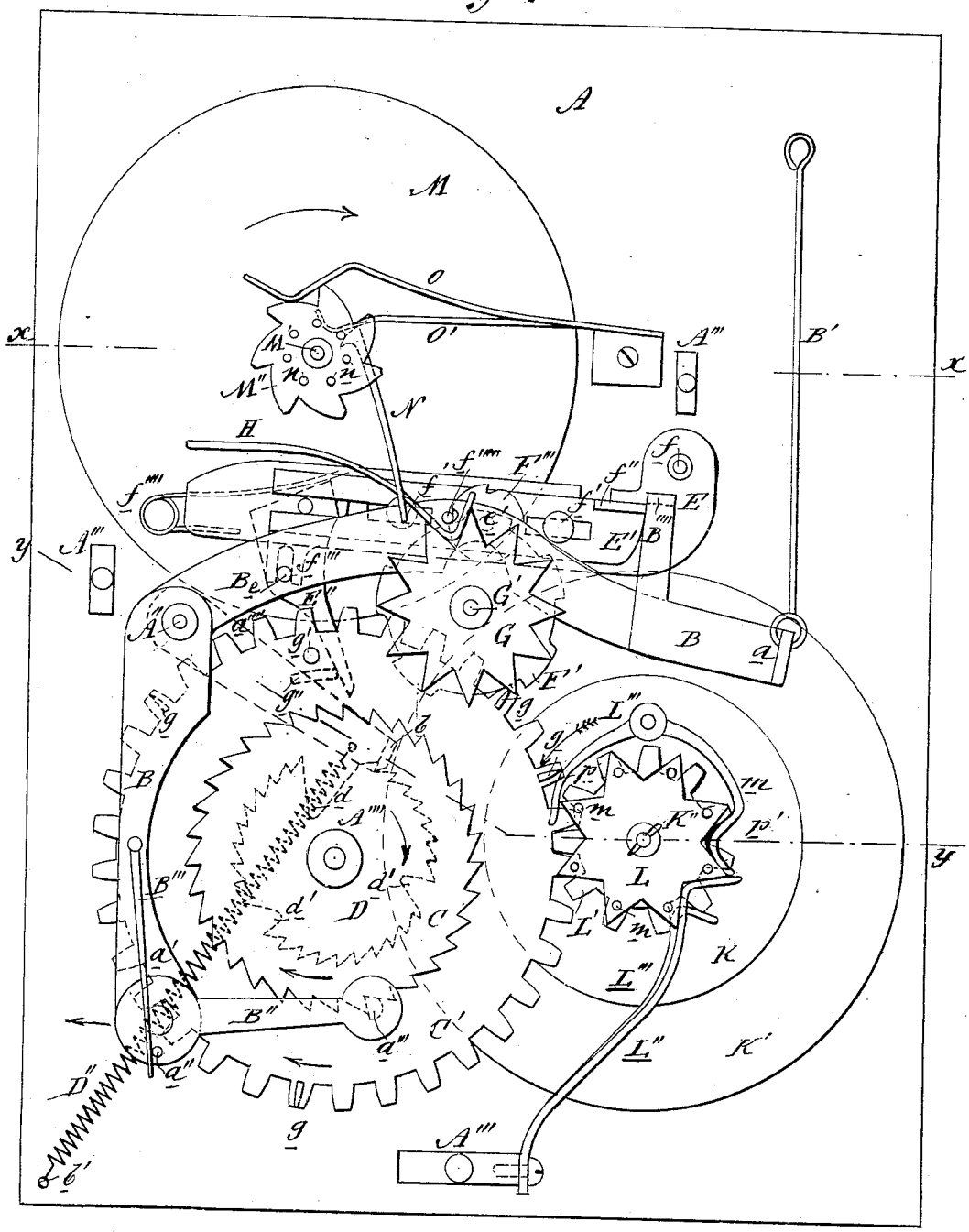
2 Sheets—Sheet 1.

P. WAGNER.

Calendar Clock.

No. 234,355. Patented Nov. 9, 1880.

Fig. 1



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C. Seugnick

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ATTORNEYS.

(Model.)

P. WAGNER.

Calendar Clock.

2 Sheets—Sheet 2.

No. 234,355.

Patented Nov. 9, 1880.

Fig. 2

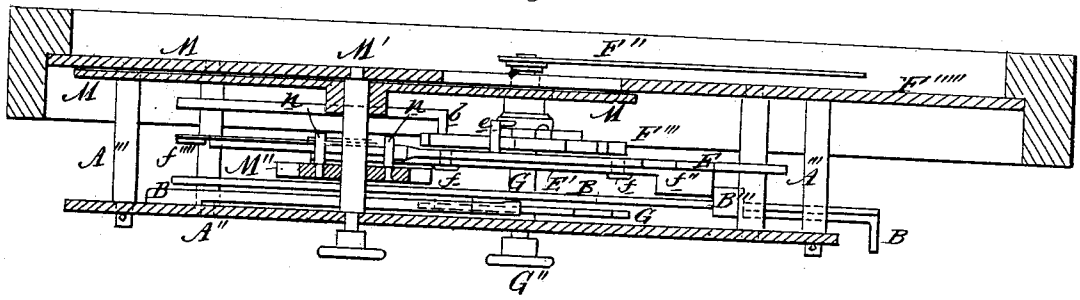


Fig. 3

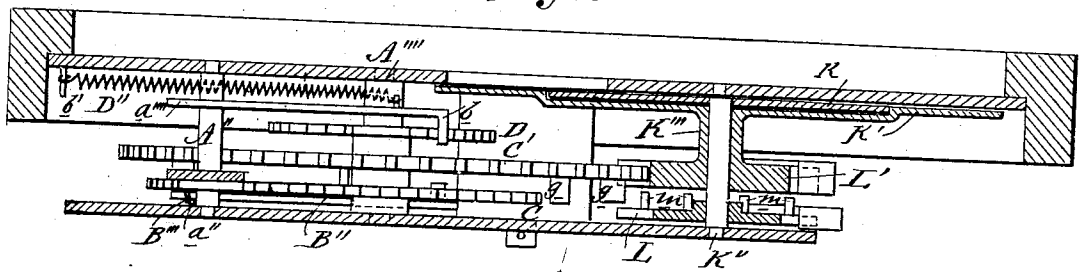
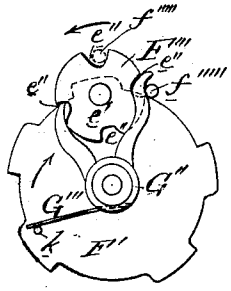
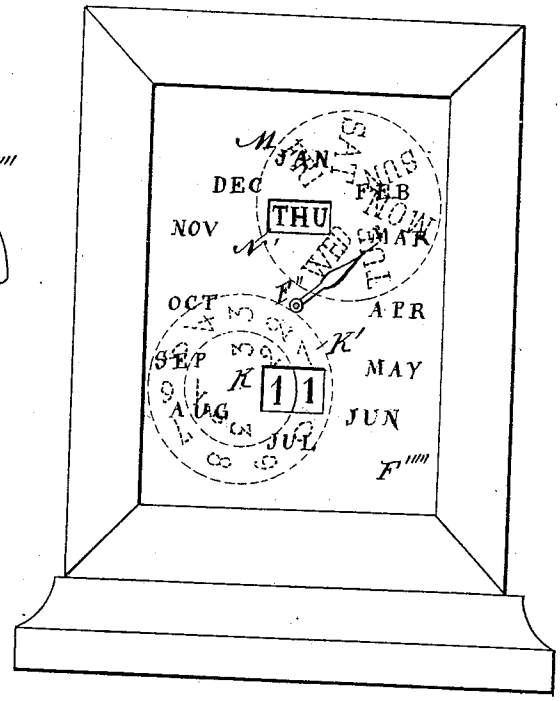


Fig. 5

Fig. 4





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UNITED STATES PATENT OFFICE.

PETER WAGNER, OF NEW YORK, N. Y.

CALENDAR-CLOCK.

SPECIFICATION forming part of Letters Patent No. 234,355, dated November 9, 1880.

Application filed June 11, 1880. (Model.)

To all whom it may concern:

Be it known that I, PETER WAGNER, of the city, county, and State of New York, have invented a new and Improved Calendar for Clocks, of which the following is a specification.

The object of this invention is to provide a calendar to be attached to a clock and operated in connection therewith that shall exhibit but one number or date at a time, and that number or date in larger or plainer figures than can be done in other calendars of like dimensions.

The invention consists of a dial composed of a disk surrounded by a flat ring, both revolving in the same plane and direction, and moved by novel mechanism, hereinafter described, so that said ring shall revolve a full turn and present all its figures in rotation to each figure or the presentation of each figure on the said disk, the said ring having marked on its face the numerals from 1 to 9, inclusive, arranged in regular order and equidistant from each other, and immediately succeeding the additional figures 0 and 1, that begin the series, as follows: 0 1 1 2 3, &c., and the said disk having on its face two series of the figures 1 2 3, said series being separated from each other at either end by a blank occupying the space of one figure; and it consists, further, of a fixed dial or face-plate having the names of the months plainly marked on it, and of a pointer or index-hand moved by a novel mechanism to successively point at said names of the months; and, further, of novel mechanical parts and combinations of parts, all of which is hereinafter described.

Figure 1 is a rear elevation of the device with the back plate removed. Fig. 2 is a transverse section on line *x x*, Fig. 1. Fig. 3 is a transverse section on line *y y*, Fig. 1. Fig. 4 is an elevation of that portion of the device that regulates the lengths of the months. Fig. 5 is a front elevation of the device.

Similar letters of reference indicate corresponding parts.

In the drawings, A A′ represent, respectively, the face and back plates of the device, held together and apart by the studs A‴. On the stud A″ is pivoted the main actuating-lever B, whose upper arm, *a*, is connected by rod B′ with a clock, (not shown,) from which the said lever B receives its daily motion. The lower arm, *a′*, of said lever B extends downward, and has pivoted on its lower end a pawl, B″, provided with a stud, *a″*, and an inward-projecting pin, *a‴*, against which stud *a″* a spring, B‴, which is fixed on the arm *a′*, engages, to force said pin *a‴* into the teeth of the ratchet-wheel C, in order to give, by the reciprocating motion of the said pin *a‴*, a step-by-step movement to the said wheel C, and thereby move the toothed day-of-the-month wheel C′ and the ratchet-wheel D, which wheels C′ D are keyed on the same stud, A⁗, as the ratchet C, said ratchet-wheel D being designed to prevent the toothed day-of-the-month wheel C′ from moving more than one step or tooth at a time. Said ratchet-wheel D had originally thirty-three equidistant teeth, of which three are cut away at the point *d* and one each from the points *d′ d′*, thereby leaving said ratchet D with twenty-eight teeth, that represent the number of days in the month of February, excepting leap-year.

The third and central arm, *a⁗*, of said lever B is fixed on the stud A″, and extending downward has its free end hooked, so that when at rest said hook *b* engages in the ratchet D, thereby holding said ratchet D in position, which ratchet D has its teeth pointing in a direction which is the reverse of its own motion, and to the teeth of the ratchet C, each tooth of said ratchet D operating as a catch to engage the hooked end of arm *a⁗*, thereby preventing said ratchet from moving more than one step or tooth at a time, each step or tooth being equal to one day, and connecting the free end of this arm *a⁗* of the lever B with a pin or stud, *b′*. In the extreme lower corner of the face-plate A of the device is a spiral spring, D″, whose tension and reaction, in combination with the movement of the rod B′, operate all the parts of the device.

On the upper arm, *a*, of the lever B is fixed, as part of said lever, a vertical hook, B⁗, that plays an important part in the jump-over motion, as will be hereinafter set forth.

E is a vibrating lever secured on the shaft *f*, which is journaled with face and back plates

of the device. E′ is a slotted sliding plate secured on the face of said lever E by engagement over the studs f' f' of said lever E, the upper edge of said plate E′ being provided with a right-angled lug, f'', upon which the hook B′′′′ of the lever B engages for the purpose of regulating the jump-over motion at the end of each month, the opposite and lower edge of said plate E′ being provided with a slotted lug, f''', in which engages the pin e of the lever E″, which lever E″ is pivoted on the front of the lever E, and is actuated by the spring f'''', that is also fixed on the front of said lever E. A pin, f''''', projecting centrally from the front of said lever E and resting on the edge of the month-of-the-year wheel F′, holds said lever E up. Keyed on the stud A′′′′, as beforesaid, is the toothed day-of-the-month wheel C′, having thirty-three teeth, on four of which teeth, at certain intervals, are fixed lateral teeth g, that are designed to give a step-by-step motion to the central disk, K, by engagement with the pins m of the star-wheel L, so that the latter may correctly exhibit its numbers or blanks. On the same face of this wheel C′, near its edge, is a lateral projecting pin, g', whose function is to move the indicating month-of-the-year wheel F′. On the reverse of this wheel C′, and near its edge, is a stud, g'', projecting laterally therefrom, which stud g'' engages against the downward-projecting free end of the lever E″.

The indicating month-of-the-year wheel F′, which revolves once a year, together with the star-wheel G, is keyed on the transverse shaft G′, said wheels F′ G being set some distance apart, in order to straddle the wheel C′ and its lateral projecting studs, and also the vibrating lever E.

The end of the shaft G′, which projects through the rear plate, A′, has fixed on it a thumb-piece, G′′′′, by which it may be turned or set, while on the opposite end of the said shaft G′ is fixed the hand or pointer F″, that moves to indicate the months of the year on the face of the outer dial, F′′′′′.

The indicating month-of-the-year wheel F′ has a general circular outline, but is cut away at certain parts of its periphery to correspond with the long months, while one of its raised peripheral points, corresponding with the month of February, carries on a stud, e', the planet-wheel F′′′, that is also of a general circular outline, but is cut away at four opposite peripheral points, so as to form four recesses, e'', one of which is deeper than the others, so that the pin f''''', engaging in said deep recess, shall permit the vibrating lever E to drop lower than at the other three recesses, in order to indicate twenty-nine days in the month of February in every fourth year, instead of the usual twenty-eight days.

On the same shaft G′, and against the face of the month-of-the-year wheel F′, is a forked pawl, G″, (shown in Fig. 4,) which extends upward, with an arm on either side of the planet-wheel F′′′, and so that the left-hand arm shall engage in one of the recesses e'' of the said planet-wheel F′′′ and hold said planet-wheel immovable from the end of the month of February in one year to the first of the said month in the following year, while the other or right arm of said pawl G″ is higher than the left arm thereof, so as to be able to move freely over the face of the said planet-wheel F′′′, said pawl G″ being held in position by a spring, G′′′, one end of which bears against a stud, k, on the face of the wheel F′, while the other end thereof is attached to the pawl G″.

The star-wheel G has twelve teeth, to correspond with the number of months in the year, and revolves one tooth each month, and is held in position by double-beveled or bent spring H, one end of which is made fast to the back plate, A′, said spring H serving to prevent the said wheel G from coming to rest in intermediate or half-adjusted positions.

The day-of-the-month dial consists of a central disk, K, which makes a full revolution once in two months, and is surrounded by a flat ring, K′, which revolves three times a month, each of which disks revolves independently of the other, the central disk, K, being fixed on the revolving shaft K″, and the ring K′ being fixed on a sleeve, K′′′, that turns on the shaft K″, said ring K′, with its pinion L′, being geared into the day-of-the-month wheel C′ and receiving motion therefrom.

On the shaft K″, on which the central disk, K, is secured, is also fitted a star-wheel, L, having eight points or teeth, each point or tooth being provided with a pin, m, projecting inward at right angles toward the pinion L′ of the ring K′, to be engaged by the lateral teeth g of the day-of-the-month wheel C′, and said star-wheel L is held in position by a forked pawl, L′′′′, which has one plain pointed and one double-bevel-pointed arm, p p', respectively, while on the sleeve K′′′ of the ring K′ is fixed a pinion, L′, having eleven peripheral teeth.

The face of the disk K is provided with six figures and two blanks, as indicated in Fig. 5, while the outer ring, K′, has on its face eleven numbers or figures, as indicated in Fig. 5.

The double-beveled springs L″ L′′′ are fastened to a lower stud, A′′′, and bear against the peripheries of the star-wheel L and pinion L′, and thereby operate to prevent them from coming to rest at intermediate or half-adjusted positions.

The day-of-the-week dial M is fixed on a revolving shaft, M′, and has radially arranged on its face the names of the seven days of the week, and it revolves once a week, to exhibit the names of the days of the week in rotation through the aperture N′. On the same shaft M′ is fixed a seven-toothed ratchet-wheel, M″, from the inner face of which seven pins, n, project at right angles. A hook, N, attached to the upper arm of the lever B engages step by step or successively with these pins n, so as to

move the dial M around sufficiently to present in regular order, once a day, another day-name at the opening N′ in the face of the plate A.

The ratchet-wheel M″ is held in position by means of the double-beveled and bent springs O O′, respectively, the former, O, operating to prevent said ratchet M″ from coming to rest at intermediate or half-adjusted positions, while the latter, O′, operates to stop the momentum of said ratchet M″ under the influence of the spring O.

The operation of this device is as follows: Motion being transmitted from the twenty-four-hour wheel of a clock, (not shown,) through the rod B′, to the main lever B, the latter is elevated, so that the pin or stud a''' of the pawl B″ is moved forward and engaged with another tooth of the ratchet-wheel C. By this raising of the lever B the tension of the spring D″ is increased, and consequently the lower end of the lever B is moved outward, and the pawl B″ thereby made to carry the wheel C′, with its attachments, forward one or more teeth, as the case may require. As the wheel C′ gears into the wheel L′ the said wheel L′ is turned by the movement of said wheel C′, and thereby the ring K′ is made to show at each step or movement another figure at the lower opening in the front plate, A, of the device. The lateral teeth g of the wheel C′, as the said wheel C′ revolves, engage against the arm p of the pawl L′′′′, causing said pawl L′′′′ to move outward and release the hold of its arm p' from the teeth of the star-wheel L. Then the teeth of the wheel C′ engage with the pins m of the said star-wheel L and move said star-wheel L one tooth or step forward, and cause said wheel L to move its connected disk K to exhibit a new figure at the opening in the face-plate A in unison with the ring K′, which ring K′ is moved independently to present a new figure by every tooth of the wheel C′.

At the end of every month the pin g' of the wheel C′ also engages with the star-wheel G and brings said wheel G forward one tooth, thereby causing the pointer F″ to point toward and indicate the name of another month on the face-plate or dial F′′′′′, on which dial the names of the months are permanently arranged.

The stud g'' of the wheel C′, at the end of every month, or thereabout, engages the lever E″ and moves said lever E″ forward, and with and by means of it the sliding plate E′, which plate E′ presents its lug f'' to the vertical hook B′′′′ of the lever B, for the said vertical hook B′′′′ to rest upon for periods of from one to three days, from the 28th to the 31st days of a month, as the case may be, to thereby regulate or indicate the number of days in the month.

When the vibrating lever E rests, with its pin f'''', in a cut-away part or depression of the indicating month-of-the-year wheel F′, the lever E″, pivoted to the free end of said lever E, and with it the sliding plate E′, will be forced forward, so that the vertical hook B′′′′ of the main actuating-lever B will, on its daily descent, engage the lug f'' of the sliding plate E′, and be there held or stopped on its daily descent by the contact of the stud g'' of the day-of-the-month wheel C′ with the lever E″ for the length of three teeth, or three days, so as to make the length of the month thirty-one days; and when the vibrating lever E is resting on the raised peripheral part of the month-of-the-year wheel F′ the said lever E will be held for the space of two days, or two teeth of the day-of-the-month wheel C′, thereby making the length of the month thirty days; and when resting in the deepest depression in the planet-wheel F′′′ the said lever E will be held for the space of one day, or one tooth of the day-of-the-month wheel C′, thereby making the length of the month twenty-nine days; and when resting in the other three slighter depressions, e'', of the planet-wheel F′′′ the lever E is held so high that the stud g'' cannot reach the lever E″. Consequently the main lever B will drop the whole distance of the cut-away part of the ratchet D, which is equal to four days, or, in other words, the dials, after having shown the 28th day of February, will jump the distance of four teeth, and therefore show the 1st day of March. The left arm of said pawl G″ is released from a recess, e'', of the planet-wheel F′′′ on the 1st of February of each year by its right arm, which is in contact with the pin f''''' of the vibrating lever E, being pressed to the left by the movement of the month-of-the-year wheel F′ as said wheel F′ moves one tooth from January to February; and as the right arm of said pawl G″ is thus disengaged the pin f''''' becomes engaged in the right-hand recess, e'', of the planet-wheel F′′′, and as the wheel F′ completes its movement the said pin f''''' is raised to the position shown in Fig. 4 of the drawings at the top of planet-wheel F′′′, and the pawl G″ is thereby released and forced back to its position in the next recess by the spring G′′′.

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

1. In a clock-calendar, the actuating-lever B, provided with arms a a' a'''', connected pawl B″, and spring D″, substantially as herein shown and described, whereby all the mechanism of the said calendar is operated, as set forth.

2. In a clock-calendar, the combination, with the toothed day-of-the-month wheel C′, of the ratchet-wheel C and pawl B″, provided with pin a''', substantially as herein shown and described, whereby said day-of-the-month wheel is moved, as set forth.

3. The combination, with the stud A′′′′ and day-of-the-month wheel C′, of the ratchet-wheel D and hooked arm a'''' of the lever B, substantially as herein shown and described, whereby said wheel C′ is locked or held in position, as set forth.

4. In a clock-calendar, the ratchet-wheel D, having a three-day jump-over depression, d,

and two one-day jump-over depressions, d' d', for regulating the number of days of the month, substantially as herein shown and described.

5. In a clock-calendar, the combination, with the vibrating lever E, provided with studs f' f' and pin f''''', slotted sliding plate E′, provided with lugs f'' f''', of the hook B′′′′ of the lever B, substantially as herein shown and described, whereby the jump-over motion at the end of each month is regulated, as set forth.

6. In a clock-calendar, the combination, with the indicating month-of-the-year wheel F′, having raised peripheral points and peripheral depressions, of the day-of-the-month wheel C′, provided with projecting pin g', substantially as herein shown and described, whereby the motion of the said wheel F′ is regulated, as set forth.

7. In a clock-calendar, the combination, with the month-of-the-year wheel F′, provided with stud e', and planet-wheel F′′′, having four recesses, e'', of the forked pawl G′′, substantially as herein shown and described, whereby the said planet-wheel F′′′ is held from the end of one month of February to the beginning or 1st of the succeeding February, as set forth.

8. In a clock-calendar, the central day-of-the-month dial-disk, K, provided with six figures and two blanks on its face, in combination with the dial-ring K′, provided with eleven numbers or figures, substantially as set forth, said disk and ring revolving in the same plane and direction.

9. In a clock-calendar, the combination, with the dial-disk K and dial-ring K′, of the eight-pointed star-wheel L, provided with pins m, pinion L′, and forked pawl L′′′′, substantially as and for the purpose described.

PETER WAGNER.

Witnesses:
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