

(No Model.)

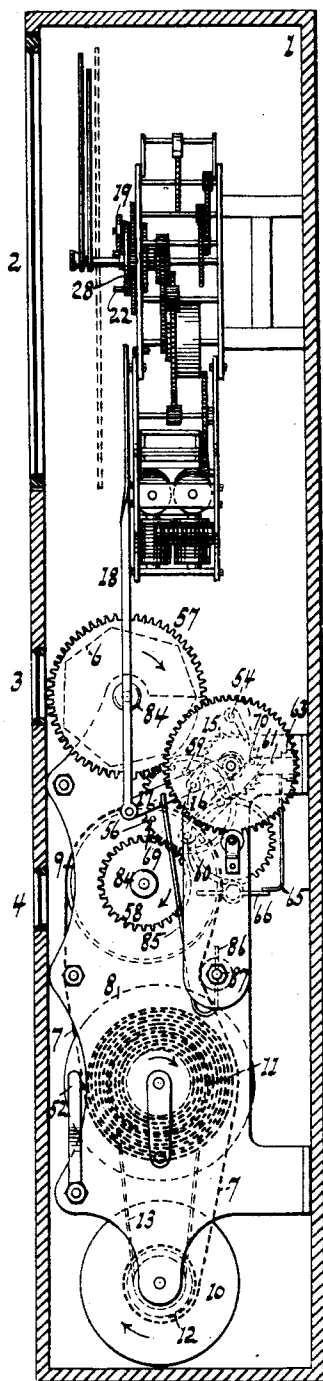
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C. I. FOWLER.
CALENDAR CLOCK.

No. 543,237.

Patented July 23, 1895.

Fig. 1.



WITNESSES:

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Chas. E. Foenig

INVENTOR:

Charles I. Fowler

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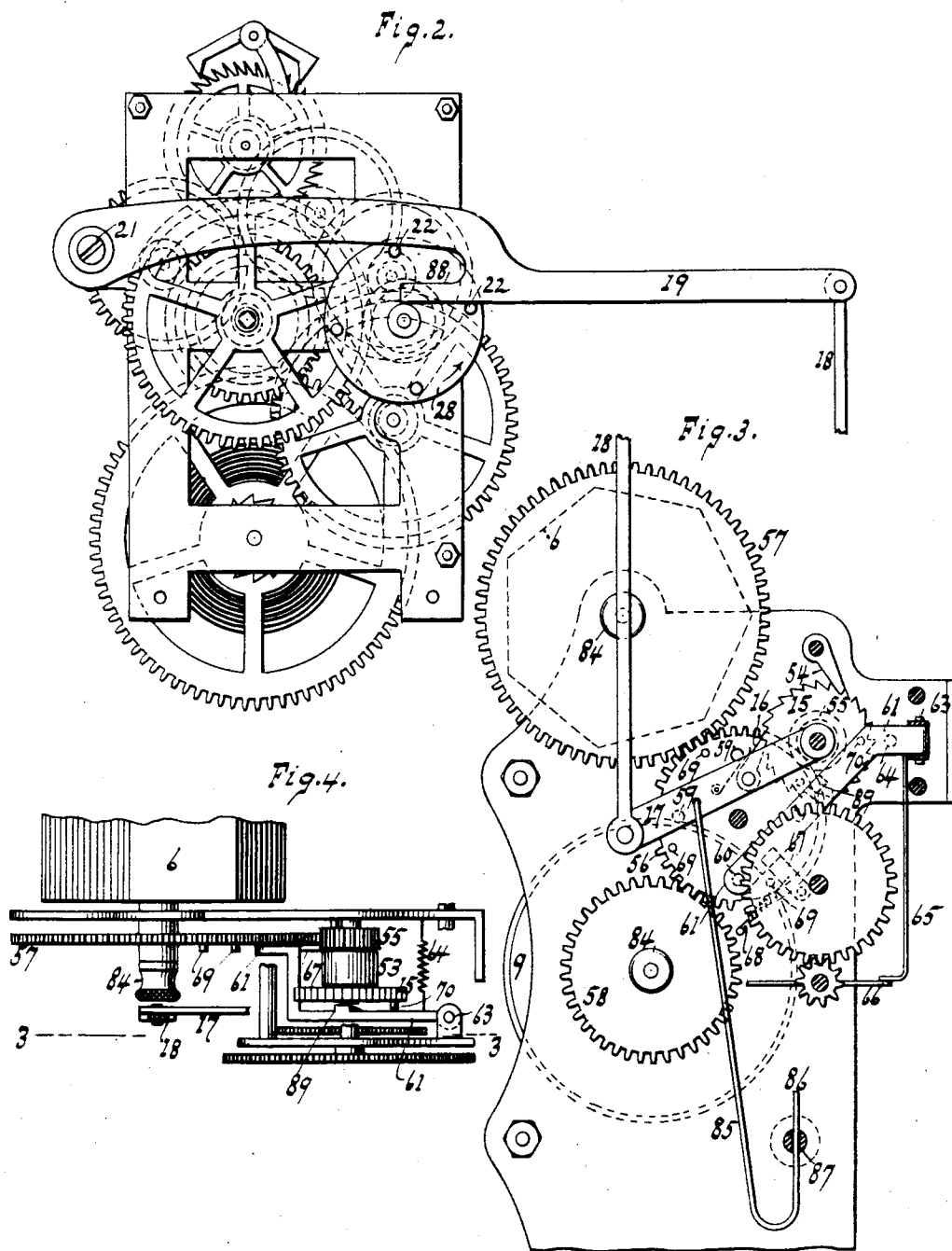
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UNITED STATES PATENT OFFICE.

CHARLES I. FOWLER, OF NEW YORK, N. Y.

CALENDAR-CLOCK.

SPECIFICATION forming part of Letters Patent No. 543,237, dated July 23, 1895.

Application filed April 18, 1895. Serial No. 546,228. (No model.)

To all whom it may concern:

Be it known that I, CHARLES I. FOWLER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Calendar-Clocks, of which the following is a specification.

The object of this invention is to provide a calendar-clock of simple construction, and which is easily set and manipulated; and the invention resides in the novel features of construction set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a calendar-clock, the case being sectioned open for exposure. Fig. 2 is a front elevation of a winding-lever with a clock-movement. Fig. 3 is a section along 3 3, Fig. 4, showing a calendar-movement. Fig. 4 is a plan view of the calendar-movement.

The casing 1 has three windows or sight-openings 2 3 4. Through window 2 the clock dial and hands are exposed to view. Through window 3 the day of the week is exposed, the week-days being noted on the faces of the heptagonal roller 6. Through window 4 the date or day of the month is exposed, these dates being noted on date-strip 7, which is drawn or rolled off from delivery-roller 8 by the friction or propelling roller 9 onto take-up roller 10. The pulleys 11 and 12 with belt 13 cause the take-up roller 10 to rotate with delivery-roller 8.

The pulley and belt connection 11, 12, and 13 is such that the take-up roller 10 has always a tendency to rotate faster than the delivery-roller 8, so as to take up any slack in strip 7, but said roller 10 is never allowed to draw any portion of the strip from the delivery-roller, as irregularities might thus occur in consequence of the constantly-varying diameters of the rolls on rollers 8 and 10. The belt 13 is therefore made so slack or of such springy or elastic material, and the pulleys 11 and 12 are so smooth that any motion in excess of that required to make roller 10 take up the slack of the date-strip is lost as regards said roller 10 by the pulley 11 slipping with relation to belt 13 or by said belt slipping with relation to pulley 12.

Pressure of a spring 52, Fig. 1, on delivery-

roller 8 will aid in preventing the improper rotation of rollers 8 and 10. The strip is thus taken from roller 8 in a uniform and proper successive step-by-step motion by the propelling-roller 9, and weighted arms may be applied, as known, to cause the strip 7 to lie firmly against or part way about roller 9, to be securely gripped or propelled by the latter. For additional gripping the surface of roller 9 may be sanded or roughened.

The day-roller 6 and driving-roller 9, as will presently appear, are driven by a spring or motor 53, Fig. 4, wound by ratchet and pawl 15 and 16, Fig. 3, said pawl 16 being mounted on and actuated by arm 17, oscillated by link 18 and lever 19, Fig. 2, fulcrumed at 21. This lever 19 extends transversely across a clock-movement and onto or into the path of a stud 22 (one or more) carried by wheel or by drum 28 of the clock-movement. As the studded wheel or drum 28 rotates to carry about the stud 22 the consequent rise and fall of lever 19 will oscillate arm 17 to wind the spring or motor 53, so that the winding of this motor 53 is accomplished automatically.

The lock-pawl 54 preserves the tension or energy of the motor 53 until needed. This motor, by means of gear 55, Fig. 3, imparts motion to the driving-gear 56, engaging the gears 57 and 58, secured to the shafts of rollers 6 and 9. The wheel 56 is held against rotation by having an eye or depression 59, Fig. 3, in its side engaged by a tooth 60 on lever 61, fulcrumed at 63 to a suitably-applied frame-plate. The lever 61 is approximately L-shaped for bringing the tooth 60 into proper position to engage into the eyes 59, as required. The spring 64 tends to move lever 61 into position for the tooth 60 to engage into an eye 59. In addition to tooth or detent 60 the lever 61 carries an arm 65, Fig. 3, which is adapted to act as a detent for the fly 66 of the calendar-moving train driven by motor 53.

The lever 61, as will presently appear, is actuated at the suitable period, or midnight, against the force of spring 64 to release the detents 60 and 65, so that the calendar-moving train, with the rollers 6 and 9, will move the next succeeding day and date into exposure, after which the detents 60 and 65 again come into arresting action.

The detent 60 should, of course, be held out of action until the wheel 56 has fairly started to carry the eye 59, just released by detent 60, out of reach or past said detent, so that the wheel 56 will give the rollers 6 and 9 the proper degree of movement. For this purpose a lock is provided for holding the detent 60 as well as detent 65 when released temporarily out of action. This lock consists of an arm 67, Fig. 3, swung or drawn by spring 68 against a portion of lever 61. Said arm 67 lies alongside the wheel 56, and as soon as lever 61 moves with the tooth 60 to releasing position away from wheel 56, said spring 68 will draw or snap the arm 67 in between the lever 61 and the wheel 56, so as to hold the tooth 60 away from engagement until, by the rotation of wheel 56, the eye 59 just released by tooth 60 has traveled out of reach of said tooth and one of the studs 69, projecting from a side of said wheel, has been carried against arm 67 to move the latter out of the way of lever or arm 61, so that this arm is free to be moved by spring 64 back to engaging position for locking tooth 60 into the next succeeding eye 59. The eyes 59 are properly spaced with relation to the calendar-moving train, so that between a successive release and arrest by tooth 60 this train will move sufficiently to cause the rollers 6 and 9 to make an advance for a day and a date.

In the drawings the wheel 56 is shown with four eyes 59 and four studs 69; but this number of eyes and studs can manifestly be varied as required by varied gearing or speeding of the calendar-moving train.

The arm 61 when moved to release or engage detent 60 will, of course, at the same time release or engage the fly detent 65.

The cylinders 6 and 9 being secured to their gears 57 and 58 by screws 84, the loosening of said screws will enable the cylinders to be set as required without affecting the gears.

In addition to the fly-detent 65 another fly-detent 85 and 86, carried by the winding-arm 17, will have its free end 86 in the way of said fly to prevent its rotation while the arm 17 is in elevated position, or rising, or while said arm 17 makes a winding stroke, but when said arm oscillates down or drops on its return from a winding stroke, the detent 85 86 will be out of the way of the fly. A suitably slotted or perforated post 87 will guide the detent 85 86 in its oscillations with arm 17.

The lever 61 is shown with a projecting incline or nose 89, Fig. 4, and the ratchet 15 is shown provided with a stud 70, said ratchet

being rotated so as at the proper time, say midnight or thereabouts, to move or sweep the stud 70 past the suitably-projecting nose or part 89 of lever 61 to press the latter to releasing position against the action of spring 64. The driving-gear 56 will be released as the releasing-movement of lever 61 withdraws tooth 60 from the driving-gear to allow the latter to properly advance cylinders 6 and 9.

The ratchet 15 should be so set that the stud 70 while sweeping past nose 89 will never come to rest while in contact with said nose, so that the lever 61, after a releasing movement will not fail to properly re-engage its tooth 60 with driving-gear 56.

The lever 19, actuated by studs 22 on wheel or drum 28, has a shoulder 88 for the engagement or impact of studs 22, said shoulder being recessed or re-entering to allow a stud 22 to enter said recess for permitting the setting back of the clock-movement for a certain distance.

The clock-movement can be driven by any suitable power, as an electric motor, or a spring or weight, as known.

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

1. A calendar movement and a motor train therefor, provided with a fly, combined with a winding arm for winding the motor, and fly detents and releasing mechanism substantially as described, one of said fly detents being carried by said arm substantially as described.

2. A calendar movement and a motor therefor, combined with a winding ratchet and pawl for said motor, a driving gear actuated by said motor, and a detent lever made to extend past the ratchet and into engagement with the driving gear, said ratchet having a releasing stud for the detent lever substantially as described.

3. A calendar movement and a motor therefor, combined with a winding ratchet and pawl for said motor, a driving gear actuated by said motor, and a detent for said driving gear, said ratchet having a releasing stud for the detent, and said detent having an incline or nose placed in the path of the releasing stud substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES I. FOWLER.

Witnesses:

WILLIAM C. HAUFF,
E. F. KASTENHUBER.