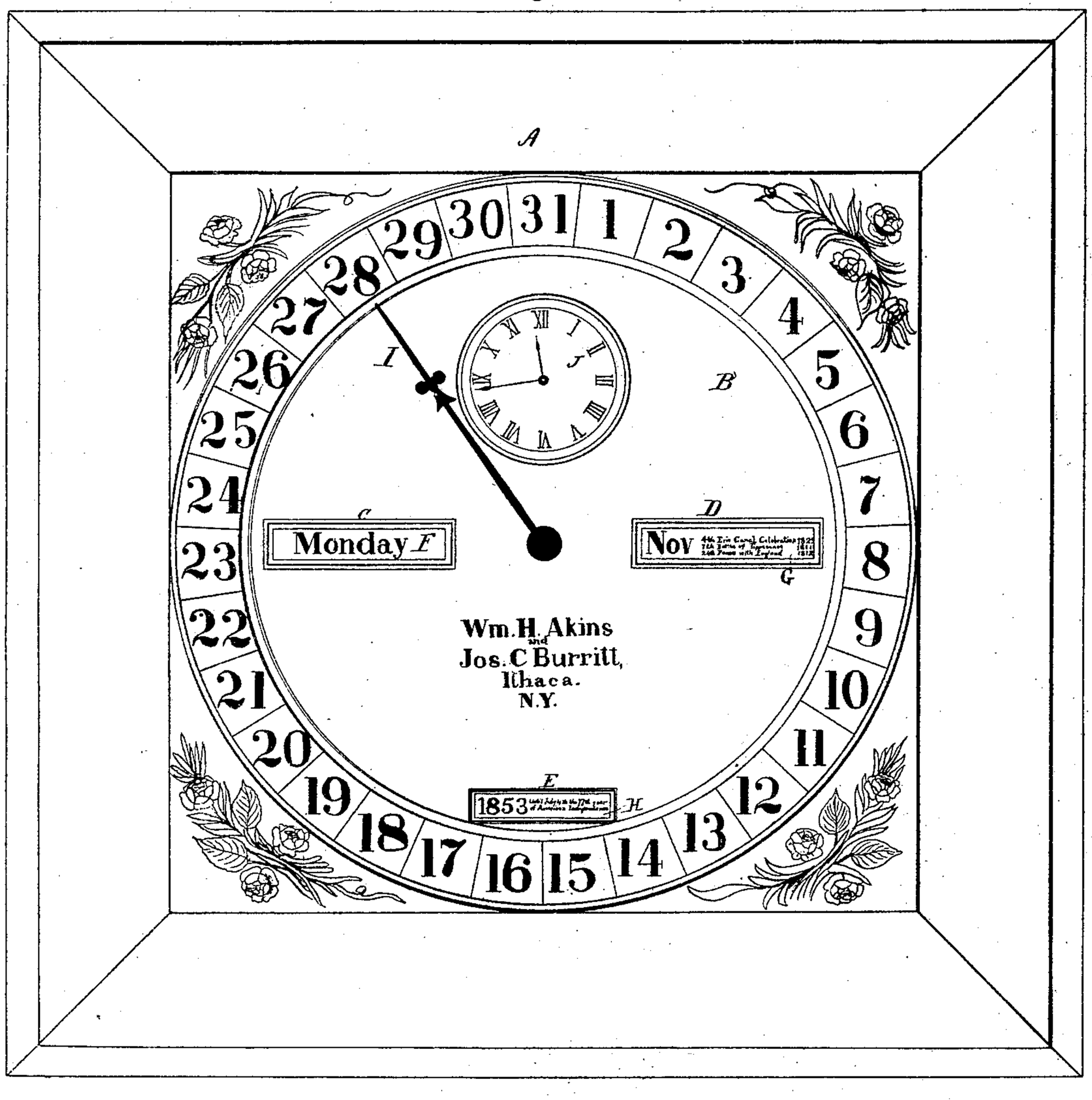
W. H. Akins & J. C. Burritt. Sheet 1. 4 Sheets.

Clock Calendar.

No. 11711 Patented Sept. 19. 1854.

Fig. 1.



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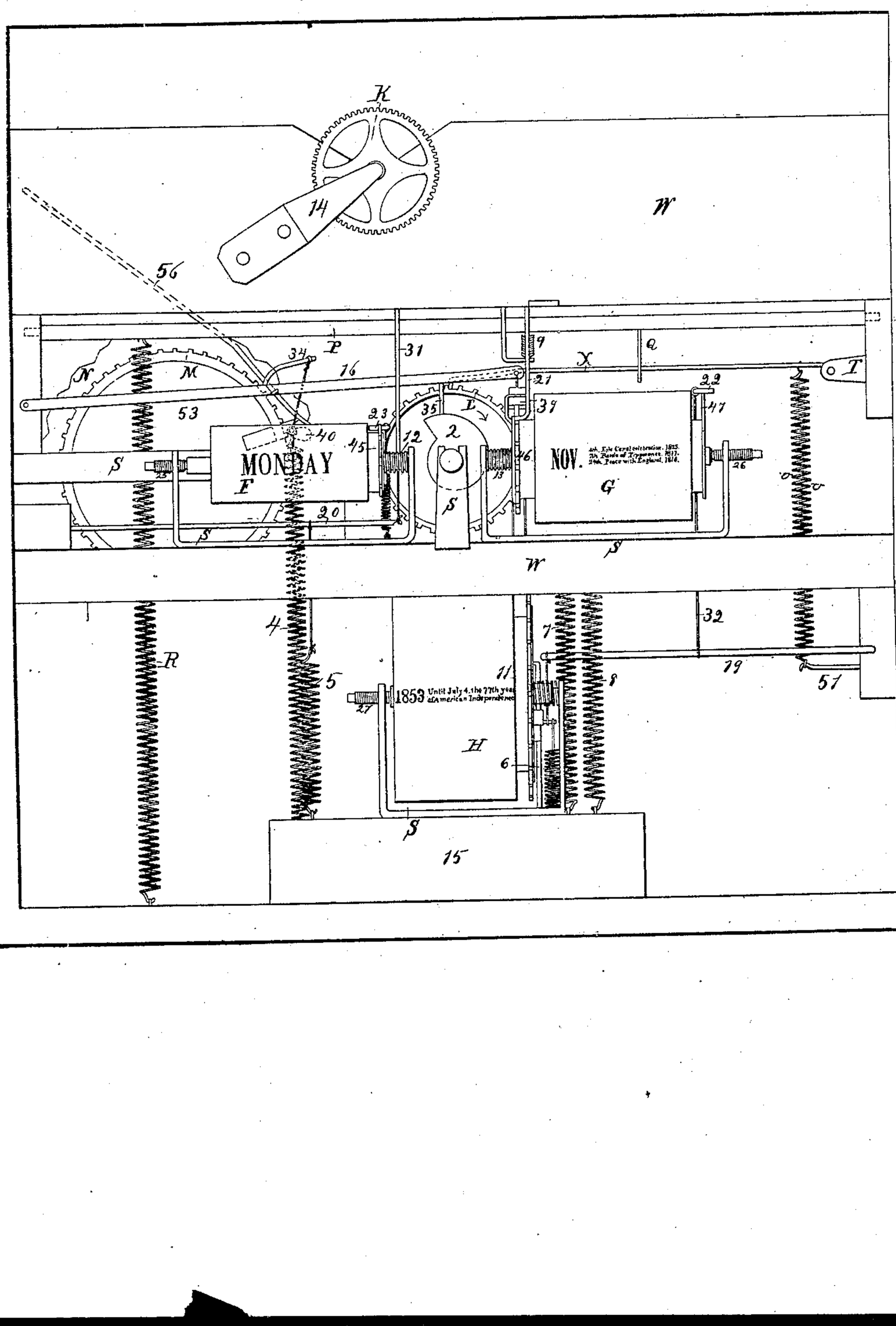
Clock Calendar.

No. 11711. Patented Sept. 19. 1854.

Fig. 2.



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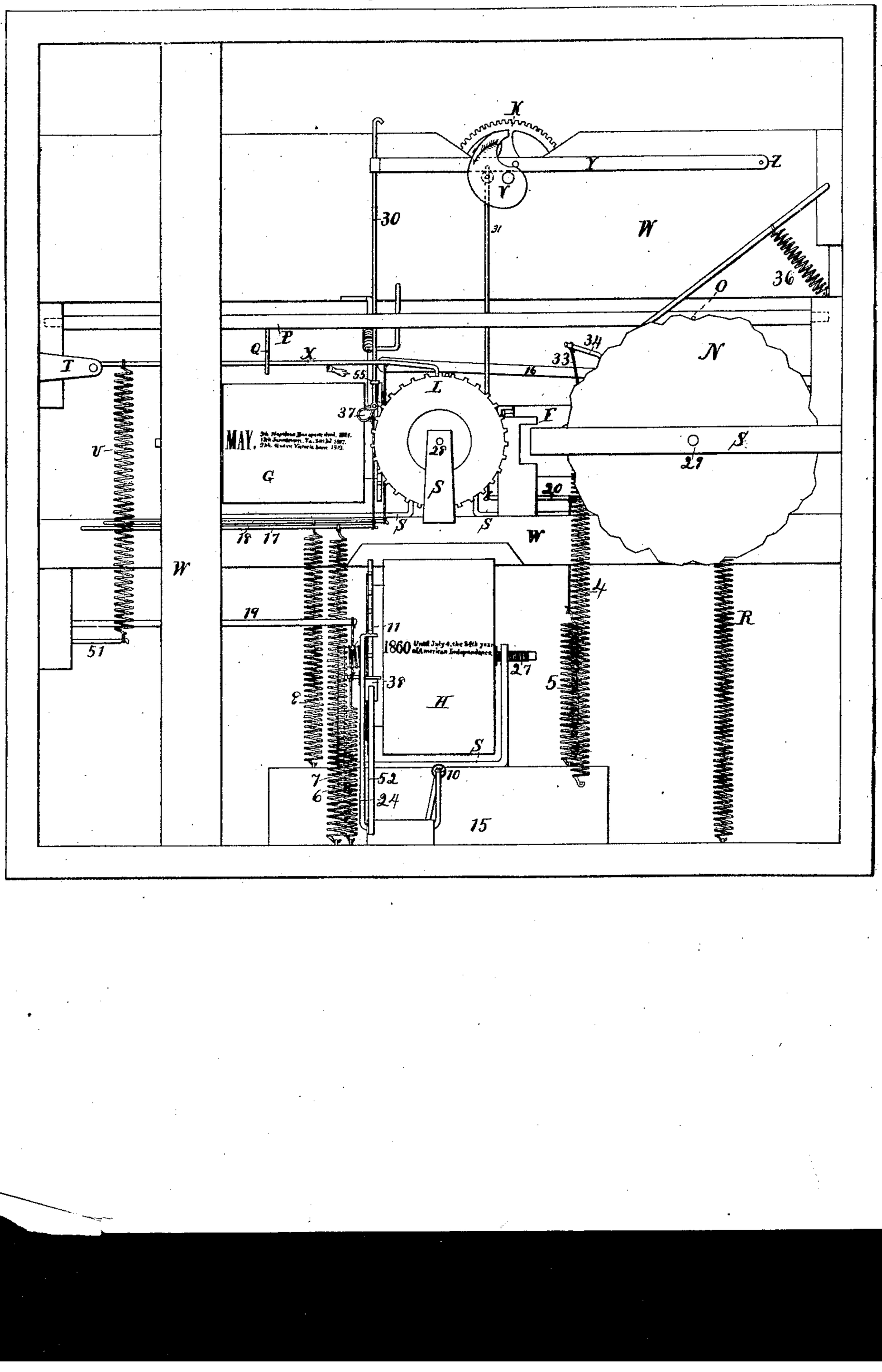
Clock Calendar.

No. 11711. Patented Sept. 19. 1854.

Fig. 3.



W. H. Akins & J. C. Burritt. Sheet 4. 4 Sheets.

Clock Calendar.

No. 11711. Patented Sept. 19. 1854.

Fig. 4.

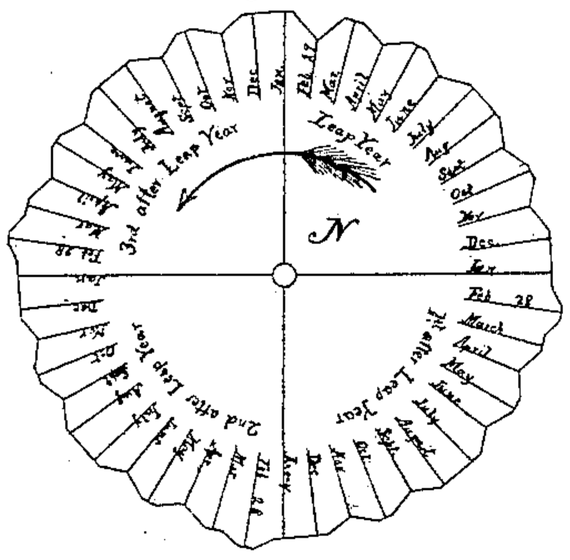


Fig. 5.

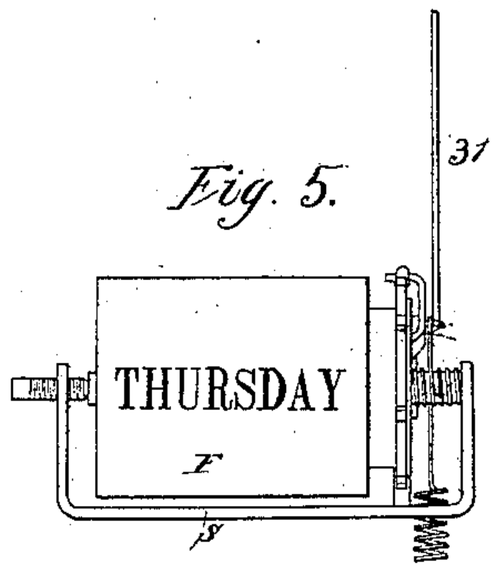


Fig. 6.

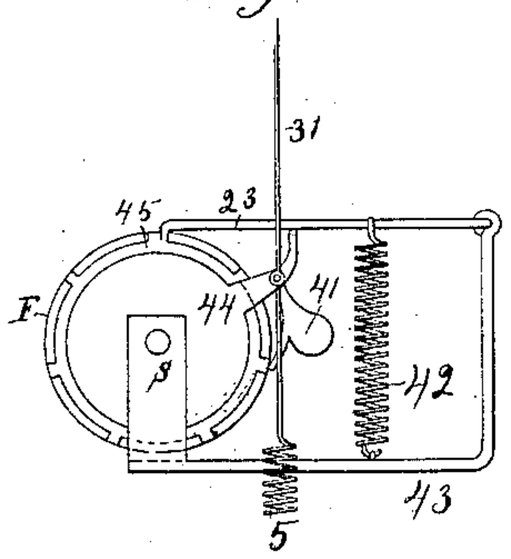


Fig. 7.

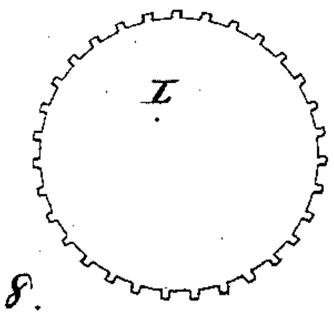


Fig. 8.

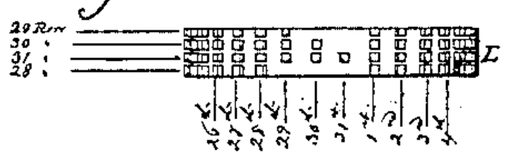


Fig. 9.

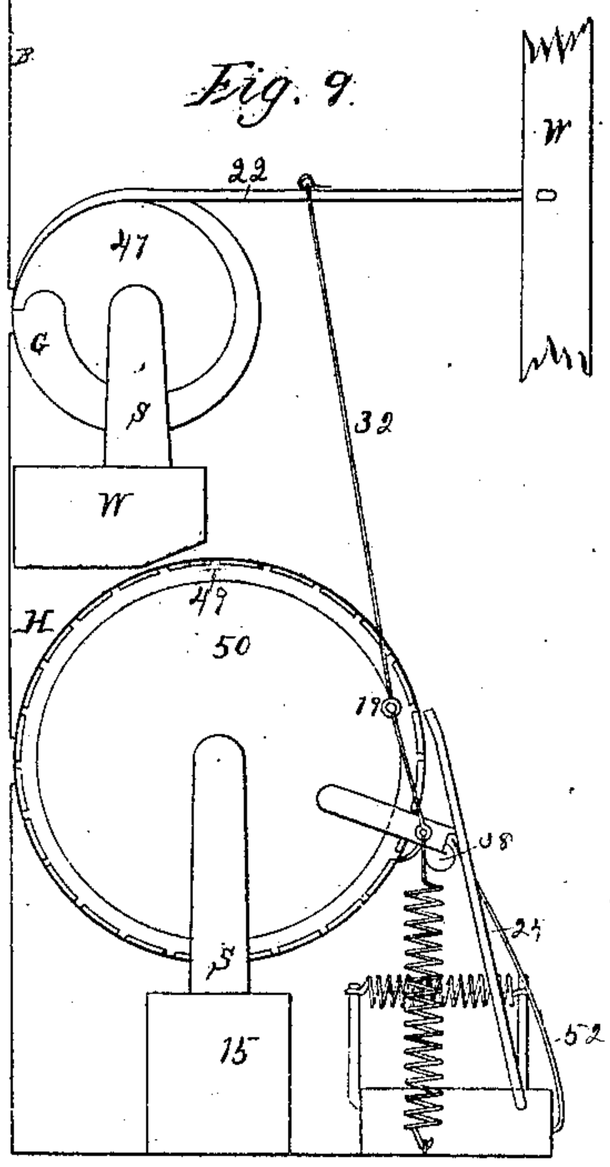
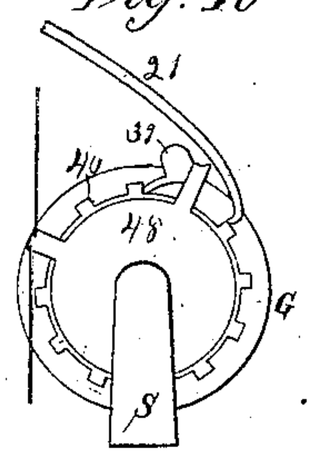


Fig. 10



UNITED STATES PATENT OFFICE.

WILLIAM H. AKINS AND JOSEPH C. BURRITT, OF ITHACA, NEW YORK, ASSIGNORS TO WILLIAM H. AKINS.

CALENDAR CLOCK.

Specification forming part of Letters Patent No. 11,711, dated September 19, 1854; Reissued November 2, 1869, No. 3,694.

To all whom it may concern:

Be it known that we, WILLIAM H. AKINS and JOSEPH C. BURRITT, of Ithaca, in the county of Tompkins and State of New York, have jointly invented a new and useful machine, a Perpetual Calendar and Chronological Timepiece Attachment; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a front view; Fig. 2, front view, with face removed; Fig. 3, back view, with back of case removed; Fig. 4, sectional view, showing plate N; Fig. 5, sectional view, showing side of roller F; Fig. 6, sectional view, showing end of roller F, with machinery for moving it; Fig. 7, side view of wheel L; Fig. 8, face view of wheel L, showing the arrangement of teeth and spaces; Fig. 9, end view of roller G, and helix 47, and also end of roller H; Fig. 10, end view of roller G, and machinery for moving it.

A, the case; B, dial, showing on its outer edge a circle of figures, from 1 to 31, inclusive, representing the days of the month, and having thereon three apertures, C, D and E; F, roller, shown through the aperture C, and having thereon the several days of the week. G, roller shown through the aperture D, having thereon the names of the several months, and also various chronological data; H, roller, or combination of rollers, with figures thereon, so arranged as to exhibit, by the action of the rollers, the year, and also various chronological data; I, hand, or pointer, pointing out the proper day of the month, in the circle, on the outer edge of the dial B; J, time dial, showing the hour of the day; K, wheel, connecting the calendar and time movement, and revolving once in twenty-four hours; L, wheel, revolving once in each month, having four rows of teeth, on its periphery, all beginning on a line across the edge of the wheel, parallel with its axis—one row, having thirty-one equal divisions, or teeth, and to be used in all the months having thirty-one days; one row, having thirty teeth, or divisions, having the 31st tooth removed, to be used for all the months having thirty days; one row, having twenty-nine teeth (having the 30th and 31st teeth removed) to be used only in the month of February, of leap year; one row, having thereon twenty-eight teeth (having the 29th, 30th and 31st teeth removed) to be used in the month of February, in the first, second and third years after leap year; M, wheel, having 48 teeth, and is firmly attached to the side of plate N, with the corrugated edge, and revolving once in 48 months, or four years, the corrugated edge of plate N, raising and lowering the arm O, in the rocking shaft P, so as to keep the detent, or stop X, resting on the wheel L, by means of the slotted arm Q, on the row having 31 teeth, during the months of January, March, May, July, August, October and December, and on the row having 30 teeth during the months of April, June, September and November; and on the row having 29 teeth, during the month of February of leap year; and on the row having 28 teeth, during the month of February in the first, second and third years after leap year, the arm O, being kept in close contact with the corrugated edge of the plate N, by the spring R, as the plate revolves, the said plate moving forward one tooth at the beginning of each month.

S, S, S, S, S, are stands, supporting the wheels L and M, and the rollers, F, G and H; T, stand, supporting the detent or stop X; U, spring, serving to draw the detent X, into place between the teeth of the wheel L, when allowed, by the helix V, so to be drawn; V, helix, or snail, attached to the shaft of wheel K, connecting the attachment and time movements, and revolving once in 24 hours. (Shown in Fig. 3.) W, W, W, bars, to which the time movement, and other fixtures, are attached. X, detent, or stop, with hinges so arranged, and so attached to stand T, as to permit both of a horizontal and perpendicular movement. Y, lever, attached to the upper bar, W, by a pin or hinge Z; 2, helix, or snail, on the shaft of wheel L; 3, helix, or snail, on the shaft of roller G, and revolving once in twelve months; 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13, springs, the uses of which are explained in the description of operation; 14, stand, to which the connecting wheel K, is attached, at one end; 15, block, to which the stand S, supporting roller H, is attached, or made fast; 16, 17, 18, 19, 20 and 22, levers, or lifting rods, the uses of which are explained in the description of operation; 21, 23, 24 and 56, detents, or stops, the uses of which are given in the description of operation; 25, 26

and 27, screws, supporting on their points one end of the rollers F, G and H, and by which the said rollers are made sufficiently tight to retain their places, until moved by the action of the machinery, when required; 28 and 29, screws, supporting one end of the shafts of wheel L, and the wheel M, having the plate N, attached; 30, 31, 32 and 33, lifting rods; 34, arm, projecting from the side of lever 16; 35, stud, projecting downward from the lever 16, and lying on the side of helix 2; 36, spring; 37, 38, 39, 40 and 41, clicks, dropping between the teeth of their respective wheels; 42, spring; 43, stand, to which detent 23 is attached; 44, plate, running easily on the shaft of roller F and against the side of the wheel 45, having seven teeth, the click 41 being attached by a pin to the arm of plate 44, the extreme end being bent so as to raise the detent 23 when the lifting rod 31 is raised by the helix V; 45, wheel, having seven teeth, and made fast to the end of roller F; 46, wheel, having twelve teeth, and firmly affixed to the end of roller G; 47, helix, affixed to roller G, on the opposite end to the one having the wheel 46 attached; 48, plate, running loosely on the shaft of roller G, and against the side of wheel 46, the click 39 being attached by a pin to the arm of plate 48, the extreme end being bent so as to raise the detent 21 when lever 16 is raised by helix 2; 49, wheel, having twenty-four, or any number of teeth, corresponding with the number of years, to be exhibited, and affixed to the end of roller H; 50, plate, loosely inclosing shaft of roller H, and being kept close to the side of wheel 49 by spring 11, the click 38 being attached to arm of plate 50, the extreme end of said arm being so bent as to raise the detent 24 when lever 22 is raised by helix 47; 51, pin, to which the lower end of spring U, is attached, for the purpose of drawing detent X into place; 52, spring, for throwing click 38 into place; 53, plate, loosely inclosing shaft of wheel M, (and by means of a spring kept close thereto) the click 40 being so attached to the arm of said plate as to drop between the teeth of the said wheel M when raised thereon by arm 34; 54, plate, loosely inclosing the shaft of wheel L, and being kept close to said wheel by spring, pin, or other fastening, to the arm of which is attached click 37; 55, arm, or pin, attached to lifting rod 30, under, and for the purpose of, lifting detent X.

Description of operation. Let wheel L, be in a position to show, by the hand I, the first day of the month: The detent X, resting against the line of teeth indicated for the first day of the month, and on the row having thirty-one teeth, as shown in the sectional drawing, Fig. 8. The roller F, in a position to show Sunday. The roller G, in a position to show January. The roller H, in a position to show 1854; and the wheel M, and attached plate N, in such a position that the arm O, will lie on the way marked January, (second year after leap year,) Fig. 4). The wheel K (connecting the attachment and time movement) having the helix V, on its shaft, and revolving in the direction indicated by the arrow, once in twenty-four hours—raising the lever Y, the lifting rod 31, attached to lever Y, wont raise the plate 44 high enough for click 41, (moving roller F,) to drop over the next tooth above the one on which it stood, before being raised—the bent end of the arm of plate 44, having raised the detent 23, a little above the teeth of the wheel 45, (Fig. 6,)—the rod 30, running loosely through the end of lever Y, and secured from falling out by a hook or nut, at the top, wont, at the same time, raise plate 54, high enough for click 37, to pass over four teeth on wheel L—the arm or pin 55, on the side of rod 30, lifting the detent X, a little above the teeth of wheel L, at twelve o'clock at midnight, the clicks being carried into their places by weights or springs—the helix V, having moved forward enough to let the lever Y, drop, from its outer end—the springs 5 and 8, drawing down the clicks 41 and 37—turning roller F, and wheel L—the detents X and 23, being drawn between the teeth of their respective wheels, by the springs 42 and U, stopping roller F and wheel L, after being moved one tooth, each, the roller F, will show, Monday, and the hand I, will show the second day of the month. The same changes, in the exhibition of the days of the week, and the days of the month, will be produced at every succeeding twelve o'clock, at midnight.

As the wheel L, revolves, the helix 2, on its shaft, raises lever 16, which operates on roller G, and wheel M, in the same way, and by means of similar machinery as lever Y, operates on roller F, and wheel L, on the preceding operation; moving the roller G, from January to February, as wheel L, moves the hand I, to the first day of the succeeding month. At the same time, the wheel M, with plate N, attached, is moved forward one forty-eighth of a revolution—raising the arm C, on the top of the next ray of the plate N, (Fig. 4)—removing the detent X, resting on the row of teeth on wheel L, (Fig. 8) having 28 teeth, (it having stood on the one having 31 teeth, during the preceding month of January—the month of February having only 28) and the plate N, will turn one day forward, at the first day of each month, moving the detent X, backward and forward, on the face of the wheel L, by means of the rocking shaft P, and arms O and Q, so as to show the right number of days in each month, for four years, in which time, the plate N, performs one revolution. The roller G, with helix 47, attached, being

moved forward monthly, as in the preceding operation, wont, consequently, make one revolution in each year—the helix 47, raising the click 38, by the intervening machinery, as shown in Fig. 9—the helix being so placed on roller G, as that the lever 22, will drop from the outer end of the helix, as the roller G, turns from December to January, thus allowing the machinery to turn the roller H, so as to show 1855, at the same moment the other changes are being made, every change being made at precisely twelve o'clock at night.

The entire impulse to the movement of the whole, and every part, of the attachment, is derived from the accompanying time movement.

What we claim as our invention and desire to secure by Letters Patent, is,

1. The arrangement of the four rows of teeth on wheel L, (as shown in Fig. 8) in combination with the corrugated plate N, the detent X, and the arm O, the rocking shaft P, and the slotted arm Q or the equivalent of said arms and rocking shaft, for the purposes set forth.

2. Raising the click 37, over 4, or more, of the teeth of the wheel L, (when run down) on the first day of the month; thereby acquiring a retaining power, sufficient to be used with short months, thus moving the wheel L, carrying the hand I, on the dial, from the 28th day of February, past the 29th, 30th and 31st, divisions of the wheel L, to the Fig. 1, or the first day of March; those teeth, (the 29th, 30th and 31st) being removed, the detent X, stopping the wheel L, at the point marked 1, on Fig. 8, indicating the first day of every month—one tooth, only, being used except at the last day of a short month, the rod 30, slipping through the end of the lever Y.

3. We also claim the combination of the helix V, the lever Y, lifting rod 30, the detent X, the pin 55; the click 37, the wheel L, and spring 7, and for the purposes described that is, giving movement to the wheel L. The rollers F, G, and H, being moved by similar devices.

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JOSEPH C. BURRITT.

Witnesses:
MARTIN AKINS,
ZELIA AKINS.

[FIRST PRINTED 1913.]