

A. FRANKFELD.
Clock-Calendars.

No. 143,618.

Patented Oct. 14, 1873.

Fig. 1.

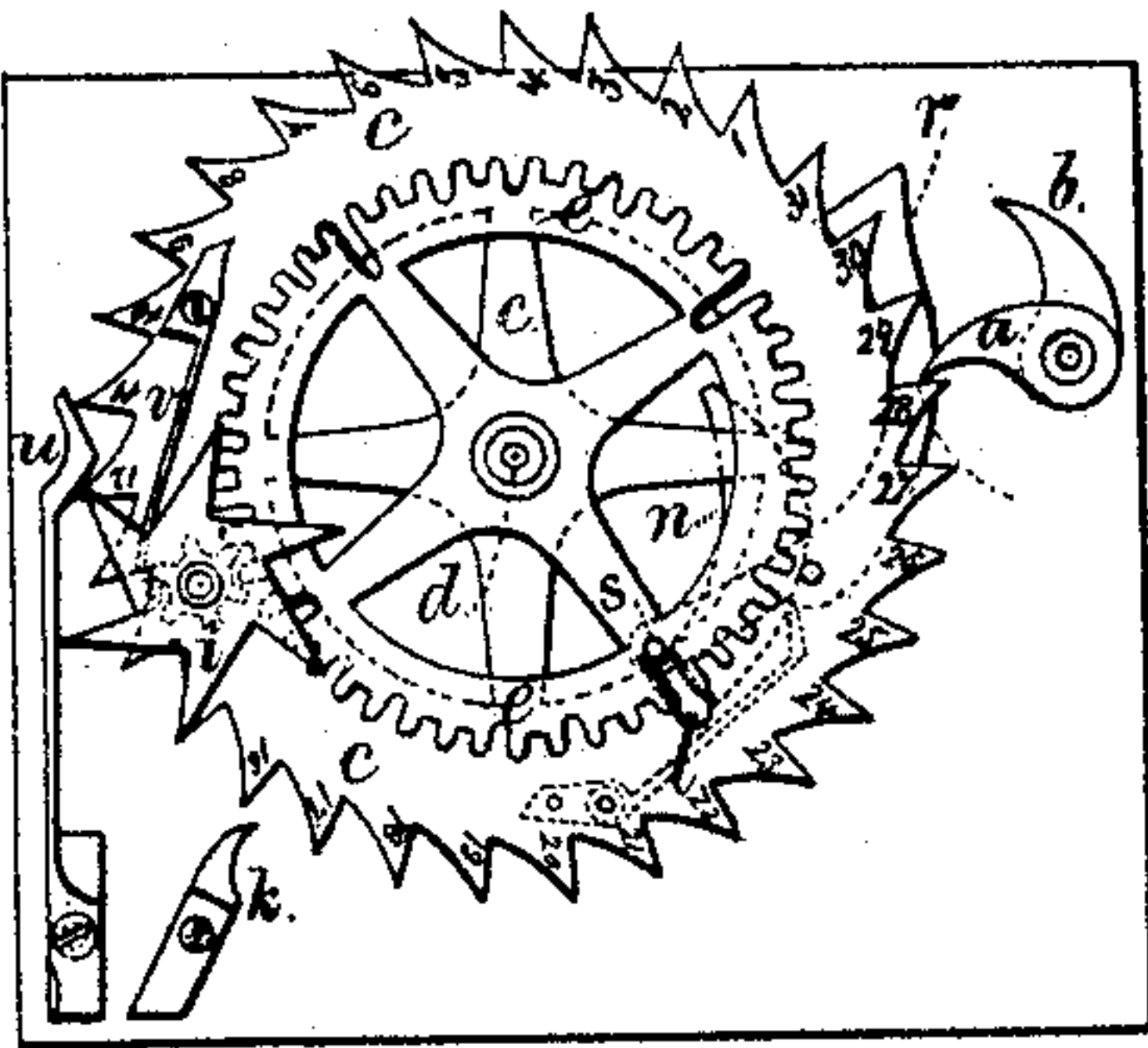


Fig. 2.

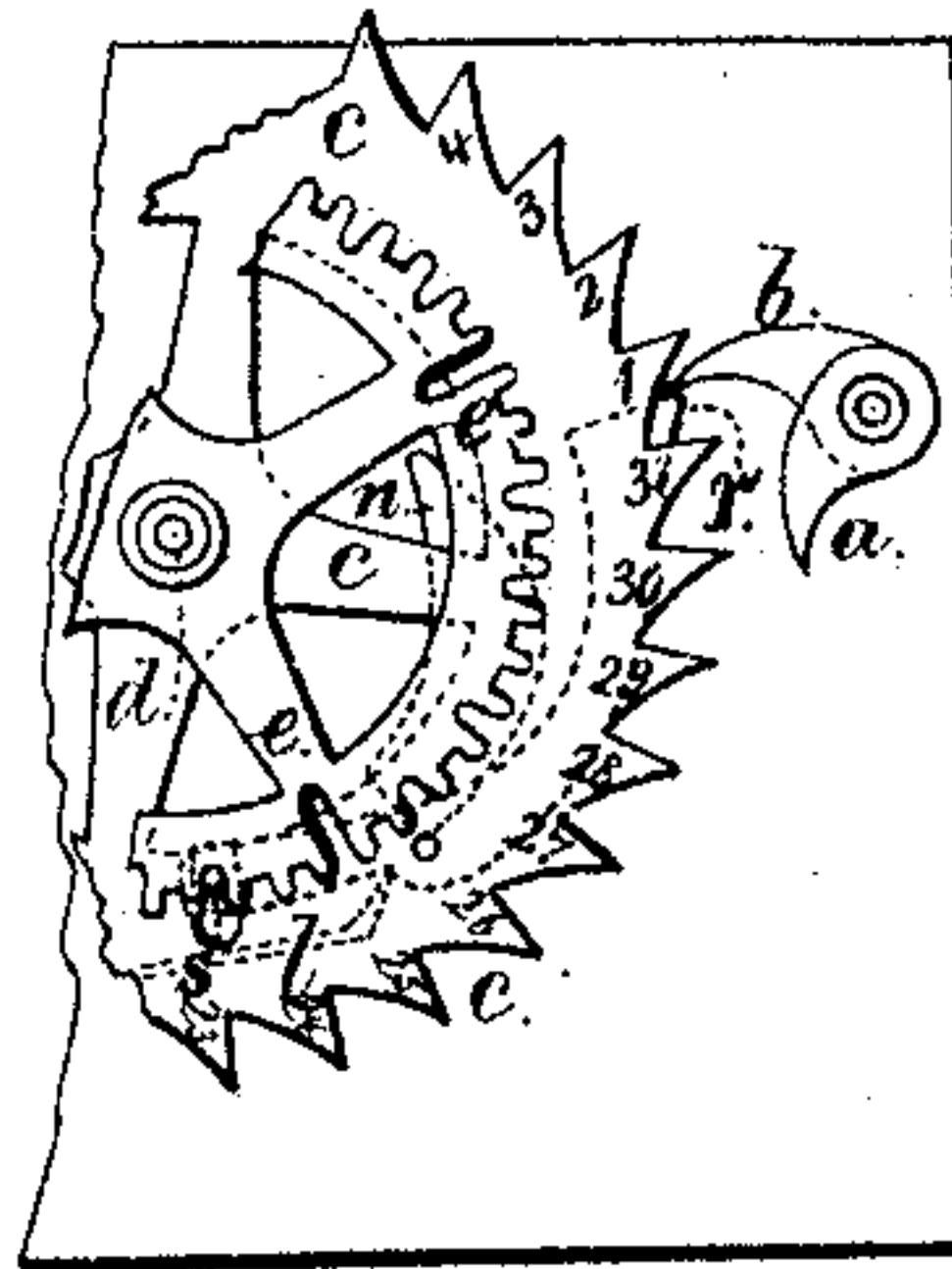


Fig. 4.

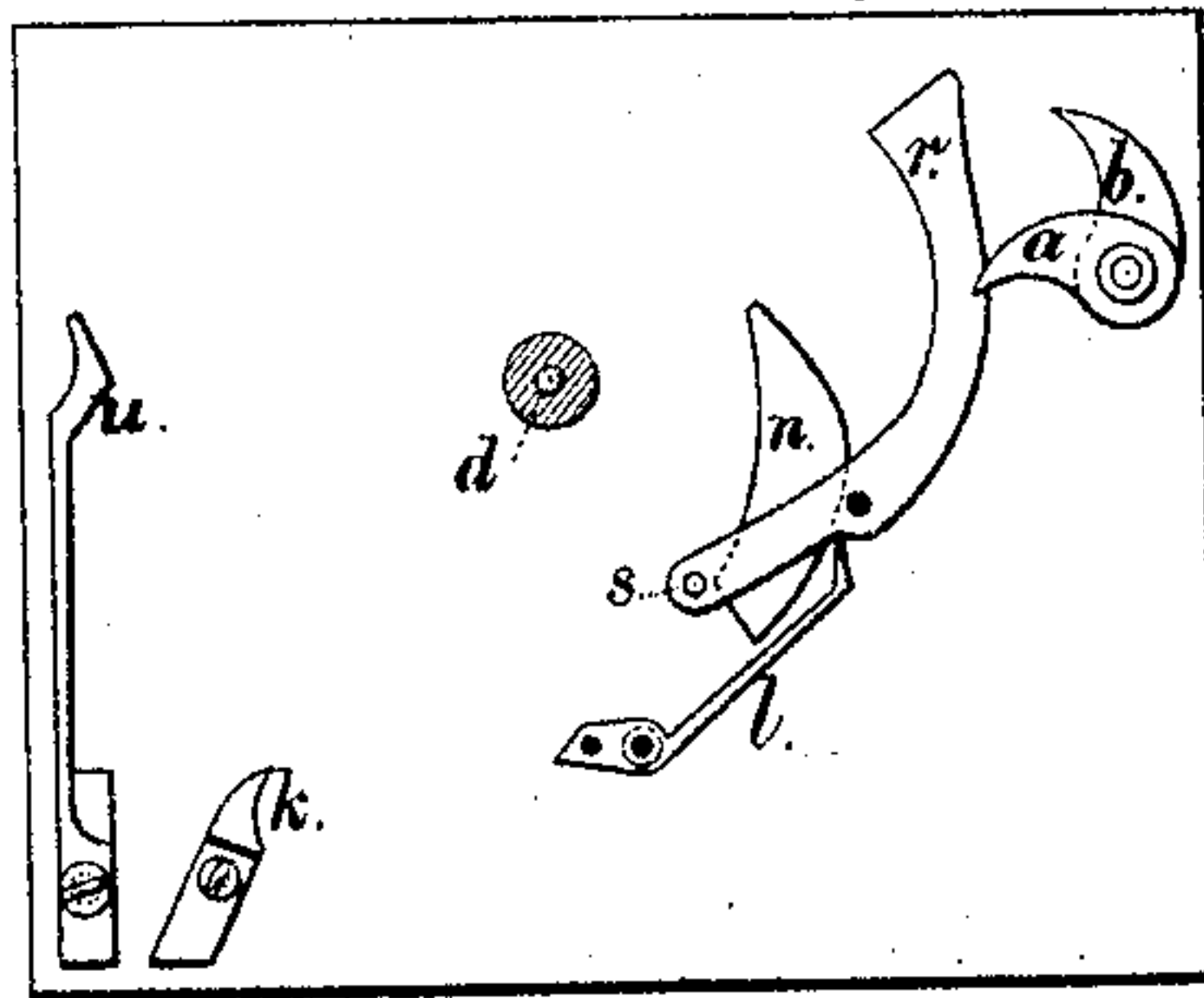
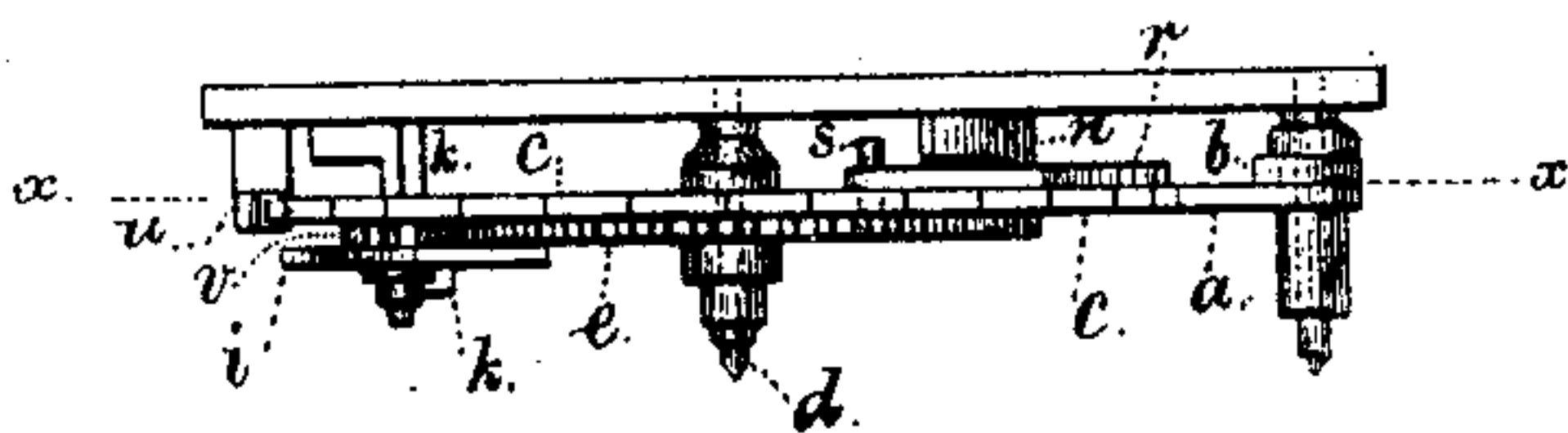


Fig. 3.



Witnesses

Charles Smith

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Inventor

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UNITED STATES PATENT OFFICE.

ARNOLD FRANKFELD, OF NEW YORK, N. Y.

IMPROVEMENT IN CLOCK-CALENDARS.

Specification forming part of Letters Patent No. **143,618**, dated October 14, 1873; application filed April 23, 1873.

To all whom it may concern:

Be it known that I, ARNOLD FRANKFELD, of the city and State of New York, have invented an Improvement in Calendar-Clock Movements, of which the following is a specification:

This movement is adapted to communicate motion from a clock to the dials or hands that denote the day of the month and the month of the year, either alone or in connection with the day of the week. A propelling-tooth, revolved once in twenty-four hours, is employed to turn a wheel having thirty-one teeth—a tooth each day. Upon this wheel, called the month-wheel, is a pinion that is turned one tooth a month by a star-wheel that comes into contact with a stop. This pinion gears into a wheel having forty-eight teeth. The spaces between are of uniform width, but of various depths. This wheel represents the months in four years, and is called the year-wheel; and a lever-dog upon the month-wheel has a pin entering the spaces of the year-wheel, and according to the depth of the space, so the lever-dog will project more or less. When the month has thirty-one days the space is shallow and the lever-dog is kept out of the way. When there is but thirty days in the month the space, being deeper, allows the lever-dog to project farther, and the month-wheel is turned two notches, one by the propelling-tooth and the other by a second propelling-tooth taking against the end of the lever-dog. With the month of February there are either two or three teeth turned, according to whether the month has twenty-eight or twenty-nine days. Thereby the year-wheel upon leap-year has a notch for February that is not as deep as that for the same month in the other three years represented on the said wheel.

In the drawing, Figure 1 is an elevation of the mechanism with the parts in position for moving from 28th February to 1st March. Fig. 2 is a similar view with parts in position for moving from April 30th to May 1st; and Fig. 3 is a side elevation of the mechanism; and Fig. 4 shows the lever-dog and parts behind as if the wheels were removed at the line *x x*, Fig. 3.

The propelling-tooth *a* is upon a shaft which

is revolved once in twenty-four hours by any suitable clock-movement. The tooth *b* is on the same shaft, but behind the tooth *a*, and in a different plane, so as to revolve clear of the teeth of the month-wheel *c* that is upon the stud *d*, and has thirty-one teeth, which, for convenience, are numbered consecutively on the drawing. The year-wheel *e* has forty-eight teeth and intermediate notches, and this is turned one tooth a month by a pinion and star-wheel, *i*, that takes into contact with the fixed stop *k*, once each revolution, and turns the year-wheel *e* one tooth at the time that the pin *s* on the lever-dog *r* is lifted out of that notch by the fixed cam *n*. This lever-dog *r* has its fulcrum upon the month-wheel *c*, and a spring, *l*, throws the end of the lever-dog out as far as permitted by the depth of notch. The springs *u* and *v*, with double-inclined ends, hold the wheels *c* *i* at the points to which they may be turned.

It will now be understood that the tooth *a* is to be set to change the calendar from one day to the next at twelve o'clock at night; and, if all the months were of equal length, the provisions herein described would not be required, and the record by the dials and hands would be continuously operative; but when the month of February contains only twenty-eight days the propelling-tooth *a* moves the tooth 28 along and brings 29 into position, and the propelling-tooth *b* is in position to take against the end of the lever-dog *r*, and as the clock-work continues to move the month-wheel will be turned around two notches to bring the tooth 1 into position to be acted upon by the tooth *a* the next night, and hence the hand will be moved in the one night from the 28th day of the month to the 1st, and the dial or hand that indicates the next month will be moved to March; and this will be the case with all the months of the four years. The tooth *b*, acting at the end of the lever-dog, will move the gearing one, two, or three teeth additional, according to the number of days in the month, so as to turn the wheel *c* completely once in each month, the month-notches in the wheel *c* being of three depths to allow the end of *r* to project more or less, the shallowest allowing the movement from 30 to 1, the next depth

from 29 to 1, and the deepest notch causing the lever-dog *r* to project sufficiently for the tooth *b* to move the wheels from 28 to 1.

It is to be understood that any suitable indicating-dials are to be employed. For instance, the days of the week will be indicated successively by a connection from the tooth *a* or other part of the clock. The days of the month may be indicated upon the dial by a hand on the arbor of the month-wheel *c*; and the months themselves will be indicated by a dial or hand that is moved forward, by a ratchet or otherwise, one division at a time, by a stud or other connection to the month-wheel, that is operative at the change between 31 and 1, and this,

of course, will move as the month-wheel passes that point, regardless of the number of days in the month.

I claim as my invention—

The month-wheel *c* and year-wheel *e*, moving on the same arbor, in combination with the lever-dog *r* and propelling-pallets *a b*, the year-wheel *e* being constructed with spaces of varying depth, substantially as set forth.

Signed by me this 22d day of April, A. D. 1873.

A. FRANKFELD.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.