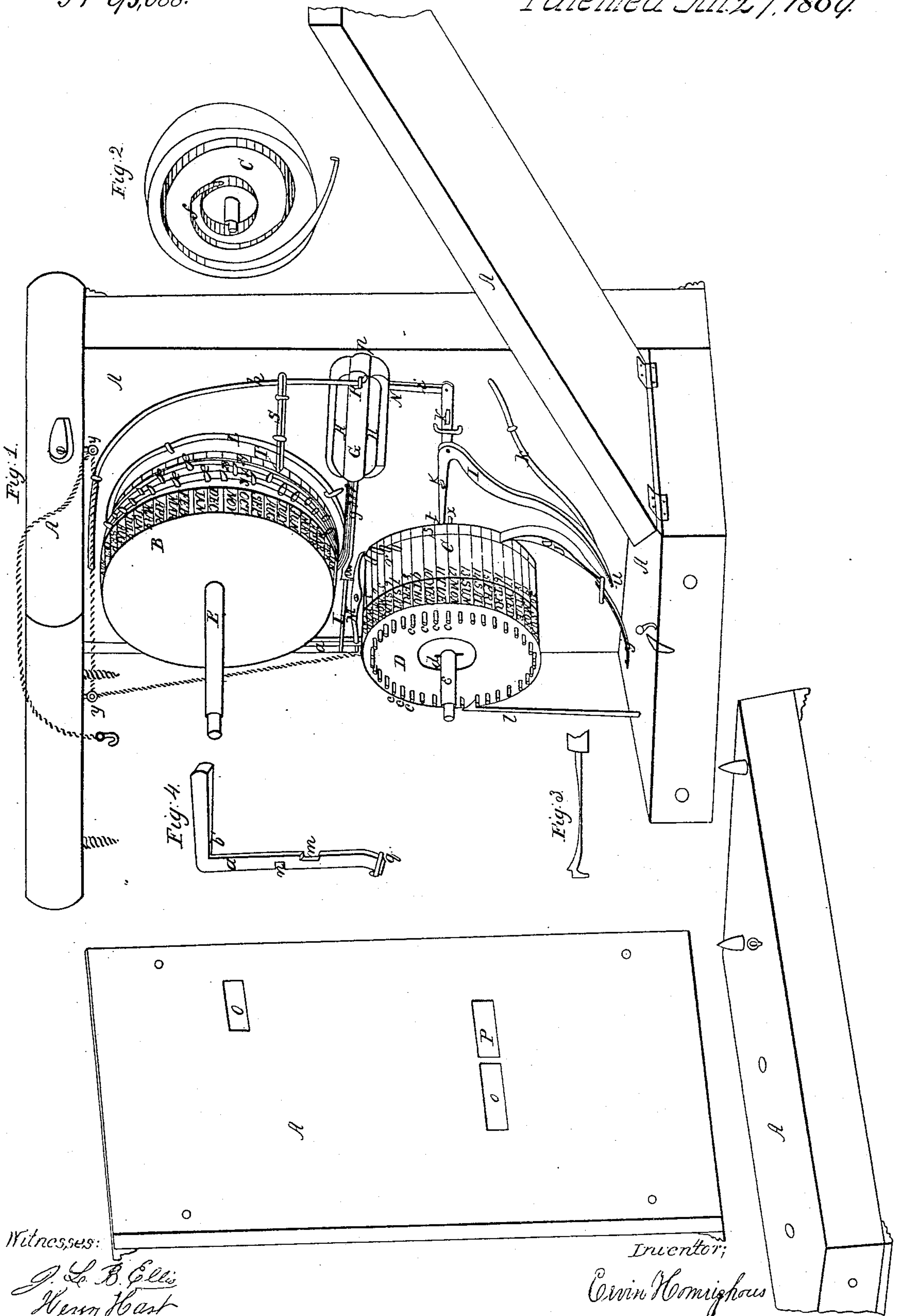


E. Homrighous.
Clock Calendar

Nº 93,088.

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ERVIN HOMRIGHOUS, OF SHELBYVILLE, ILLINOIS.

Letters Patent No. 93,088, dated July 27, 1869.

IMPROVEMENT IN CALENDAR-MOVEMENT FOR TIME-PIECES.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, ERVIN HOMRIGHOUS, of Shelbyville, in the county of Shelby, and State of Illinois, have invented a new and useful Machine termed Perpetual Calendar, by which the month, the day of the month, and day of the week are easily kept with correctness; and I do hereby declare the following to be 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 an exposed view of the machinery, with one side and the front detached.

The nature of my invention consists, in part, of a case, A, made of wood or iron; the inside dimensions of the case (and machinery hereinafter to be described, may be changed proportionately to the size of machine desired,) to be from top to bottom, eight inches; depth, seven inches; width, four inches.

The propeller *a* is made of metal, two and one-fourth inches long from the angle *b* to the point *q*; the arm *b'* to be of proper length to extend through the case, and furnish a hold for the finger, by which the machinery is operated, for which arm *b'* a slot is cut in the case, as near the front as possible, three and one-fourth inches from the top, and three-fourths of an inch long.

At *m* I cut a notch, one and one-half inches from *b*, to receive the stop M. At *n* I also cut a notch, to receive the wire spring L, which forces the propeller *a* to the top of slot mentioned above; the propeller in said position to rest against a guide, secured in the case in the position to propeller *a*, as represented at *q*; in this position to be free from the wheel C, but in its downward motion to operate in notches in wheel C, hereinafter to be described.

The wheel C, (to be made of wood or iron,) is secured on shaft E, made of iron, of proper length to suit the width of case; wheel C to be two and three-fourths inches in diameter, and two inches broad upon its face, said face to be laid off into thirty-five equal spaces, upon which I place the numerals, in regular order, from one to thirty-one, as represented in the drawings.

I next lay off one-fourth of an inch at S, which is made in stay-notches, corresponding with spaces for the use of propeller *a* and click J, preserving, however, the outer circumference, which has but one notch for the use of stop M, which notch shall be to M so as to represent one in the opening P in front.

I next lay off four rings, three-sixteenths of an inch apart, beginning at the notches S, which I denominate first, 29, second, 28, third, 30, fourth, 31 day's rings, in each of which I place a pin, *r*, protruding one-fourth of an inch, to face one-eighth of an inch, and rounded from the back.

These are placed in their respective rings, opposite the spaces 4, 5, 6, and 7.

On the end of wheel C, next to the case, I place a coiled spring, as represented at Figure 2, the outer end of which is secured in the case, or by cutting a groove in the wheel C, and attaching a cord, to pass from thence through the loops *y y*, with weight attached to it.

Either of the above methods is to return the wheel C to its original position at the beginning of each new month.

In the same end of wheel C referred to, I place a setter, *t*, made of metal, opposite the numerals 18.

In the opposite end of wheel C, I place a spring, made of metal, with the point of said spring corresponding with some one space, and pointing towards the front from above.

The shaft E is to be suspended in each side of the case, one and three-eighths inch from the front, and one and seven-eighths inches from the bottom of case.

The wheel D is of the same diameter as wheel C, one inch broad upon its face, is likewise laid off into thirty-five equal spaces, and the days of five weeks successively placed upon it, as seen in the drawings.

It is made to slip on the shaft of wheel C, and is kept close to it by means of a pin, *d*, placed through said shaft E.

On the end adjacent wheel C are thirty-five notches, corresponding with the spaces, and facing the spring referred to in wheel C, so that a motion of said wheel C forward, will carry with it wheel D, but can return without affecting it.

On the opposite end of wheel D may be provided notches or pins, as seen at *c c c*, &c., (corresponding with said spaces,) into which a metal spring, with catch, as seen at *l*, operates, which only allows the wheel D to move forward.

Wheel B is secured on a shaft, E, of metal, in length to suit the case; the said wheel B to be four inches in diameter, and two inches broad upon its face.

The face I lay off into forty-eight equal spaces, and the months, in succession of four years, placed thereon; the object being to get the four different lengths of months that occur, including leap-year.

Secured in the case, next to wheel B, I place a spring, which serves to prevent the wheel B from a return motion, but does not prevent its moving forward, there being forty-eight notches in the end of wheel B, facing the spring referred to.

I next make forty-eight notches in the face of wheel B, at T, one-fourth of an inch wide, corresponding with the spaces, and facing the check *s*, into which check *s* moves at the change of each month, to prevent wheel B from moving too far.

I next lay off said wheel B with four rings, corre-

sponding with and turned the same as those on wheel C. In these I place cogs or pins *e e e*, protruding one-eighth of an inch, to face one-eighth of an inch, and rounded, as seen at *e e e*.

These pins are placed in their respective rings, as indicated by the months, seen in front at O; the pin to operate January to be placed opposite December, eleven months back; that to operate February, to be placed opposite January, eleven months back, &c., as seen on wheel B. The shaft E, of wheel B, to be suspended in each side of the case, two and one-eighth inches from the front, and five and three-fourths inches from the bottom of case.

The dog I is made of metal, double-jointed, that part extending from wheel C to the first joint to be one and three-fourths inches long; from thence to lowest extremity, *u*, three inches long; the same being in one piece, as represented in the drawings; from first joint to second, one and one-fourth inches long; that part *i*, extending upwards, one and one-fourth inches long.

It is suspended to the case at two points *k k*, the first nearest wheel C on a pivot, the next, a slot on a pivot; the slot being necessary to the working of the three extremities of the dog *i*.

These extremities are being constantly pressed upwards by means of the wire spring K, and when forced back, can go no lower than *x*, which is a stop secured in the case, which prevents the wheel C, through the dog I, from passing farther back than date 1, as seen in the opening P in front.

The click J is made of metal, in a curved form, one inch long, and has a hole through the centre, through which a screw is placed, allowing it to work freely.

j is a spring, strong enough to press the click J against wheel C, but not sufficiently strong to resist the force of spring K; the object being that when the joint *i* of the dog has the opportunity of passing into the slide G, that the spring K will force it up.

The point *u* of the dog, forcing against the click J, and overpowering the spring *j*, relieves wheel C of click J, at which time wheel C resumes its original position, by means of the coiled spring or weight, as set forth.

The slide G is made three inches long, and rabbeted above and below, as represented by dark colors at *p*, with its guides H H rabbeted the contrary of slide G.

The lower guide has a notch cut in it, to support loosely the upper end of dog I.

These guides are fastened to the case, on each side of slide G, so as to allow said slide to move freely back and forth.

The stop *p* is to prevent the slide G passing back beyond its proper place.

The hook R is placed in slide G to receive the wire spring *h*, by which slide G is brought back against the stop *p* at the beginning of each month.

One-fourth of an inch from where that part of the dog *i* rests against the slide G, I cut a notch to receive the dog *i*, when the slide G is drawn forward.

In the farther end of slide G, I place four springs *g g g g*, made thin at the point *g*, in order to easily yield to the pressure of the points *e e e* in wheel B.

The springs *g g g g* are one and three-fourths inches long from where they are secured in slide G.

The ends are turned square, with a hump on top, and shoulder, to rest against their respective points *e e e* on wheel B.

The object of the hump on top is that while one of the four springs *g* is constantly set for the coming month, the remaining three may be resting against wheel B, between points *e e e*, without being interfered with by the points *r* on wheel C.

For a better illustration of springs *g g g g*, I refer to Figure 3 of the drawings.

The shoulders referred to on the springs *g*, setting on a pin, *e*, (each month,) representing the number of days

of said month, shown in the opening O, in front, and the slide G, being drawn forward, forces the wheel B forward one-fourth of an inch, and brings the new month.

The said springs *g g g g* are denominated the same, and must correspond in their position with the rings on wheels C and B.

The check *s* is made of metal, two and one-half inches long, with a hole in one end large enough to slip over the wire spring *h*, and near the opposite end, in the under side, a notch is cut sufficiently large to allow its motion (given by spring *h*) over spring L, and two wire staples, placed over said check *s* to hold it in its proper position. As the slide G moves forward, it likewise moves into a notch in wheel B, and prevents it moving too far.

The stop M is made of metal, one inch long, with a hole in the centre, through which, by means of a screw, it is secured to the case in proper position, as represented at M. The end operating in the notch on wheel C, to which reference has been made, is bent, so as to allow it to enter said notch. The opposite end passes through propeller *a* at *m*, and is, by said propeller, thrown out of said notch, at the beginning of each new month. At such times as the propeller *a* is free from the finger, the spring L forces it upwards, which causes the stop M to enter the notch at every return motion of wheel C, on the first day of each new month.

The object of said stop M is to prevent the wheel C from bounding forward to an uncertain date.

Its operation is effected by pressing downwards upon the arm *b* of propeller *a* extending through the case, which moves the wheel C forward one day, and by its connection with wheel C, (by the use of the spring and notches referred to in the specifications,) wheel C moves forward in like manner with wheel D; but, on account of spring *l*, wheel D is never allowed to move backwards.

Each day is securely held by the click J until such time as the pin *r* on wheel C comes in contact with the spring *g*, set by the pin *e* on wheel B, representing the number of days in the month, as seen in the opening O in the front, when, by moving the propeller *a* again, the first day of the week in the new month is brought to view in the opening O in front; likewise the slide G and check *s* are brought forward.

The slide G, by means of spring *g*, brings the new month to view in the opening O in the front; at the same time, the check *s*, having entered a notch in wheel B, at T, to prevent the said wheel B from moving too far.

As soon as the new month appears, the dog *i* is forced into the notch made in slide G, by means of the wire spring K, which at once removes the click J from the notches S in wheel C; at the same time, the dog *i*, holding the slide G in its forward position, until the wheel C, its pins *r*, and its setter *t* have resumed their first position. The wheel C is returned with such force, by means of the coiled spring *f* of the weight referred to, that the setter *t* strikes upon the end of dog *i* with such force as to drive it from the notch in slide G, at which instant the said slide G, by means of the wire spring *h*, resumes its first position, and by thus sliding back, withdraws the check *s* from the notches in wheel B, leaving it free to change at each new month, &c.; also, by slide G passing back, exposes the proper spring *g*, by lighting on the pin *e* representing the number of days in the new month; also, the click J is relieved from the pressure of spring K, by means of slide G passing to its original position, and is again ready to support the date-wheel C in keeping the day of the new month.

At the same time, when the setter *t* strikes upon the dog *i*, the stop M is forced into its only notch in wheel C, by means of the wire spring L, which pre-

vents the said wheel C from bounding to an uncertain day, as it would otherwise do.

This completes the operation for one month, and as each month is represented in its number of days by the pins *e e e* on wheel B, and exposed by their respective springs *g g g g* to the pins *r*, representing the same number of days on wheel C for four years in succession, (which include all the different lengths of months that occur,) it will be seen that I have invented, as set forth in the specifications, a perpetual calendar.

Having thus fully described my invention and its operation,

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The wheel B, having on its outer face the months of four years in succession, and pins *e*, arranged on the periphery parallel therewith, in the manner described,

for the purpose of controlling the varying lengths of the months, substantially as set forth.

2. The wheel C, having on its face the days of the month, the pins *r*, and the notches *S*, arranged in relation to the wheel D, substantially as described.

3. The slide G, having springs *g*, for engagement with pins *r* and *e* of the wheels C and B, substantially as described.

4. The dogs *i* and *I*, pivoted at *k k*, and arranged to operate in connection with slide G and detent-pawl J, substantially as and for the purposes described.

5. The combination of the actuating-pawl *a*, wheels B, C, and D, arranged in relation to each other, and with the slide, check, and springs, substantially as set forth.

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