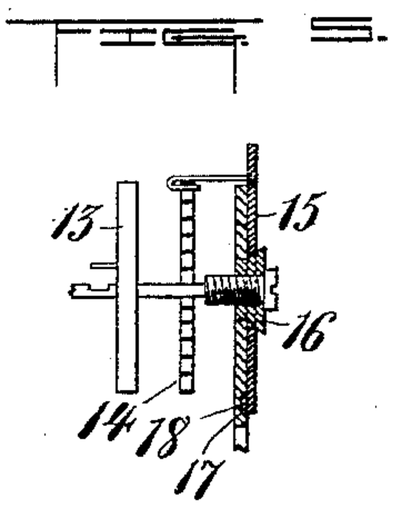
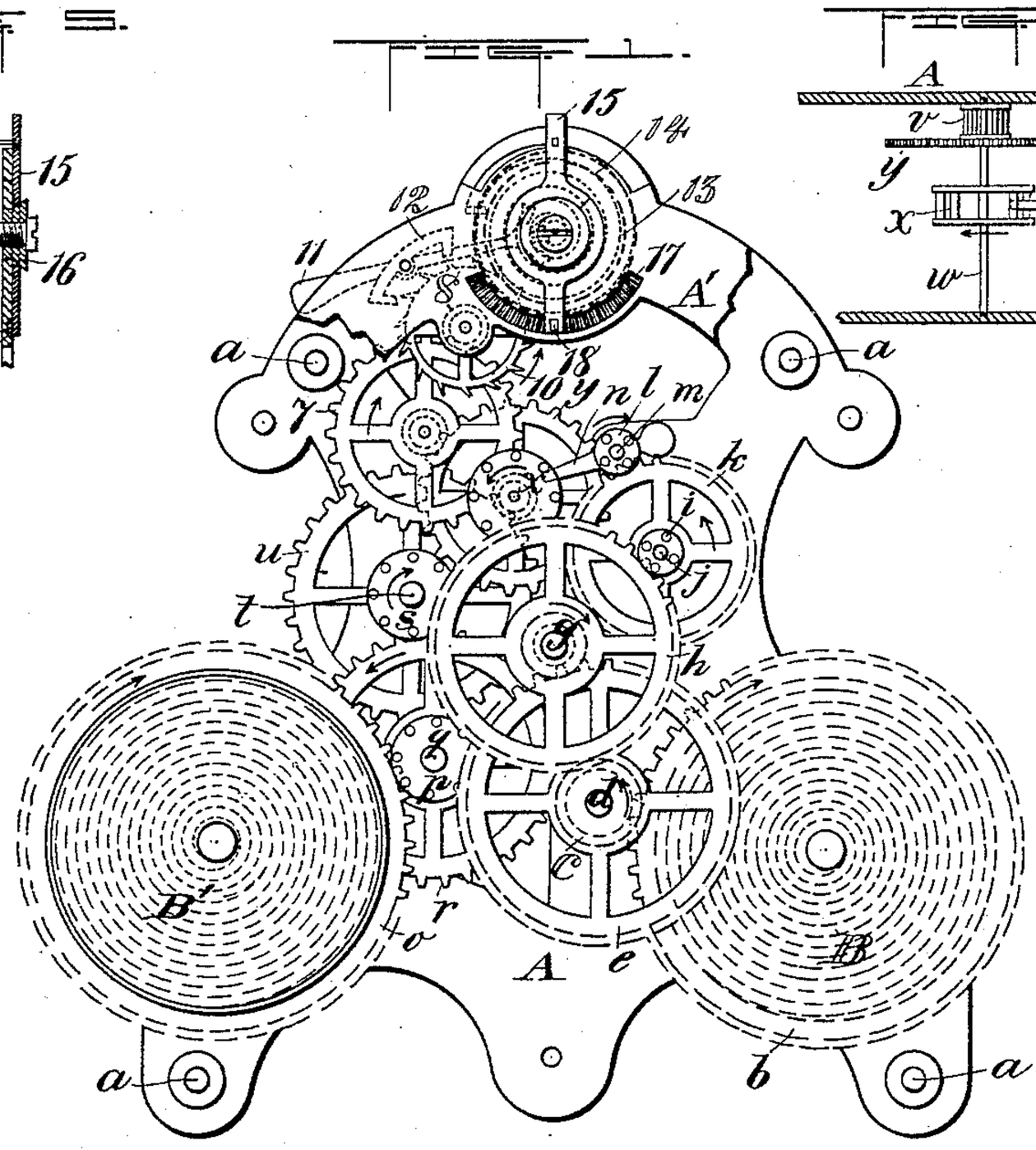
(No Model.)

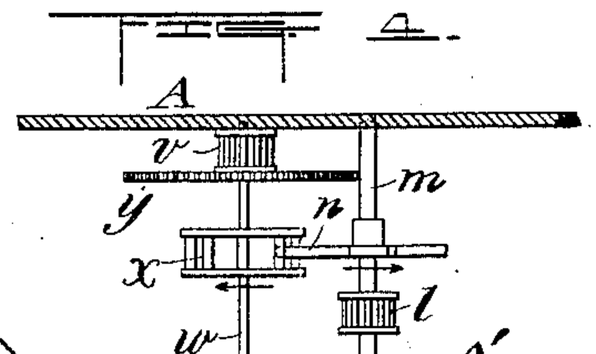
P. G. GIROUD.

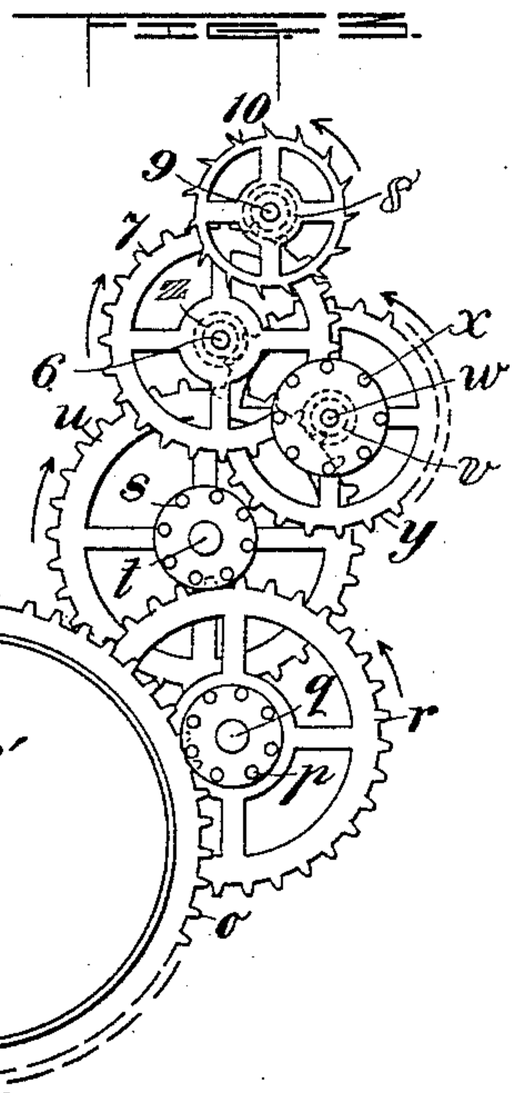
TIME STAMP MOTOR.

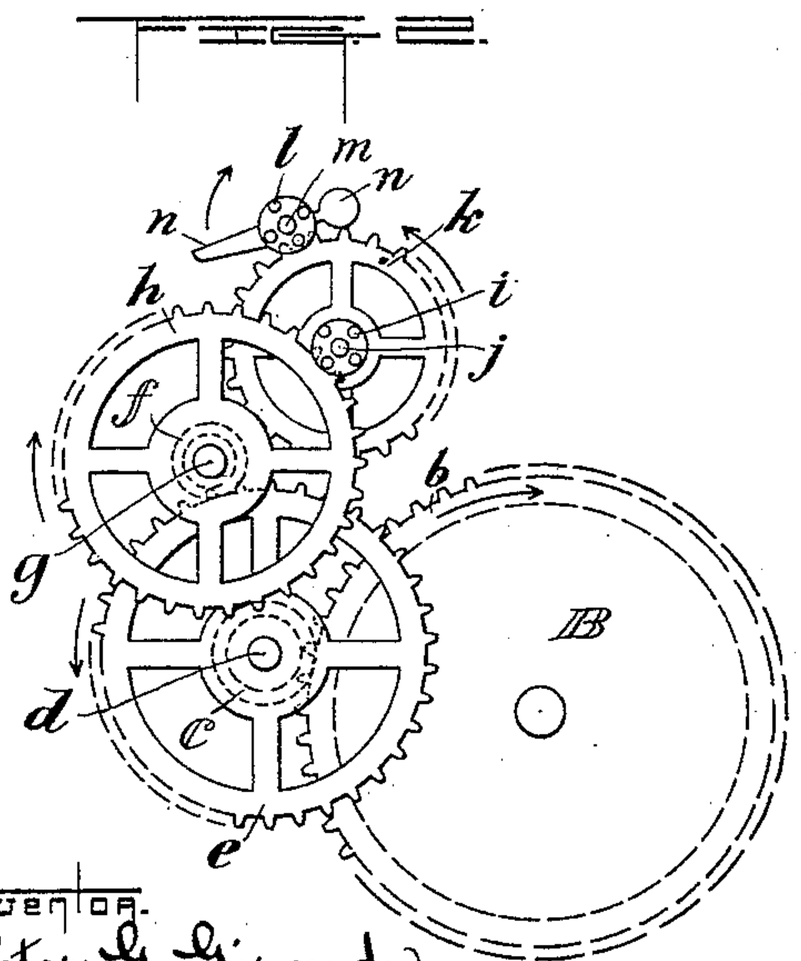
No. 522,730. Patented July 10, 1894.











Witnesses.
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UNITED STATES PATENT OFFICE.

PETER G. GIROUD, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE ACCURATE TIME STAMP COMPANY, OF WHEELING, WEST VIRGINIA, AND NEW YORK, N. Y.

TIME-STAMP MOTOR.

SPECIFICATION forming part of Letters Patent No. 522,730, dated July 10, 1894.

Application filed April 4, 1893. Serial No. 469,029. (No model.)

To all whom it may concern:

Be it known that I, PETER G. GIROUD, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Time-Stamp Motors, of which the following is a specification.

This invention relates to motors for that class of time stamps which have been termed "jumping minute time stamps" in which the mechanism for producing the changes of the numerals and letters of the stamp remains at rest except when at the end of every minute its operation takes place rapidly to effect the change for the next minute. The object of my improvement is to provide a motor for operating such a stamp which shall be more positive in its action and more durable and less liable to get out of order than the motors hitherto employed for the purpose.

In carrying out my invention I use two separate and independent trains of wheel work each driven or actuated by a spring of its own, one of said spring-actuated trains being the actual motor supplying the power for driving the change mechanism, and the other being a properly regulated clock movement which controls the operation of the said motor by means of a trip which prevents its action until the proper time and then permits it to act quickly and sufficiently to produce the change and afterward stops it again until the time for making another change.

The nature of the improvement will be described with reference to the accompanying drawings and its novelty set forth in the claims.

Figure 1 represents an elevation of a complete time stamp motor embodying my invention one of the side frames being for the most part removed to expose the train of wheels and the trip to view. Figs. 2 and 3 are respectively face views of the motor proper and of the clock movement separated from each other each figure including its respective portion of the trip. Fig. 4 represents a plan of the trip. Fig. 5 represents a vertical sectional view of the regulator of the clock movement at right angles to Fig. 1.

Similar letters and numbers of reference designate corresponding parts in all the figures.

A A′ designate the side plates connected by stretchers *a*.

B is the spring barrel containing the spring for driving the motor proper and B′ the spring barrel containing the spring for driving the clock movement.

I will first describe the motor train and afterward describe the clock train, explaining beforehand that in some cases where the pinions are concealed the tops and bottoms of their teeth are indicated by two dotted concentric circles which will be sufficient to render the train intelligible to those skilled in the art.

On the spring barrel B of the motor there is a toothed wheel *b* gearing with and driving a pinion *c* on the arbor *d* which also carries a wheel *e* gearing with a pinion *f* fast upon the arbor *g* and so driving the said arbor. This arbor *g* is the arbor from which motion is transmitted to the stamp changing mechanism in the same manner as in other time stamps or in any suitable manner. The said arbor *g* which I will hereinafter speak of as the driving arbor also carries a wheel *h* through which the trip acts to stop the motor until the proper time for the change, the said wheel *h* gearing with a lantern pinion *i* on the arbor *j* which also carries a wheel *k* gearing with a lantern pinion *l* on the arbor *m* which carries a lever *n* which constitutes one member of the trip.

On the spring barrel B′ of the clock there is a toothed wheel *o* gearing with a pinion *p* on the arbor *q* which also carries a wheel *r* gearing with a pinion *s* on the arbor *t*. This arbor *t* also carries a wheel *u* gearing with a pinion *v* on the arbor *w* which also carries a lantern pinion *x* which constitutes the other member of the trip and which operates in connection with the lever *n* of the motor train in the manner hereinafter described. The arbor *w* also carries a wheel *y* gearing with a pinion *z* on the arbor 6 which also carries a wheel 7 which gears with a pinion 8 on the arbor 9 of the escape wheel 10 and so drives the escapement. The lever 11, pallets 12, bal-

ance wheel 13, and hair-spring 14 are shown dotted in Fig. 1 which also shows a front view of the regulator 15. A side view of the balance wheel 13 and sections of the hair-spring 14 and regulator 15 are also shown in Fig. 5.

The clock train is so regulated that the lantern pinion *x* forming one member of the trip and arranged in the train farther back than the escape wheel turns during every minute a distance corresponding with the interval between the centers of two of its teeth. The lever *n* constituting the other member of the trip which is driven by the motor train, is held, as shown in Fig. 1, by the force of the motor spring in the barrel B, in contact with one of the teeth of the pinion *x* during the minute intervals between the operations of the stamp changing mechanism, but at the end of each interval the tooth passes away from the point of the said lever and allows it to trip and permits the arbor *m* of the latter to make nearly a complete revolution which brings it into contact with the next following tooth of the said pinion to be thereby again arrested. During this one revolution of the arbor *m* and the trip lever, which is performed so quickly as to be hardly visible, the driving arbor *g* moves far enough to effect the necessary operation of the changing mechanism.

In order that the trip may work with the least possible friction and that the power of the motor train shall not act in opposition to the clock train but on the contrary shall assist the operation of the latter, the direction of the running of the two trains is such that the point of the trip lever *n* and the tooth of the pinion *x* with which it is in contact may move in the same direction, as may be understood by reference to the arrows in Figs. 1, 2 and 3. It may be here remarked that owing to this movement in the same direction of the parts of the two members of the trip which are in contact, the motor never comes to an absolutely positive stop during the intervals between the operations of the stamp changing mechanism, but the movement which takes place during these intervals is so slight as to be unappreciable, and it is therefore that I have referred to the motor as stopping or being at rest during those intervals.

In order that greater security of adjustment may be obtained for the regulator of the clock train so that it may not be disturbed by the jarring consequent upon the jumping of the motor train as is liable to be the case with a regulator which depends upon friction alone to keep it in adjustment I not only provide the yoke 15 of the regulator with the usual central friction clamp as shown at 16 in Fig. 5 but I provide on the front plate A′ an arc-formed notched rack 17 as shown in Fig. 1, the notches of said rack being formed by shallow radial indentations made directly in the said plate, and I provide the lower arm of the yoke 15 with a tooth 18 to engage in said rack, the said arm being sufficiently elastic to permit the tooth 18 to slip from one notch of the rack to another as the necessary lateral movement of the yoke is made to adjust the regulator without any direct pulling of the arm of the yoke from the notches, the engagement of the said tooth with the notches in the rack only being deep enough to secure the regulator in the position to which it has been adjusted.

What I claim as my invention is—

1. The combination in a time stamp motor of a motor train and a spring for driving the same to operate the stamp-changing mechanism, a clock train and a separate spring for driving the same independently of the spring of the motor train, and a trip consisting of two members one of which is operated by the motor train and the other by the clock train to stop the motor train during certain intervals of time and to liberate it between said intervals, substantially as herein set forth.

2. The combination in a time stamp motor of a motor train, a clock train separate springs for driving the said trains, and a trip consisting of a pinion in the clock train and a lever in the motor train arranged farther back in said train than the escape wheel, substantially as herein set forth.

3. In combination with a clock movement for controlling a time stamp motor, a regulator having an elastic yoke furnished with a tooth, and a notched rack formed directly on one of the plates of the clock movement for engaging said tooth, substantially as herein set forth.

PETER G. GIROUD.

Witnesses:
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