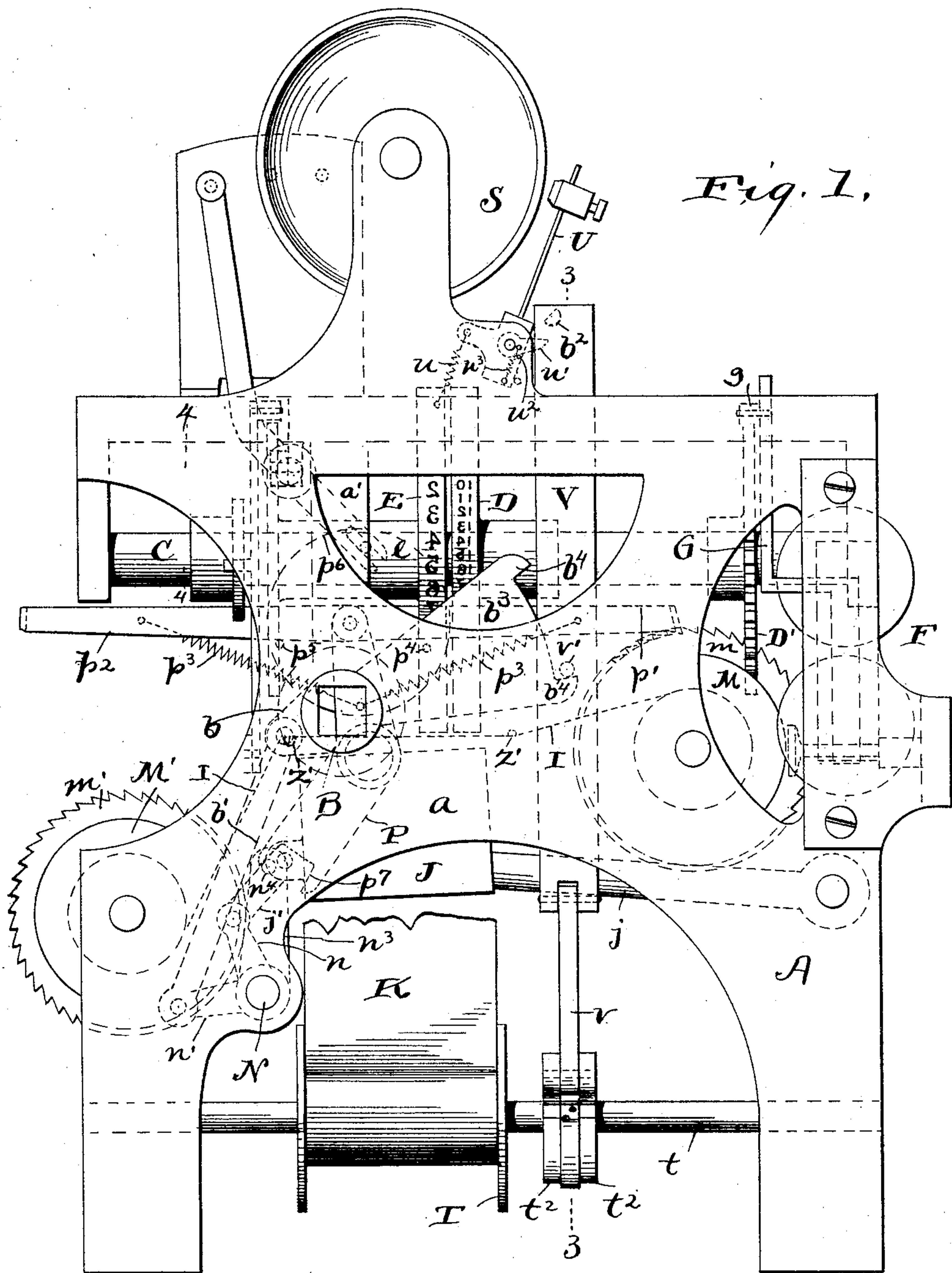


4 Sheets—Sheet 1.

Patented Apr. 12, 1898.



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his atty

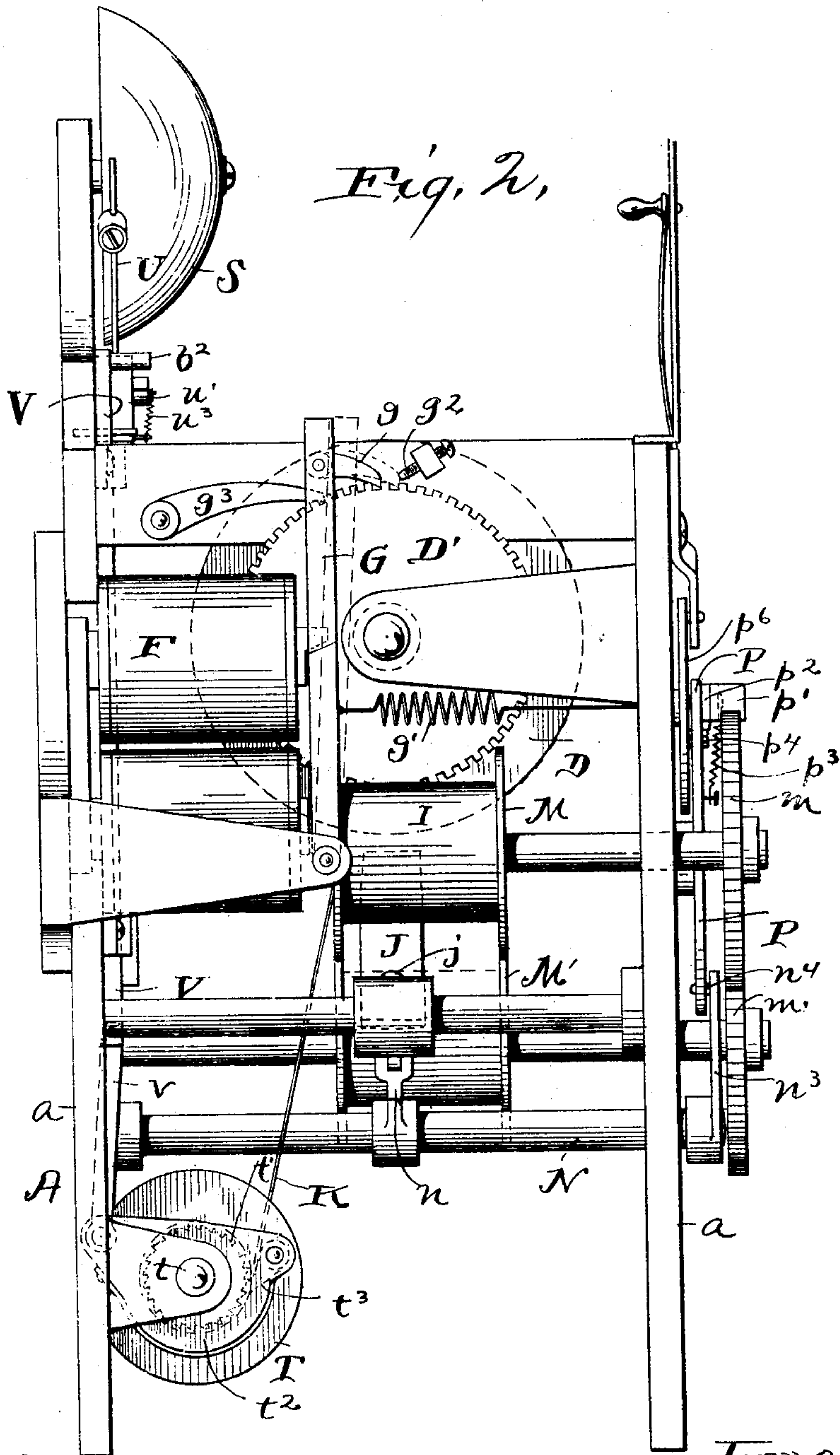
(No Model.)

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J. H. GERRY.
TIME RECORDER.

No. 602,286.

Patented Apr. 12, 1898.



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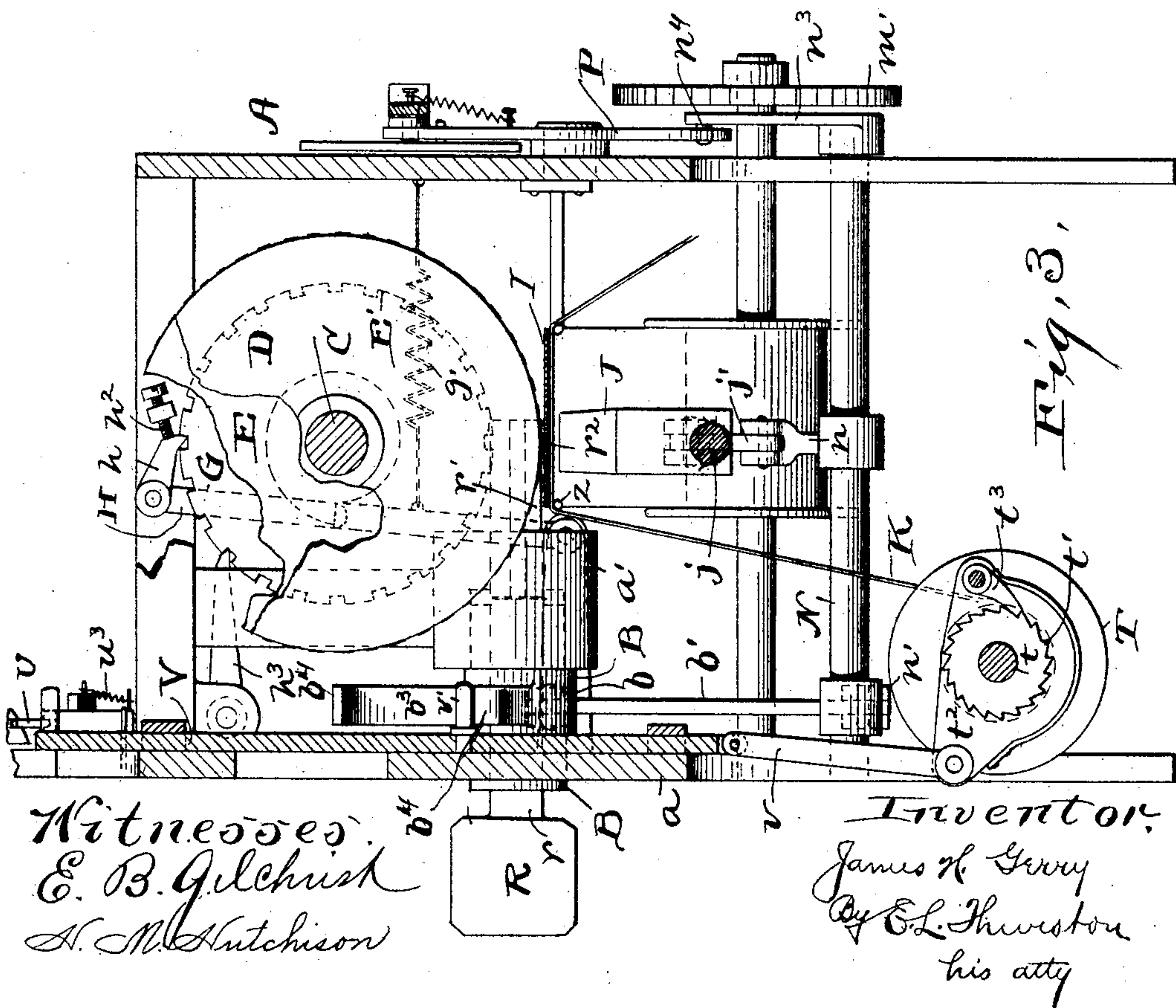
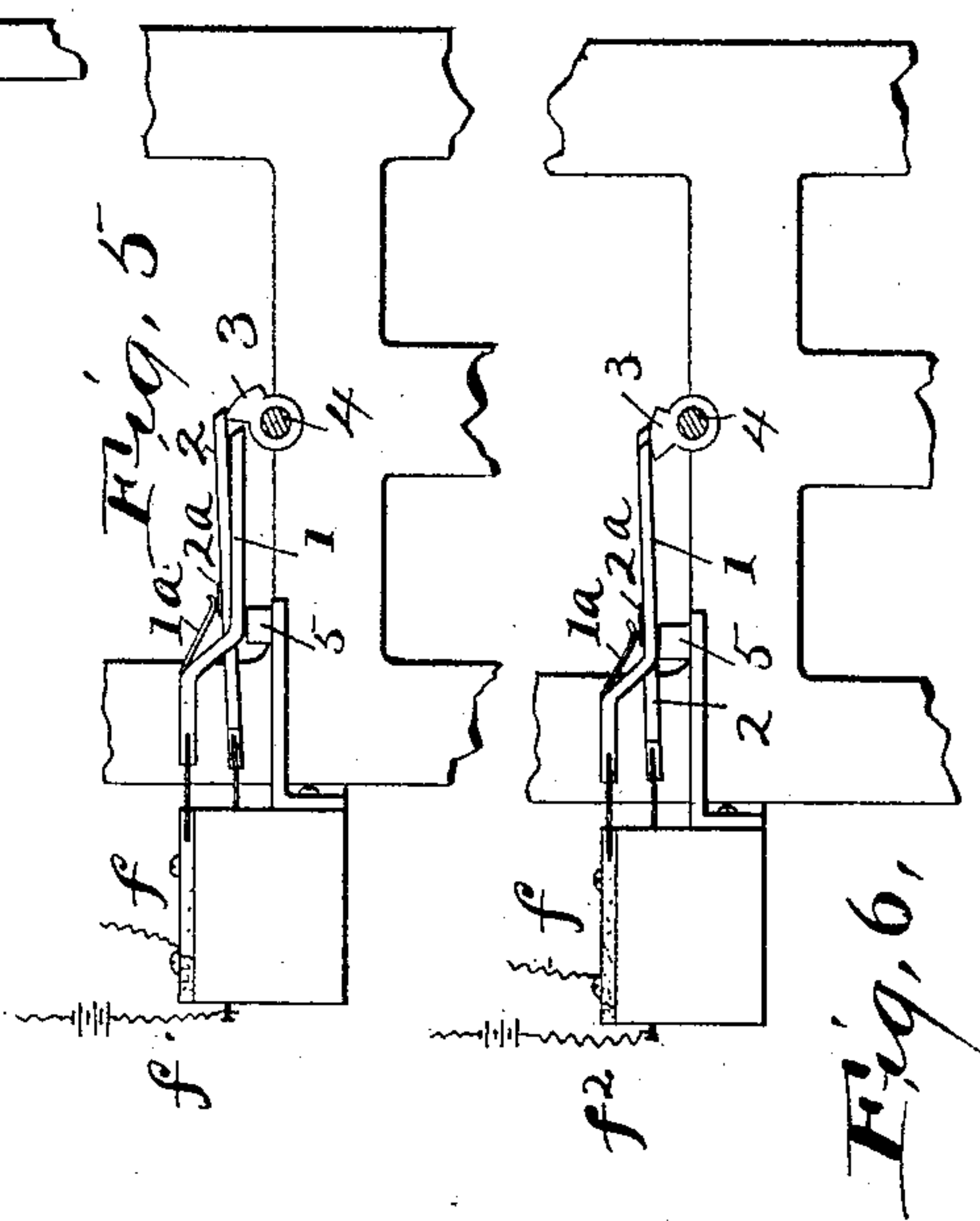
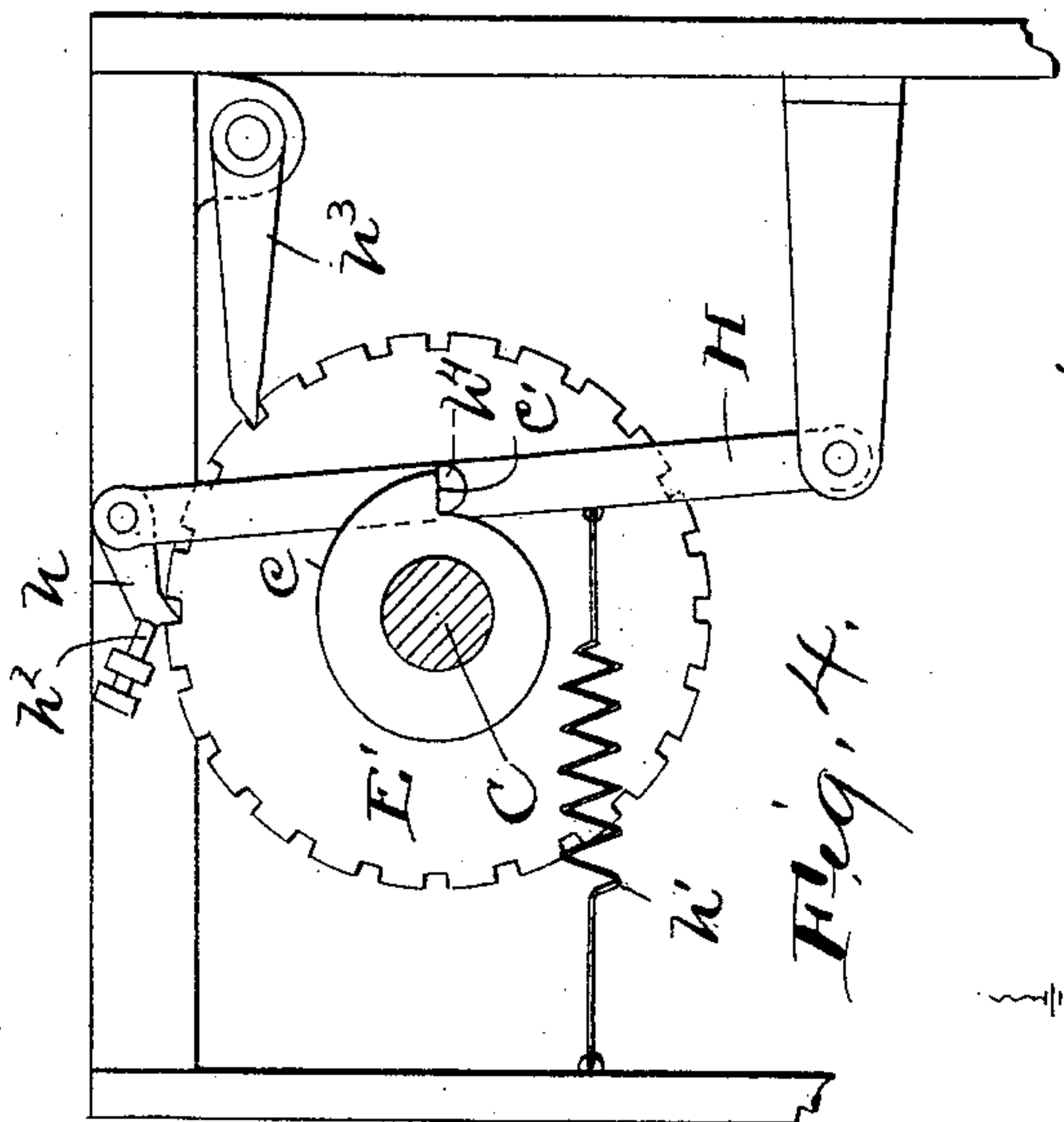
(No Model.)

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J. H. GERRY.
TIME RECORDER.

No. 602,286.

Patented Apr. 12, 1898.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

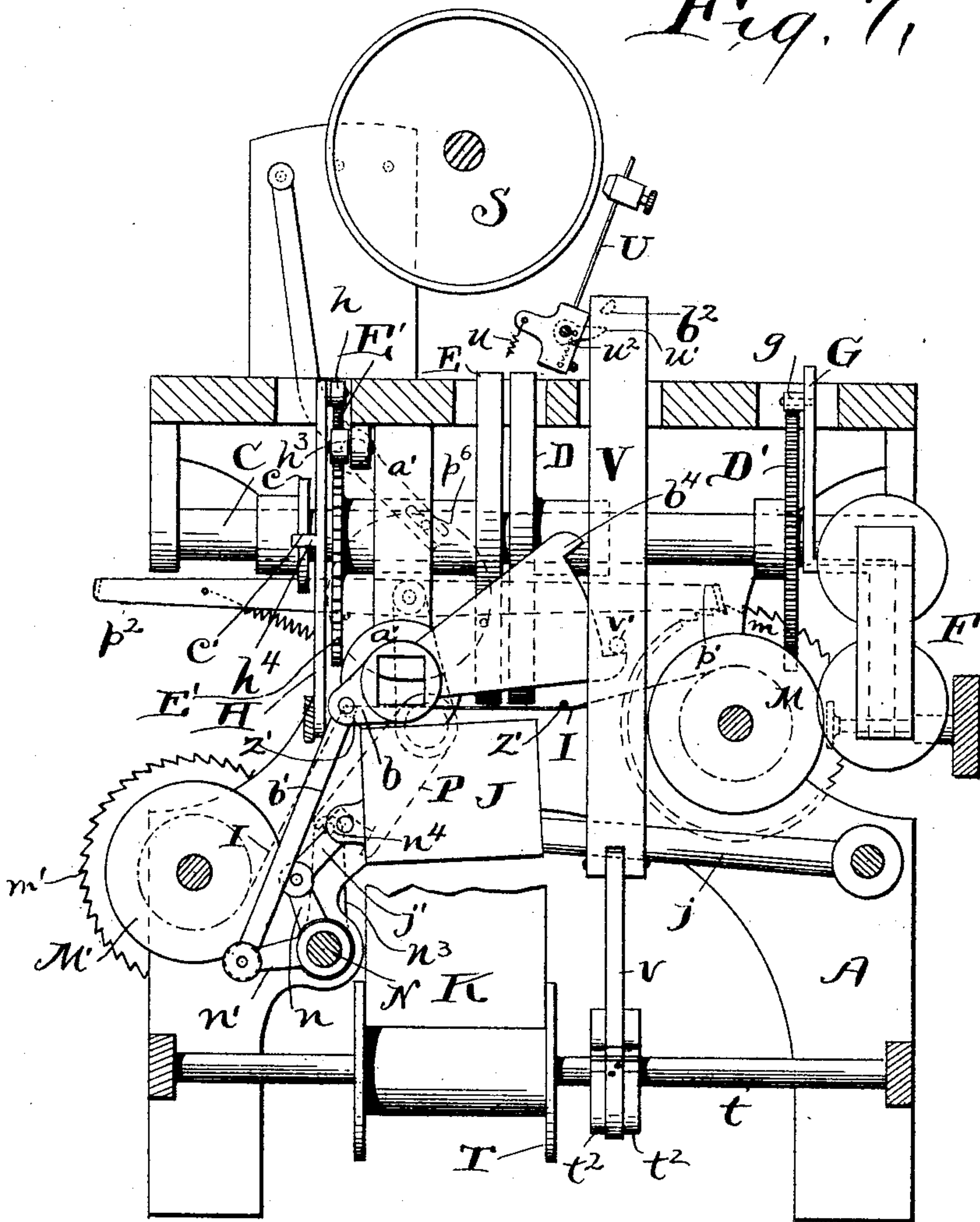
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J. H. GERRY.
TIME RECORDER.

No. 602,286.

Patented Apr. 12, 1898.

Fig. 7,



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UNITED STATES PATENT OFFICE.

JAMES H. GERRY, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO I. P. LAMPSON, OF CLEVELAND, OHIO.

TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 602,286, dated April 12, 1898.

Application filed January 14, 1897. Serial No. 619,214. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. GERRY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Time-Recorders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to simplify the construction and improve the operation of employees' time-recording devices; and the invention consists in the novel construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is a front elevation of my improved time-recording device. Fig. 2 is a right end elevation thereof. Fig. 3 is a sectional right end elevation on line 3 3 of Fig. 1. Fig. 4 is a sectional left end elevation on line 4 4, Fig. 1. Figs. 5 and 6 are views of a circuit-closer, showing two positions thereof. Fig. 7 is a front elevation on a reduced scale, with the front plate removed.

Referring to the parts by letters and figures, A represents the framework of the device.

B represents a key-hub which is journaled in the front plate *a* of the framework and a depending fixed hanger *a'*. It has a square hole, which is adapted to receive the square shank of a key R, whereby this hub may be turned. I prefer to use a key substantially like that which is shown and described in Letters Patent No. 530,340, dated December 4, 1894, which key (shown for the most part in dotted lines of Fig. 3) is swiveled on a longitudinal axis to the shank. This square end passes through a square hole in the hanger *a'*, wherefore this end does not turn when the shank is turned. The end *r'* of the key has a characteristic number *r*² in raised type, which when the key is inserted is in line with the lower surface of the printing characters on the printing-wheels and above the tape, whereby this number will be printed upon the tape by the side of the figures upon the type-wheel.

So much of the device as is above explained is old in the form shown.

The type-wheel shaft C carries the two printing-wheels D and E, of common form, the former being the minute-wheel and the latter the hour-wheel. The minute-wheel D is keyed to shaft C, and the hour-wheel is rigid with a sleeve *e*, which is loosely mounted upon shaft C. Heretofore these printing-wheels have been moved by a clock; but this mode of operation is objectionable, because it imposes upon the clock a burden which tends to and generally does affect its accuracy as a time-keeper. These two wheels in the apparatus shown are periodically moved upon their respective axes by one or more electromagnets F through the following mechanism, viz: A wheel D', having sixty teeth, is secured to shaft C. The armature of the electromagnets is secured to the lever G, which is pivoted to the frame A. This lever, which is bent toward the wheel D', carries a pawl *g*, which engages with said wheel. The lever is under the influence of a spring *g'*, which exerts its force to move the lever from the magnets, and this movement is limited by the engagement of the said pawl with an adjustable stop-screw *g*². Whenever the circuit of the magnets is completed, the lever is moved in opposition to the said spring, the pawl *g* moving idly upon the wheel D'. When the circuit is broken, the spring moves the lever and the pawl *g* engages with the wheel D', which is thereby moved one-sixtieth of a revolution. The pawl *g*³, which is pivoted to the frame A, engages with wheel D' and prevents its movement in the reverse direction. It is intended that said circuit shall be made and broken once every minute, and obviously the natural means for effecting this result is to operate the circuit-closer by means of a clock. In Figs. 5 and 6 I have shown a suitable circuit-closer, which is not of my invention; nor is it or any other specific circuit-closer a part of my invention. Any device for temporarily closing the circuit of magnets F once every minute may be employed. Two spring-fingers 1 and 2 are insulated from each other and suitably supported so that they are normally out of contact and are severally connected with the two wires *f* *f'*, which form parts of the electric circuit in which the magnets are connected. On the finger 1 is a platinum point 1^a, and on finger

2 is a platinum table 2^a, which point and table make contact at the instant of action, but not at any other time. The ends of the two fingers are in the same horizontal plane, but the finger 2 is longer than finger 1. An insulated cam 3 is secured to an arbor 4, which is to be revolved by clockwork once every minute. As this cam is revolved it gradually raises both fingers from the insulated support 5, and at the sixtieth second allows the shorter finger 1 to drop, wherefore the point 1^a contacts with the table 2^a, thereby for the time being completing the circuit of the magnets. The next instant the longer finger 2 is permitted to drop, thereby again breaking the circuit.

The hour-wheel is moved one twenty-fourth of a revolution for each complete revolution of the minute-wheel by the following mechanism: A wheel E', having twenty-four teeth, is secured to the sleeve *e*. Adjacent to it is a lever H, which is pivoted to the frame A. This lever carries a pawl *h*, which engages with the teeth of wheel E', and it is under the influence of a spring *h'*, which moves it to bring the said pawl against an adjustable stop-screw *h*².

A cam *c* is secured to the shaft C, and it engages with a pin *h*⁴ on lever H. The lever is by this cam gradually pushed in opposition to its spring until at the end of one complete revolution the abrupt shoulder *c'* on the cam passes the pin, whereupon the lever is rocked in the reverse direction by its spring, with the result of moving the wheel E' one twenty-fourth of a revolution. A pawl *h*³, pivoted to the frame A, engages with the wheel E' and prevents its movement in the reverse direction.

The printing-pad J, by means of which the inking-ribbon I and the paper tape K are pushed up against the printing-wheels D and E and the key R, is secured to the end of a pivoted lever *j*. The pad is moved by the turning of the key-hub through the following mechanism, viz: An arm *n* on a rock-shaft N is connected by a link *j'* with the pad-lever *j*, the said link and arm forming a toggle. An arm *b* on the key-hub is connected by a link *b'* with an arm *n'*, secured to the said rock-shaft. The turning of the key in the hub in one direction moves the pad in the printing direction, thereby causing the imprint to be made upon the paper tape, while the turning of the key in the reverse direction, so that it may be withdrawn, moves the pad in the reverse direction.

The inking-ribbon I is secured to the two spools M M', and it is intermittently wound upon one and simultaneously unwound from the other. The mechanism for winding the ribbon upon either spool is the following, viz: the ratchets *m m'*, secured to the two spools, the oscillating lever P, two pawls *p' p*², carried by said lever and adapted to engage with said ratchets, the spring *p*³ for drawing said pawls toward their respective ratchets, and the pins *p*⁴ *p*⁵, carried by a movable disk *p*⁶, for holding

said pawls one at a time away from the corresponding ratchet. The inking-ribbon-feeding mechanism to the extent above described is old and is shown in Letters Patent No. 569,826. The means for oscillating the lever P are new and consist of an arm *n*³, secured to rock-shaft N, and a pin *n*⁴, carried by said arm, which pin lies between the fork ends *p*⁷ of said lever P.

The paper tape K, upon which the imprint is made, passes above the pad J and is wound upon a spool T, which is secured to a shaft *t*. This shaft is turned each time the key-hub is turned to operate the parts shown by a ratchet *t'*, secured to the shaft, a cradle *t*², loosely mounted upon the shaft *t*, a pawl *t*³, pivoted to said cradle, a vertically-movable bar V, and a link *v*, connecting said bar with the cradle. This bar is moved up and down by an arm *b*³, secured to the key-hub B and having the fork ends *b*⁴ *b*⁴, between which the pin *v'* on bar V lies. One of these fork ends strikes the pin *v'* and moves the bar V down, and the other strikes the pin and moves the bar up. It will be noticed, however, that the bar V is moved up, and consequently that the shaft *t* is not turned in the direction to wind up tape K, while the pad J is moving in the printing direction; but when the pad has nearly completed its return movement the upper fork end *b*⁴ strikes pin *v'* and moves the bar down, with the result of turning the spool T.

The paper tape is held in the desired relation to the pad and printing-wheel by passing over light bars *z z*, while the ribbon, which lies just above the tape, is supported by two bars *z'* at right angles to bars *z z*.

The bell S is secured to the frame. The hammer-lever U is pivoted to the frame. It is moved in the direction to ring the bell by a spring *u*, and it is moved in the contrary direction by the engagement of a pin *b*², carried by bar V, with a trip-pawl *u'*, carried by the hammer-lever U. The movement of this trip-pawl in one direction is limited by a pin *u*², against which it is held by a spring *u*³. Just as the bar V is completing its downward movement the pin *b*² slips from the trip-pawl *u'*. Thereupon the spring *u* pulls the hammer against the bell. When the bar V moves up to its normal position, the pin passes the pawl *u'*, pushing it out of the way, and the pawl is drawn down by its spring *u*³ to the position shown when the pin has reached its highest point. If, therefore, the key be turned until the bell rings, the printing of the record upon the paper tape is completed.

Having described my invention, I claim—

1. In a time-recording machine, in combination, a rotatable shaft, a wheel having sixty teeth secured to said shaft, a spring-actuated lever, a pawl carried thereby which engages with said toothed wheel, an electromagnet, the armature therefor secured to said lever, mechanism for temporarily closing the circuit of said magnet at minute intervals, a sleeve loosely mounted on said shaft, a toothed

wheel secured to said sleeve, a cam secured to said shaft, a spring-actuated lever arranged to be engaged and operated by said cam, and a pawl carried by said lever engaging with the last-named toothed wheel, said mechanism constituting the entire mechanism for properly moving the hour and minute printing-wheels which are secured respectively to said sleeve and shaft, substantially as specified.

2. In a time-recording machine, in combination, a rotatable tape-spool, mechanism for turning it, a vertically-movable bar for actuating said mechanism, the key-hub, a fork-arm secured thereto, and a pin upon said bar between the forks of said arm, substantially as and for the purpose specified.

3. In a time-recording machine, in combination, a rotatable shaft, a tape-spool secured thereto, a ratchet also secured to the shaft, a cradle mounted upon the shaft, a pawl carried thereby and engaging with the ratchet, a vertically-movable bar, a link connecting it with the cradle, the key-hub, a forked arm secured thereto, and a pin on the bar between the forks of said arm, substantially as and for the purpose specified.

4. In a time-recording machine, in combination, a bell, its striking-lever, a tripping-

pawl pivoted to said lever, a vertically-movable bar having a pin which engages with said tripping-lever, the key-hub, a forked arm secured thereto, and a pin on said bar between the forks of said arm, substantially as and for the purpose specified.

5. In a time-recording machine, in combination, the printing-wheels, key-hub, a printing-pad, a lever to which said pad is secured, a rock-shaft, a toggle connection between the rock-shaft and pad-lever, arms secured respectively to the key-hub and rock-shaft, and a link connecting said arms, substantially as and for the purpose specified.

6. In a time-recording machine, in combination, two inking-ribbon spools, ratchets secured thereto, a pivoted lever, two pawls carried thereby and adapted to engage severally with said ratchets, a rock-shaft, an arm secured thereto, a pin on said arm or lever, and forks on the other part between which the said pin lies, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. GERRY.

Witnesses:

J. H. GIBSON,
WM. A. COTTON.