

J. C. HINCHMAN.

Automatic Time Printing-Machines.

No. 139,154.

Patented May 20, 1873.

Fig. 3.

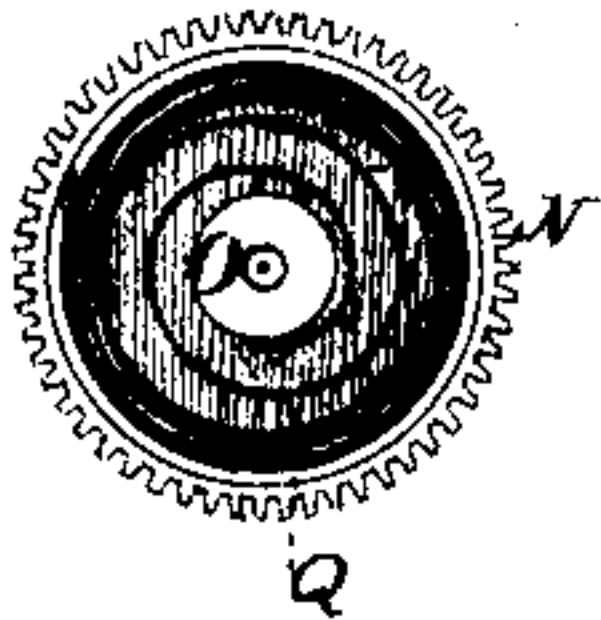


Fig. 1.

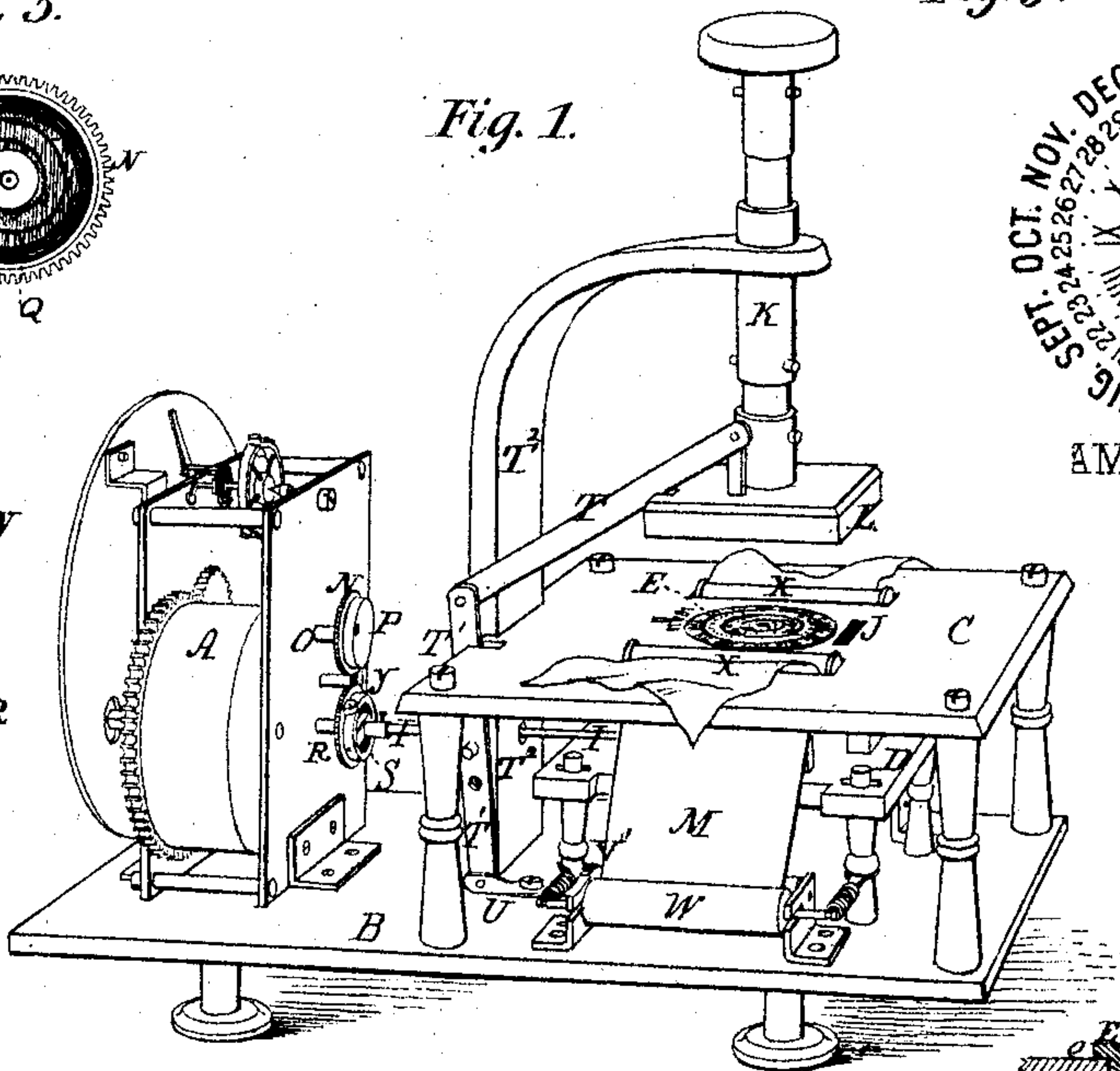


Fig. 5.

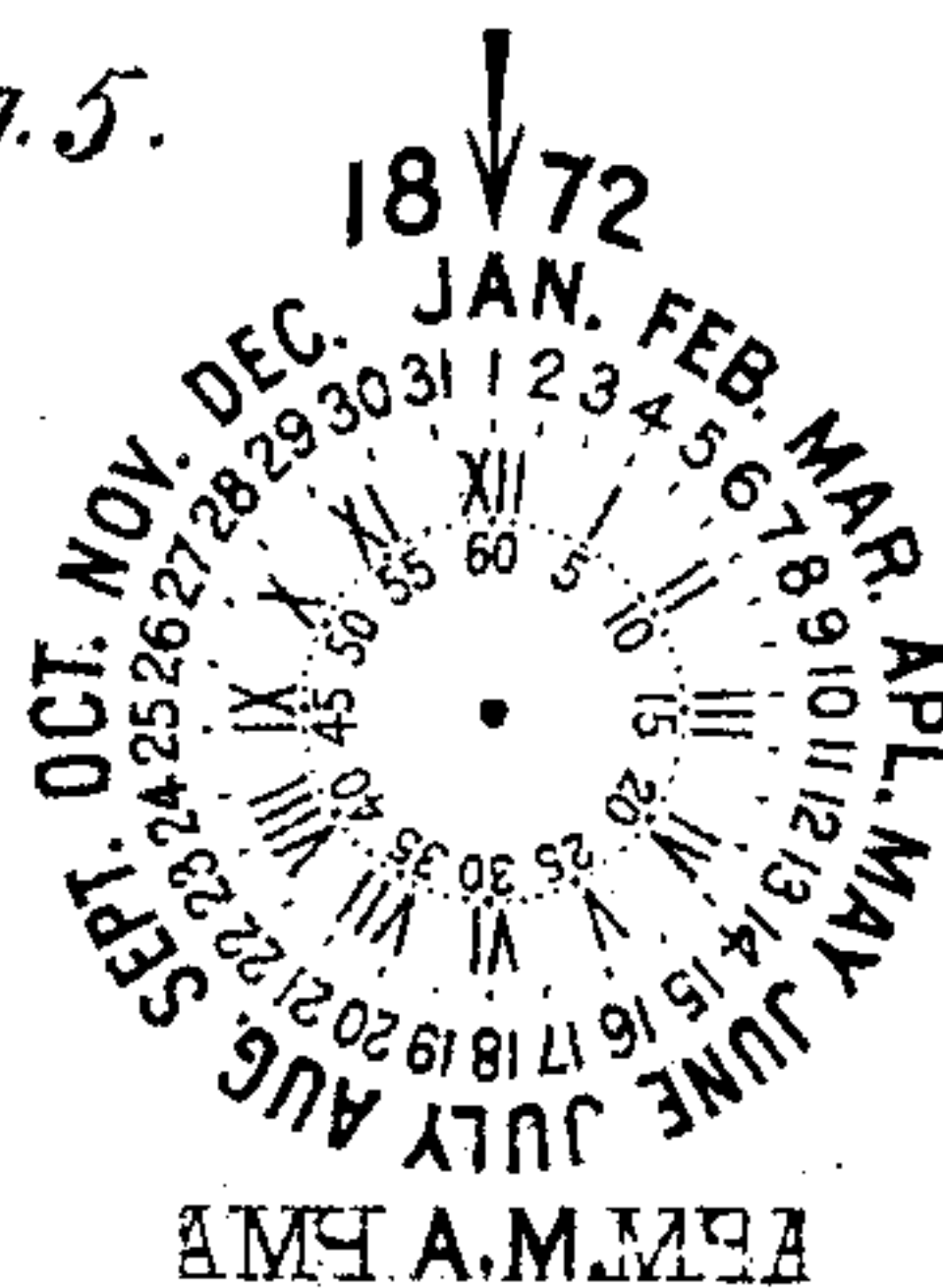


Fig. 7.

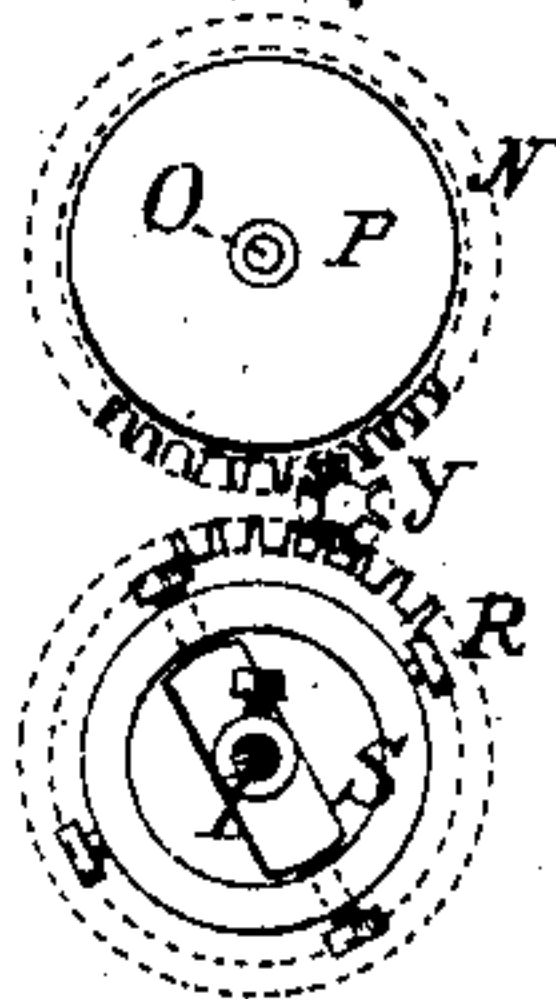


Fig. 6.

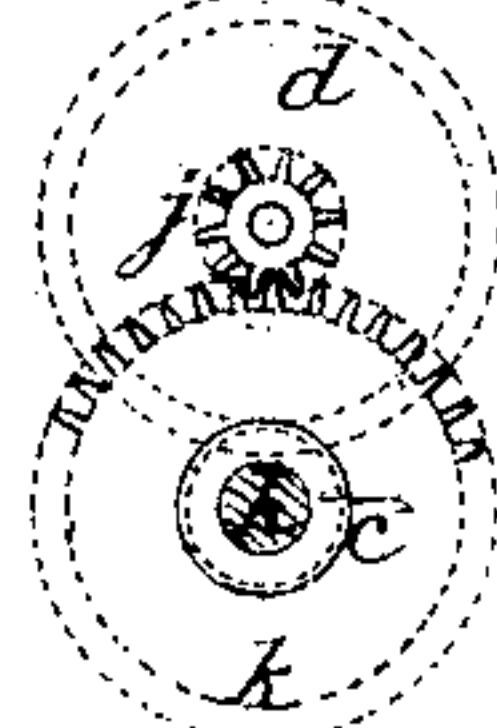


Fig. 2.

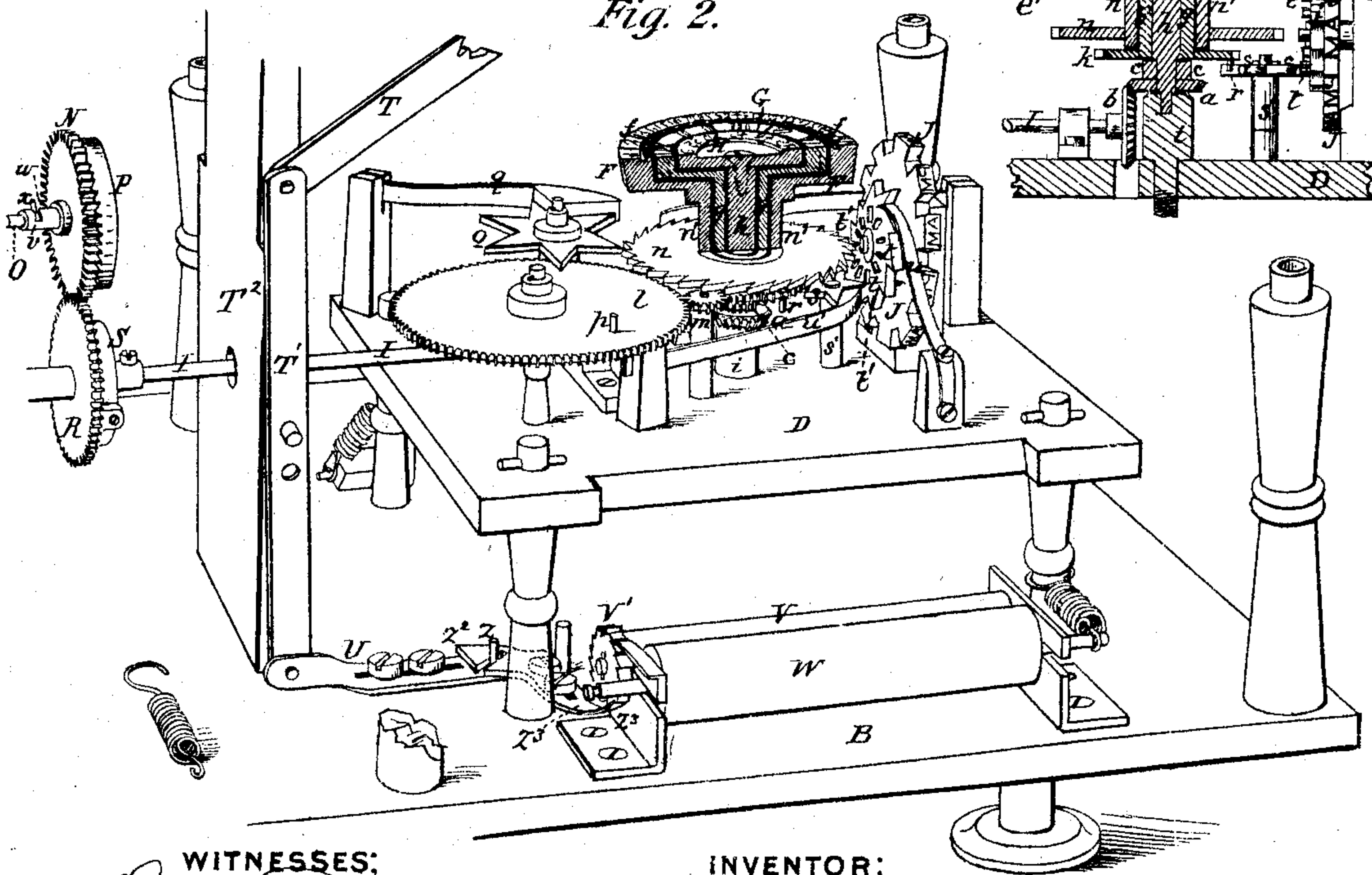
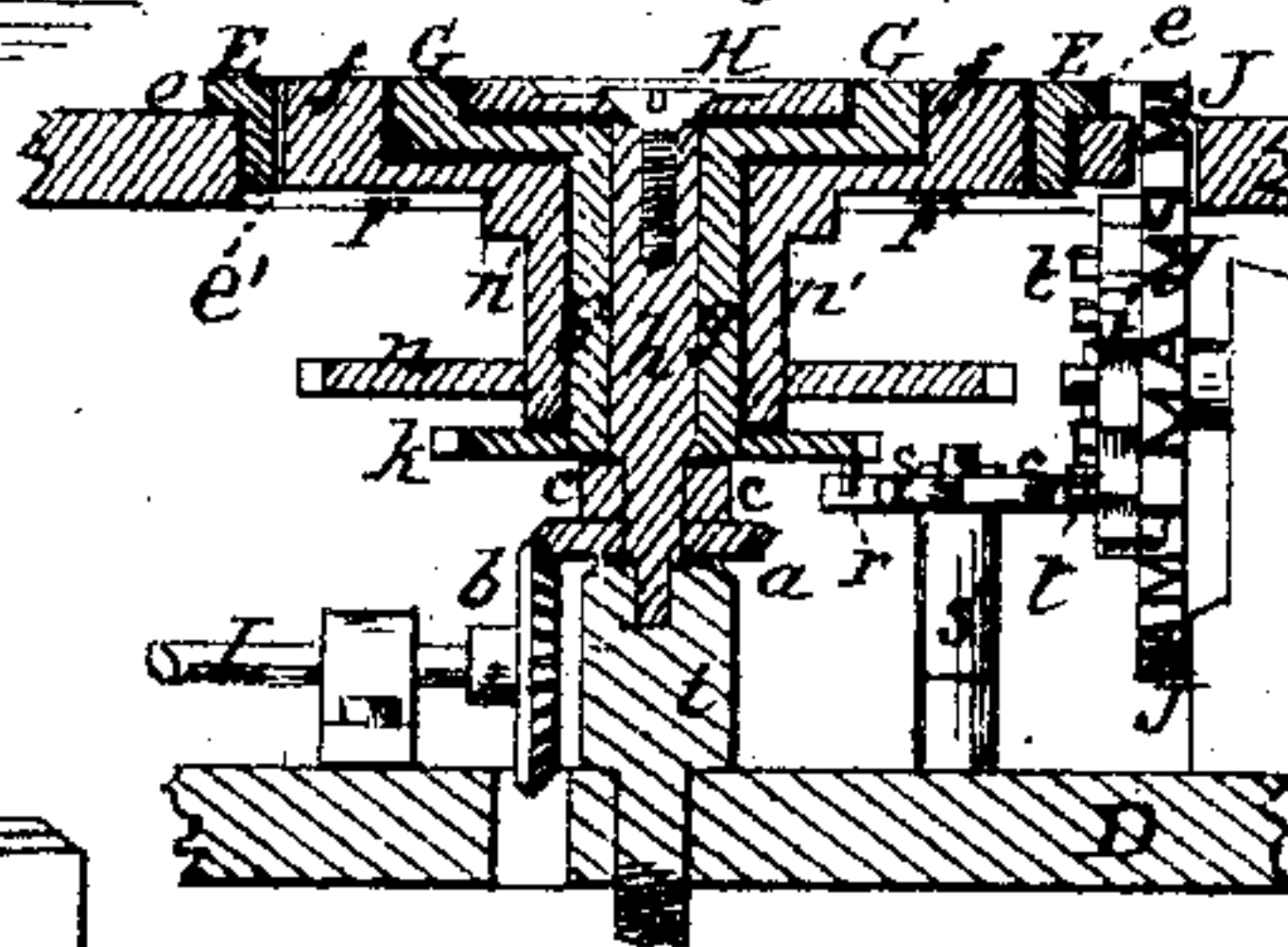


Fig. 4.



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IMPROVEMENT IN AUTOMATIC TIME-PRINTING MACHINES.

Specification forming part of Letters Patent No. **139,154**, dated May 20, 1873; application filed October 2, 1872.

CASE B.

To all whom it may concern:

Be it known that I, JOHN C. HINCHMAN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Automatic Time-Printers, of which the following is a specification:

My invention relates to machines for automatically timing stamp-printing, the object of which is to indicate the time for all purposes requiring a record or imprint of the time and date desired; and the invention which forms the subject-matter of this patent consists in combining, in a time-printing machine the motor whereof is a clock or watch movement, printing dials or indicators, arranged and operated within concentric circles; in the arrangement of the printing-dials so as to present horizontal surfaces of fixed and moving lines of printing-figures; in the arrangement and support of the outer concentric dial within an annular opening in the top plate, so as to allow it to be adjusted by hand, with respect to the automatic-moving dials and a fixed point, to indicate the month of the time to be printed; in the arrangement of the hour and minute dials upon separate and distinct controlling axis, one within the other, and operated, with respect to each other, to make the proper record; in the arrangement of the meridian-wheel at right angles to the concentric dials for compactness and facility in reading the time; in constructing the meridian-wheel with every other indicator to correspond with the ante and post meridian divisions, thus rendering the movement of the meridian-wheel necessary only once in every twelve hours; in combining, with a stamp-timing machine, controlled by a clock or watch movement, a device for receiving and restoring the lost motion of the minute and hour type-dials when arrested by the pressure of the stamp thereon; in the device for restoring the lost motion of the type-dials, consisting of a toothed wheel having a winding and unwinding motion upon the driving-arbor of the motor independent of the motion of the latter; in a stamp-timing machine, controlled by a clock movement, connecting the two things by a universal joint of the transmitting-rod

to render the motion thereof steady; in the arrangement, in a stamping-machine having an automatic intermittent-feeding inking-ribbon, of the devices for effecting said feed by the action of the stamp; and, finally, my improvement consists of the time-printing machine having all its parts constructed, arranged, and connected, for joint operation, with a controlling clock or watch movement, as will be more fully hereinafter described.

In the accompanying drawing, Figure 1 represents a view, in perspective, of a timing-machine for impression-stamps embracing my invention, the ink-ribbon being shown as broken away to expose the type-dials. Fig. 2 represents a similar view on an enlarged scale, with the hand-press and top plate of the machine removed, and a sectional view of the timing-dials. Fig. 3 represents the spring-box and spring for taking up and giving out the suspended motion of the dials while printing. Fig. 4 represents a vertical section of the type-dials and connecting-arbors, and Fig. 5 a diagram of an impression as produced by the type-dials.

The machine consists of two principal parts—viz., a motor of any suitable clock or watch movement, shown at A, Fig. 1, and a timing-machine for transferring by impressions a correct record of time. The mechanism of this timing-machine, in the example shown, is mounted upon three plates—viz., a bed-plate, B, a top plate, C, and an intermediate plate, D, the two upper ones being supported a suitable distance apart by pillars. The type-dials are arranged upon vertical arbors, so that their printing-surfaces project just above the top plate C, and are carried by separate and distinct axes, with their type-dials arranged concentric with each other, the day, hour, and minute dials being within the outer fixed dial for indicating the month. The fixed rim E is fitted within an opening, *e'*, in the top plate, and held in position by a flange, *e*, (see Fig. 4,) upon the upper face of which the months of the year are indicated by raised letters. Within this rim E a sleeved plate, F, is fitted, upon the upper face *f* of which raised letters or figures are made, indicating the days of the month; and within this plate E a sim-

ilar plate, G, is mounted upon a hollow axis, *g*, and having an annular line of figures or letters raised thereon, indicating the hours of the day, while within this nest of dials the minute-dial plate H is arranged upon a central arbor, *h*. Each of these three dials F G H has its own independent and separate movement within each other, and all within the outer fixed rim E, from which the timing impressions are made in concentric circles. The arbor *h* of the minute-dial H passes through the hollow arbor *g* of the hour-dial, and is mounted in a stud, *i*, fixed upon the middle plate D, and carries at its lower end a bevel-wheel, *a*, which matches with a bevel-wheel, *b*, on the end of a rod, I, connecting with the clock movement, the object of which will be presently described. Just above the bevel-wheel *a* the minute-dial arbor *h* is provided with a pinion, *c*, which matches with a cog-wheel, *d*, mounted upon a stud on the plate D, which cog-wheel *d* carries a pinion, *j*, (see Fig. 6,) which engages with a cog-wheel, *k*, on the lower end of the hollow axis *g* of the hour-dial. The last-named cog *k* engages with a larger cog-wheel, *l*, by an intermediate pinion, *m*, the object of which is to impart the motion of the hour-dial to the date-dial, or day-of-the-month dial. This is accomplished by means of a ratchet-wheel, *n*, secured to the lower end of the sleeve *n'*, which carries the date-dial *f*, and receiving an intermittent movement from a star-wheel, *o*, mounted in a stud by the side of the cog-wheel *l*, and operated by a pin, *p*, on said wheel at every revolution thereof, viz., once in twenty-four hours, said ratchet-wheel *n* being controlled in its movement by a spring-pawl, *q*, of the star-wheel *o*. This completes the organization of the concentric hub of dials, and the means for giving movement to each. A meridian-indicator, J, completes the indications of the timing-dials, and is arranged upon an axis independent of that of the system of dials, so as to move at right angles to them and present its meridian indications every twelve hours on the same plane with the horizontal dials. This meridian-wheel J has its meridian indications made in alternate order, the object of which is to present its indications of post and ante meridian by the intermittent movement of the wheel J in a forward direction, being turned for that purpose only once in every twelve hours, by means of a pin, *r*, projecting from the under side of the hour-dial cog-wheel *k*, so as to operate a star-wheel, *s*, fixed upon a stud, *s'*, and catching into pins or teeth *t* on the side of said meridian-wheel. Spring pawls, *u u'*, are arranged to take into the star-wheel *s* and a ratchet-wheel, *t'*, on the wheel J, to limit their movement. This meridian-wheel J is placed at the bottom of the concentric system of dials, and forms a tangent to the fixed annular dial E, and in this position it serves as a mark from which to strike a central indicating-line, by which to read the proper time from the stamped impression. Any stationary mark may serve

to indicate this reading-point, such as an arrow or the year at the top of the concentric dials, so that if the top mark should fail to indicate, the lower one will be a guide, as shown in Fig. 5.

The stamp-presser is carried by a vertical stem, K, and with a rubber face, L, which is depressed upon the indicating-dials, the impressions from which being made by an endless ink-ribbon, M. As the minute and the hour dials H G have a continuous movement, it will be observed that the contact and pressure of the presser-bed upon them, while making the impression, will, to a greater or less degree, arrest their motion, which would not only endanger the more delicate parts of the trains, but interrupt the accuracy of the time by reason of the lost motion. To obviate this objection I provide the axis I of the driving bevel-wheel *b* of the timing-machine, at its junction with the motor, with a spring-connection, consisting of a cog-wheel, N, secured by a sleeve, *v*, upon the driving-arbor O of the motor A, in a manner to have a limited movement thereon independent of that of the arbor O, by means of a slot, *w*, in the sleeve, into which a pin, *x*, from the arbor projects, as shown in Fig. 2 of the drawing. The cog-wheel N has a case, P, on its face, within which a coil-spring, Q, Fig. 3, is arranged, with one end attached to the driving-arbor O, and the other to the inner side of said case P. This, of course, allows the motion of the cog-wheel N to be arrested and held still upon the driving-arbor O without interfering with the motion thereof, and thus allow the motion of the minute and hour dials H G to be stopped while under the pressure of the stamp, and when released therefrom to be free to move forward, and thus take up their lost motion and always keep their proper positions, the same as if they had not been arrested at all, and by this means maintain the correctness of the time.

The take-up wheel N is connected to the timing-machine by means of a toothed wheel, R, on the driving-axis I of the timing-machine, the connection being made by an intermediate pinion, *y*, Figs. 1 and 7, to insure the right course of the wheels N R.

To render the connection of the driving-axis I of the timing-machine with the cog-wheel N of the motor, so that the motion will be steady and compensate for any variations in the difference in the positions of the respective parts, I connect the said driving-rod I to the wheel R by means of a universal joint, S, shown in Figs. 1, 2, and 7, and thereby aid in preserving the correct motion of the machine, the said universal joint S being connected to the face of the wheel R, and the rod I to said joint.

The endless inking-band M of the timing-machine has its intermittent movement made automatic by means of the action of the presser-stamp, which has its movement imparted to the inking-ribbon by connected levers T

T^1 , one of which, T^1 ; is pivoted to the standard T^2 of the stamp-stem K, and the other, T, to the presser-plate, and the pivoted lever T^1 is connected by a slotted slide, U, which moves by a pin, z , and slot-connection, a slide, z^2 , carrying a spring-pawl, z^3 , which operates the feed-roller V by a ratchet, V' , on the end thereof, the feed-roller V being provided with an inking-roller, W, as shown in Figs. 1 and 2. At every descent of the presser L the feeding-roller V is turned so as to feed the ribbon M over the type-dials, just previous to the contact of the presser, to make the impression, the ribbon being held in proper position over the type-dials by rollers X X arranged in the top bed-plate C on opposite sides of the dials. A torsion-roller on the opposite side of the machine, in guides on the bottom plate, keeps the inking-ribbon properly adjusted. The recoil of the stamp is effected by means of a spring arranged within the stem in the usual manner.

It will be observed that the motion of the clock or watch movement is communicated to the timing-machine by means of the lost-motion-take-up device, which, when the type-dials are held by the presser, is caused to wind up with the continued motion of the clock, the wound-up spring Q having sufficient force, that, when the dials are released by the ascent of the presser, will recoil upon the arbor O, and, through the connecting mechanism, convey to the minute and hour dials a movement equal to that which they lost, and thereby recovering their lost motion caused by contact with the presser, and be in position to record the time accurately for the succeeding impression.

It will be understood that the hour and minute dials correspond to the movement of the hour and minute hands of a clock or watch, and that two entire revolutions of the hour-dial will change the position of the date-dial, and at the end of every twelve hours the meridian-wheel is moved forward, so as to present either the ante or post meridian indicators, as the case may be. In this way the full time of every twenty-four hours is correctly indicated for each day of the month, the hour and minute dials having a continuous motion independent of each other, and within separate and distinct circles of motion, each around the same center. At the expiration, however, of any month having less than thirty-one days, the dials must be set by hand to correct positions.

The outer concentric dial is adjusted by hand to indicate the month with respect to the fixed point of the top plate, as shown in Fig. 5.

Having described my invention, I claim—

1. In a time-printing machine, the type-dials, arranged and operated within concentric circles, essentially as and for the purpose described.

2. The outer concentric dial E of the timing-machine, arranged within an annular opening, e' , in the top plate C, and supported thereon, so as to be adjusted to indicate the month with respect to a fixed point, essentially as described.

3. The date, hour, and minute dials, each having a separate and distinct controlling-axis, one within the other, and operated with respect to each other as and for the purpose set forth.

4. The meridian-wheel J, arranged at right angles to the concentric dials, and operated as described.

5. The meridian-wheel J, having every alternate indicator arranged to indicate the meridian divisions of every twelve hours, as described.

6. In combination with a time-printing machine and a clock or watch movement, a device for receiving and restoring the lost motion of the type-dials when arrested by the pressure of the stamp.

7. The device for restoring the lost motion of the type-dials, consisting of a toothed wheel, N, having a winding and unwinding spring, Q, upon the driving-arbor O of the motor, independent of the motion of the latter, the reaction and restoring motion of the dials being effected by the spring, as described.

8. In combination with a timing-machine and a clock or watch movement, the driving connecting shaft or rod I of the former, united to the latter by means of a universal joint, S, to render the motion of the transmitting-shaft I steady, essentially as described.

9. The combination in a stamping-machine of the connected levers $T T^1$ and slide U with the presser-stamp and the endless inking-ribbon M, arranged to operate the latter by the spring-pawl z^3 and ratchet-connection V' , substantially as described.

10. Finally, the timing-machine, with its connected clock or watch movement, having all its parts constructed and arranged for joint operation essentially as described.

In testimony whereof I have hereunto set my hand this 9th day of September, A. D. 1872.

JOHN C. HINCHMAN.

Witnesses:

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J. W. HAMILTON JOHNSON.