

(No Model.)

3 Sheets—Sheet 1.

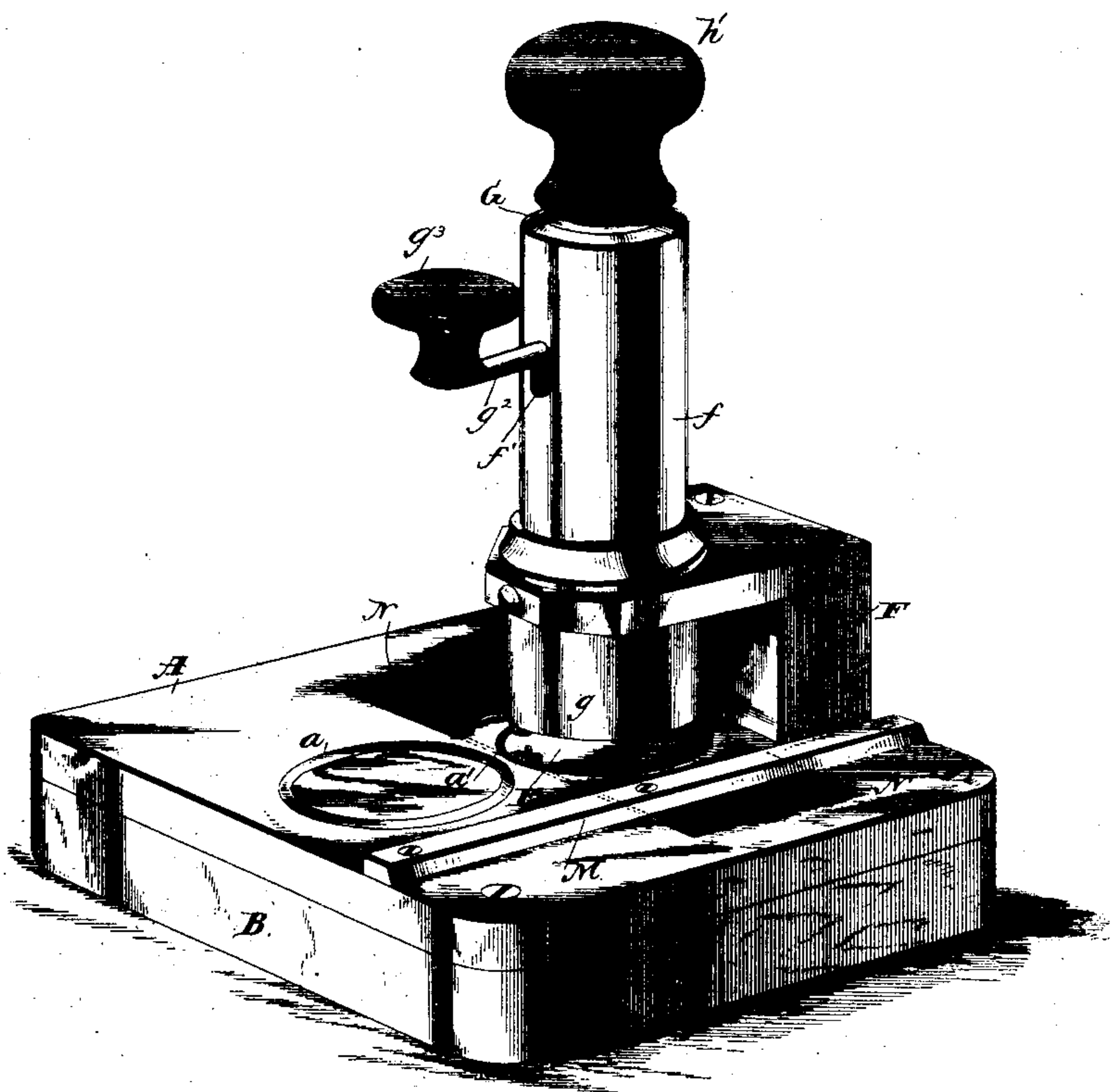
E. M. HAMILTON.

APPARATUS FOR RECORDING MEASUREMENTS OF TIME, SPACE, OR
QUANTITY.

No. 424,291.

Patented Mar. 25, 1890.

Fig. 1.



Witnesses
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Henry C. Hazard

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Emory M. Hamilton, by
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

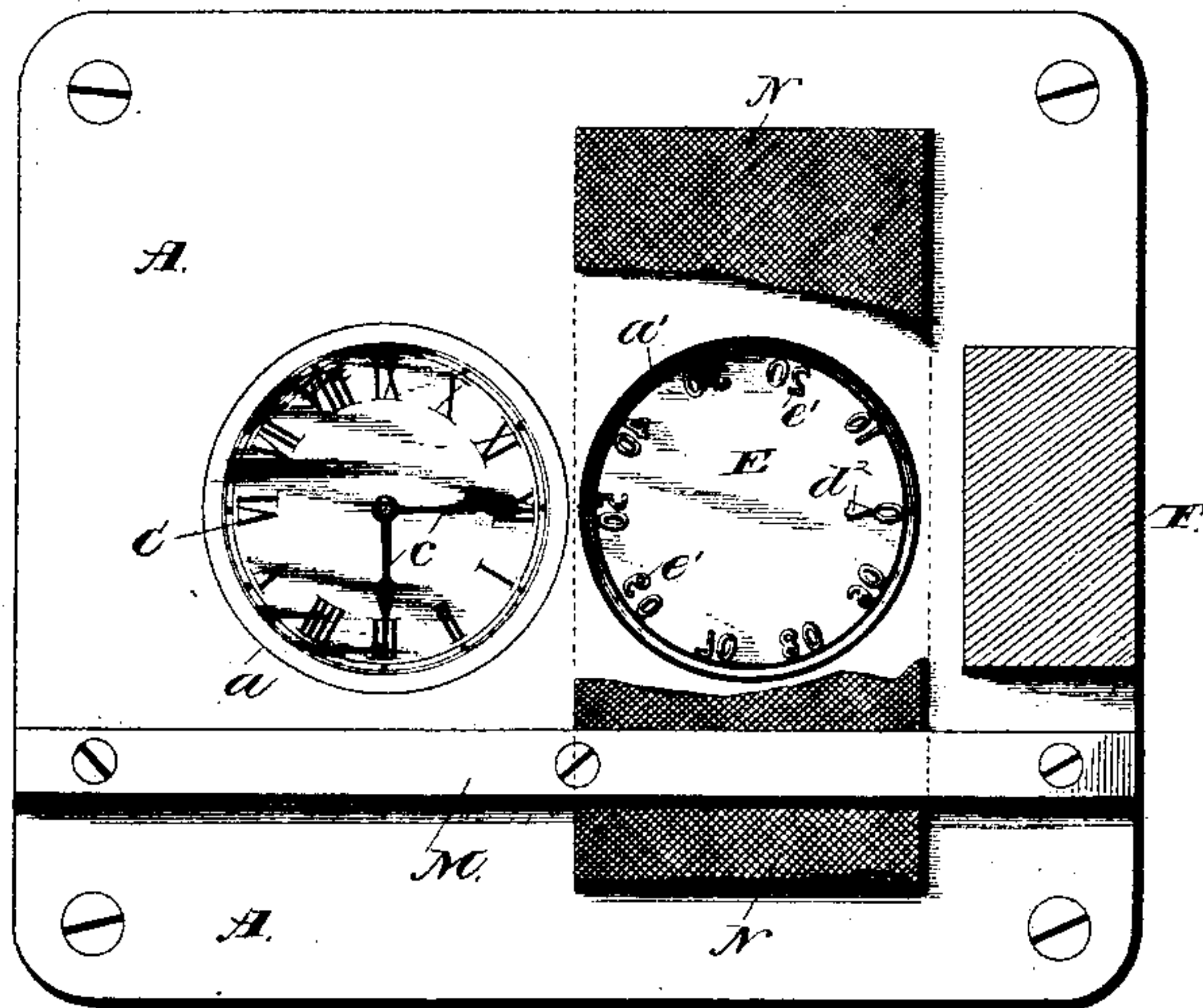
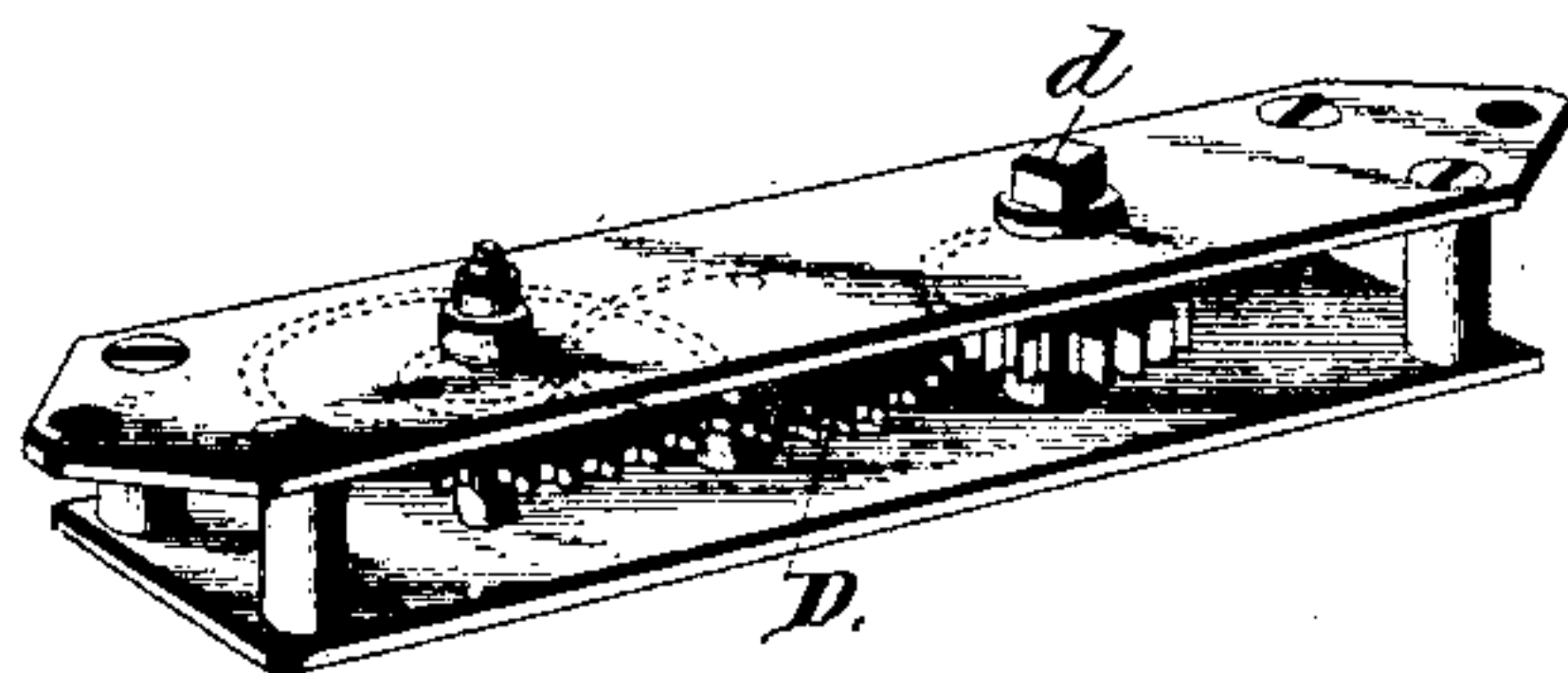


Fig. 3.



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Fig. 4 Patented Mar. 25, 1890.

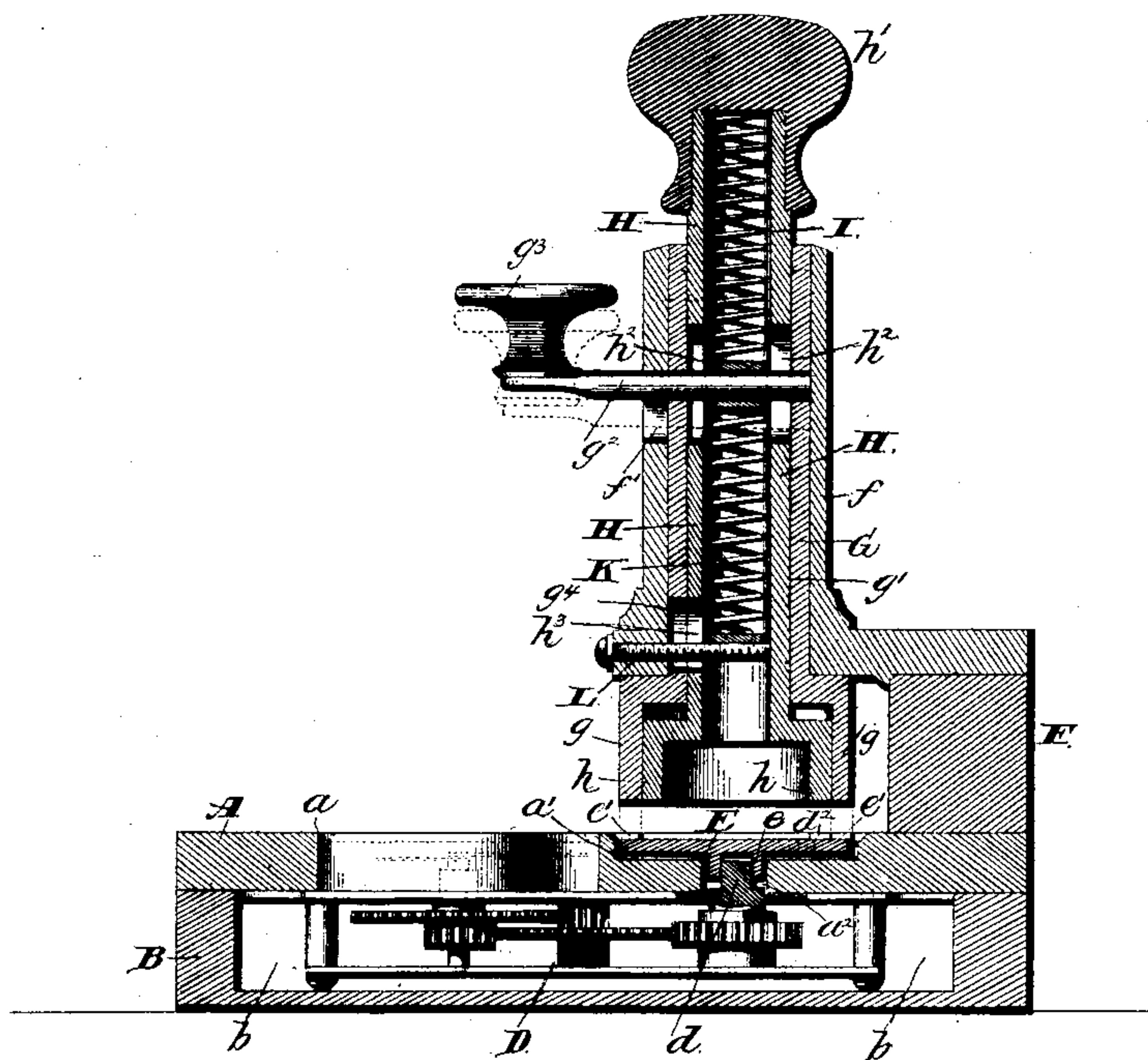


Fig. 6.

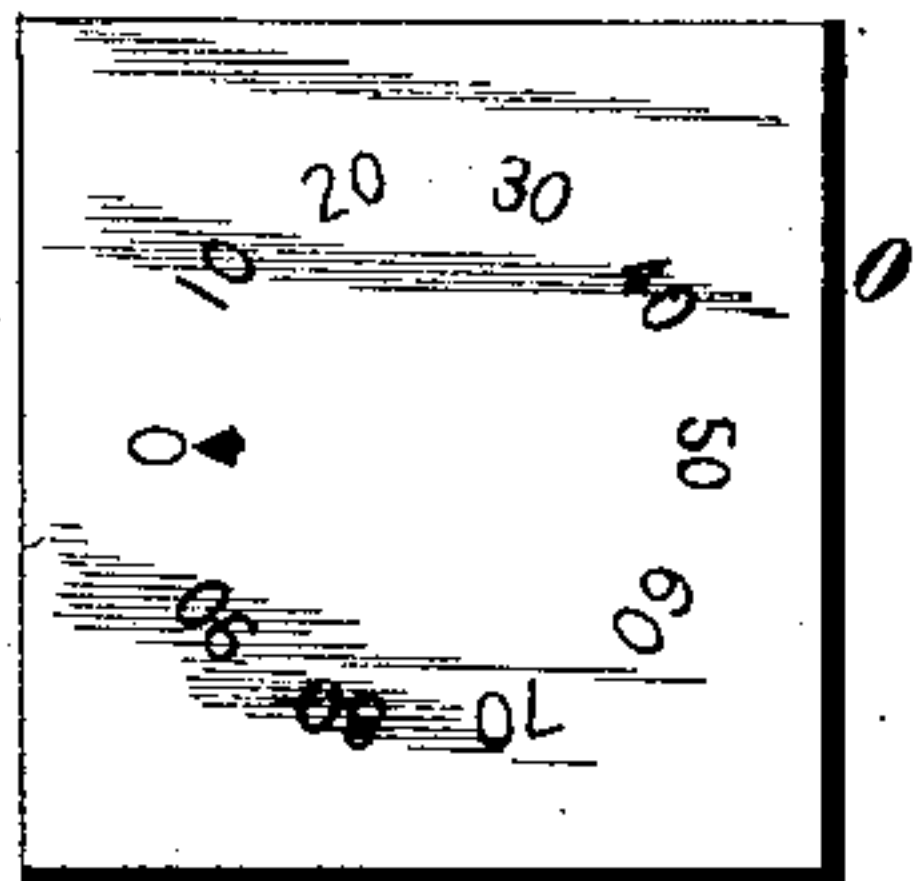


Fig. 5.

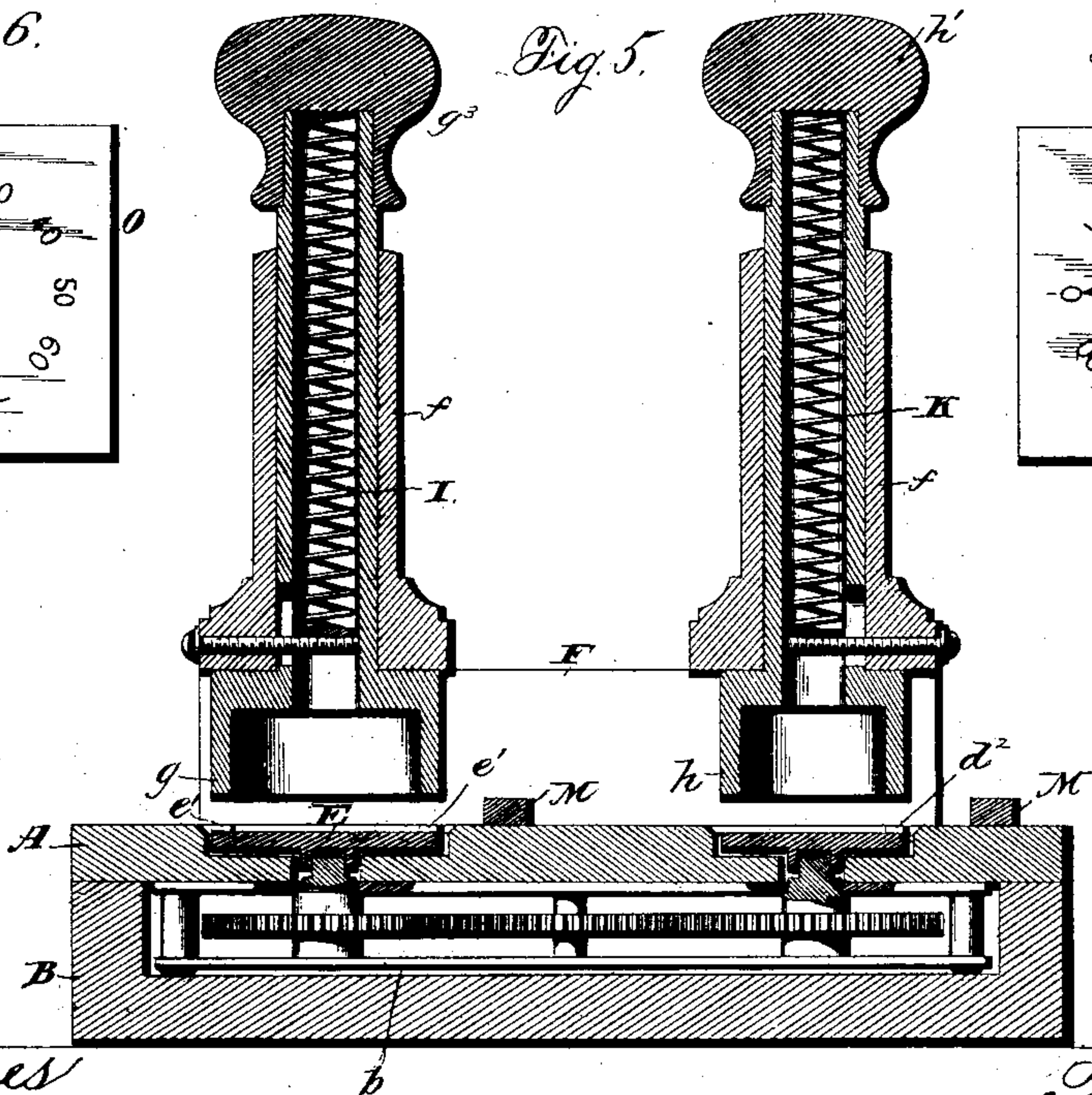
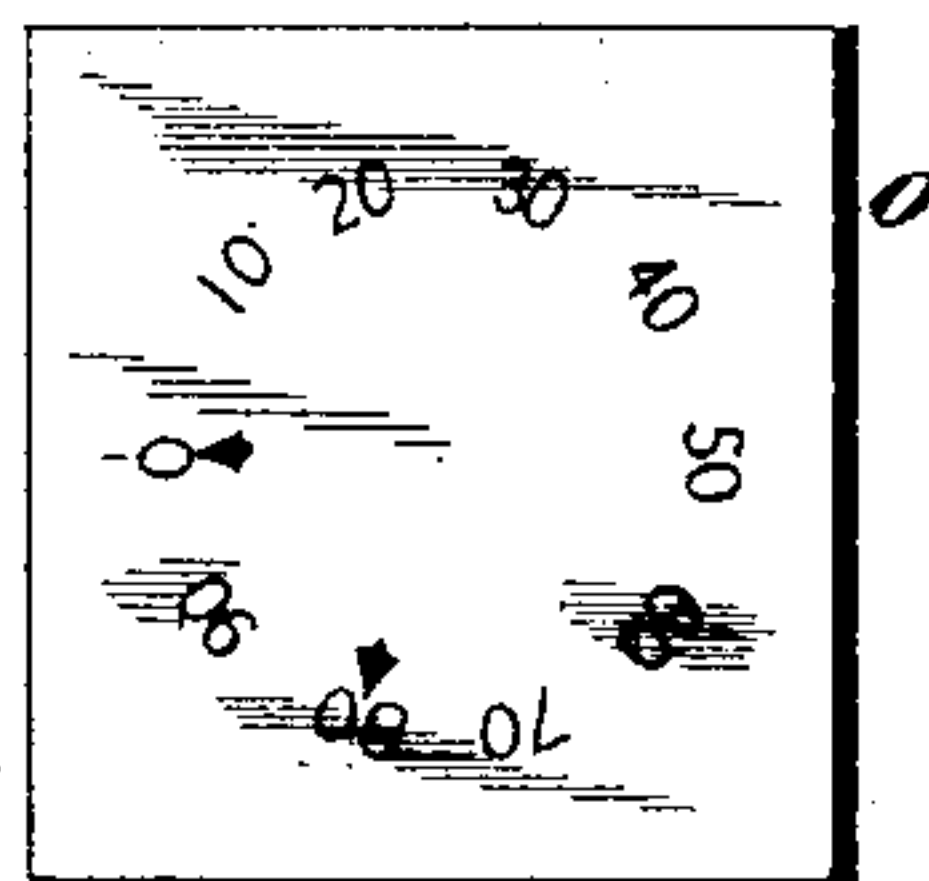


Fig. 7.



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UNITED STATES PATENT OFFICE.

EMERY M. HAMILTON, OF NEW YORK, N. Y., ASSIGNOR TO HENRY ABBOTT,
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APPARATUS FOR RECORDING MEASUREMENTS OF TIME, SPACE, OR QUANTITY.

SPECIFICATION forming part of Letters Patent No. 424,291, dated March 25, 1890.

Application filed December 18, 1886. Serial No. 221,955. (No model.)

To all whom it may concern:

Be it known that I, EMERY M. HAMILTON, of New York, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Apparatus for Recording Measurements of Time, Space, or Quantity; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my device as arranged for use. Fig. 2 is a plan view of the upper side of the base, the inked ribbon being broken away to show the printing-die. Fig. 3 is a perspective view of the time-train separated from the other parts of the device. Fig. 4 is a vertical central section upon a line passing from front to rear, the full lines showing the normal positions of the platens and the dotted lines the position of the numeral-platen when depressed. Fig. 5 is a like view of a construction in which the platens are separately arranged. Fig. 6 is a plan view of a ticket which has been stamped at the commencement of an interval of time, and Fig. 7 is a like view of the same when stamped at the close of such interval.

Letters of like name and kind refer to like parts in each of the figures.

The object of this invention is to enable measurements of time, space, or quantity to be easily and quickly recorded by automatically-changing mechanism; and to this end such invention consists in the construction and combination of parts constituting my device, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice I employ a base-plate A, which has the general form of a parallelogram, and is preferably secured upon a correspondingly-shaped block of wood B. Within the base A, at one side of its center, is formed a round opening a , within which is placed the dial C and hands c and c' of a time mechanism, the train D of which is located beneath said base within a recess b , that is provided in the block B. At the side of the center of the base A, opposite to the opening a , is a circular recess a' , and at the center of such recess is formed an opening a^2 , which extends through said base into

the cavity b . Said recess a' receives and contains a correspondingly-shaped metal disk E, that upon its lower side is provided with a hub e , which extends into the opening a^2 , while upon the upper side of said disk are formed a series of raised numerals, letters, or characters e' and e'' , that are arranged at equidistant points around the edge of the same.

In the drawings, for the purpose of illustration, are shown numerals which indicate every tenth division of a circle having one hundred equal divisions, and at a point directly opposite to but nearer the center than the zero-mark is a raised arrow-head d^2 , that preferably has its point toward said mark.

The hub e of the disk or die E is connected with an arbor d , which forms part of the train D, so that by the action of the time mechanism said die is caused to rotate in a predetermined time with a constant speed.

Secured to the end of the base A, adjacent to the die E, is a bracket-arm F, which from thence extends upward and then horizontally inward until directly over said die, and upon its inner end carries a cylindrical barrel f that is arranged with its axis vertical and in a line with the axis of said die. Within the barrel f is loosely fitted a hollow sleeve G, which extends downward below the lower end of said barrel and at its lower projecting end has an annular enlargement or platen g , that corresponds in external diameter to the like feature of the die E, and has such thickness as to cause its inner edge to be upon a line with the inner ends of the numerals e' and e'' . A second sleeve H is fitted into the axial opening g' of the sleeve G, and upon its lower end has an annular platen h , which fits loosely into the head g of the latter and has such thickness as to cause its lower end to be directly over and to cover the arrow-head d^2 of the die E, while being entirely within the line of the figures e' and e'' .

The upper end of the sleeve H is provided with a knob h' , by which it may be pressed downward, while for a similar purpose a rod g^2 passes horizontally through the sleeve G, through longitudinally-elongated slots h^2 and h^3 in said sleeve H, and through a like slot f' in the barrel f , and upon its outer end is provided with a knob g^3 .

The sleeve H is held with a yielding pressure at the upper limit of its motion by means of a spiral spring I, that is placed between the knob h' and the rod g^2 , while to hold the sleeve
 5 G at the upper limit of its motion a similar spring K, having greater strength than said spring I, is placed between said rod and a screw L, that extends inward through the barrel f , and through corresponding slots g^4 and
 10 h^3 , which are formed within the contiguous sides of said sleeves G and H, respectively.

A guide-strip M, secured upon the base A, and extending across the same at one side of the dial-opening a and a die-recess a' , and an
 15 inked ribbon N, which extends across the die E, and thence downward at each side to and around spools that are placed beneath completes the device, the operation of which in keeping the time of an operative is as follows,
 20 viz: Suppose that an operative is to receive ten cents per hour for his time, and that he reports for duty at 9 a. m. A card or ticket O, preferably having the name of the operative, is placed in position for printing against
 25 the guide-strip M, and both of the platens g and h are pressed downward, so as to print upon the lower face of said ticket a fac-simile impression of the numerals and arrow-head of the die E, with the arrow-head
 30 at 0, (zero,) as shown in Fig. 6, after which such ticket so stamped is given to the operative as his voucher. When the operative quits work—say at 5 p. m.—he presents his ticket for completion, when it is placed in
 35 the exact position it before occupied, and the platen h is pressed downward so as to cause the arrow-head alone to be printed upon said ticket; but as during the interval of eight hours said die will have made eight-tenths
 40 ($\frac{8}{10}$) of a revolution the second point of said arrow-head will be opposite to the numeral 80, which will represent the exact number of cents due for eight hours' work at ten cents per hour. The ticket thus stamped is paid
 45 by the cashier and then becomes his voucher for the amount disbursed.

It will be obvious that any desired number or order of figures may be cut upon the printing-die, so as to cause its impressions to represent hours and fractions of hours, &c., instead of dollars or fractions of dollars, the principle of operation being the same in each instance. If desired, the first impression on the ticket may be of the arrow-head alone, and
 55 the second impression may contain the figures alone; but in such event it would be necessary that the printing-die should move in

the reverse direction, in order that the figures thereon should in progressive order pass the point which was occupied by said arrow-head
 60 at the time the first impression was taken. This mechanism is equally adapted for keeping the accounts of any number of billiard-tables, bowling-alleys, &c., as the pointer or arrow-head is always at zero when the first
 65 impression is taken, and when a second impression is taken of said arrow-head its change of position will cause the printed record to show either the exact amount of time which has passed since the first impression was
 70 taken or the equivalent of such time in fractions of a dollar as may have been predetermined.

While the numerals and arrow-head are preferably combined upon one die an equivalent arrangement is shown in Fig. 5, in which the general structure of the machine is the same as before described, except that the two dies, suitably geared together, are employed, and the platens and their operating devices
 80 are separately and independently supported.

Having thus described my invention, what I claim is—

1. A machine for measuring and recording intervals of time, in which are combined a
 85 rotatable printing-die that is provided with an annular series of progressive numerals-type and with a pointer-type which is in juxtaposition with the zero-numeral of the series, mechanism whereby said die may be rotated
 90 at a uniform velocity, and mechanism whereby the numerals-type and pointer-type may be separately printed upon a ticket, substantially as and for the purpose specified.

2. A machine for measuring and recording
 95 intervals of time, in which are combined a rotatable printing-die that carries an annular series of progressive printing-characters, and is provided with a pointer-type which is in juxtaposition with the zero-character of the
 100 series, a time-train that is adapted to rotate such die at a uniform velocity, and separate platens, one of which is adapted to be independently operated to produce upon a ticket impressions of the characters, type, and the
 105 pointer-type, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of December, 1886.

EMERY M. HAMILTON.

Witnesses:

A. S. FITCH,

A. G. N. VERMILYA.