No. 686,606. Patented Nov. 12, 1901.

J. G. HALLAS.

TIME STAMP.

(Application filed May 18, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

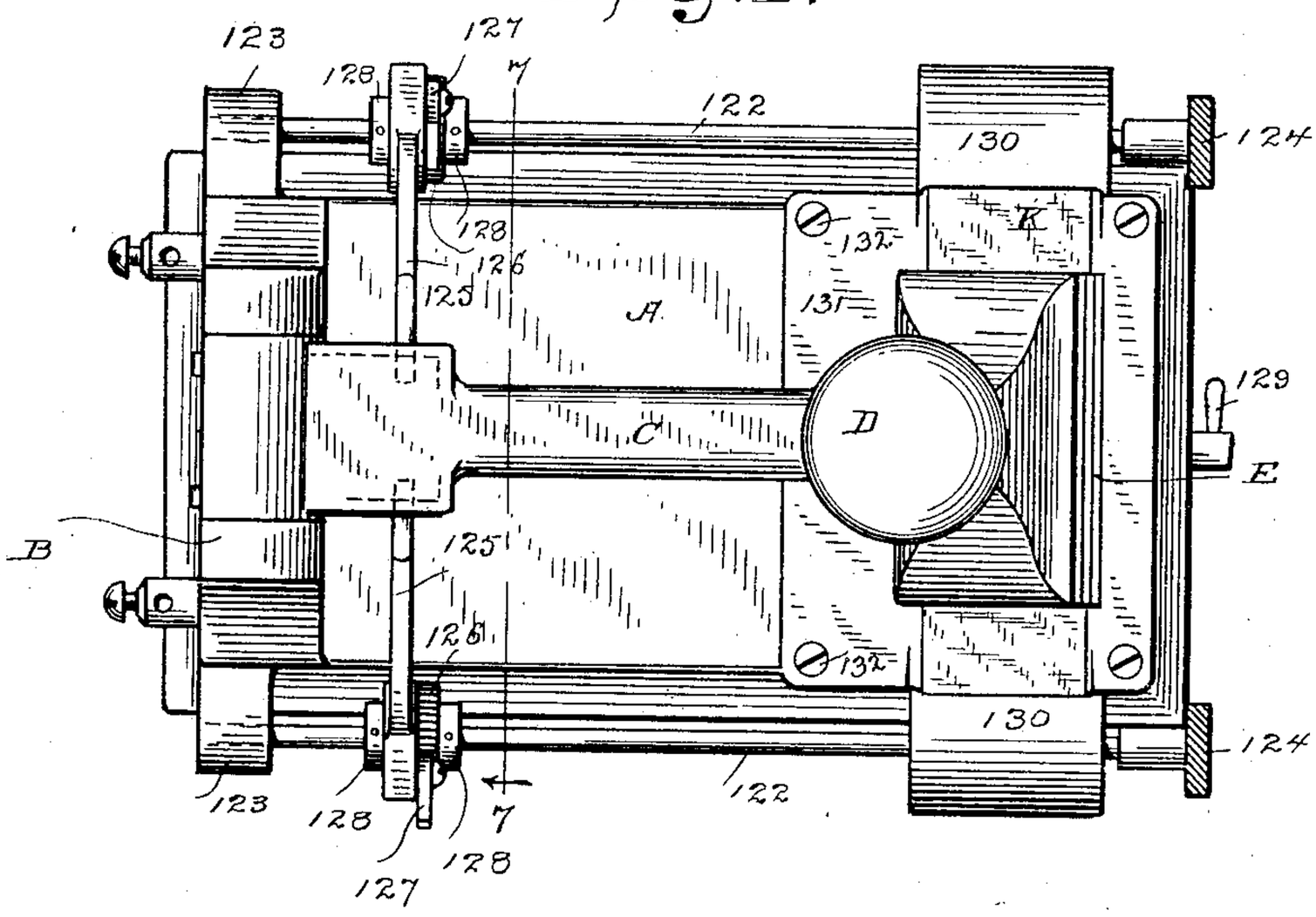
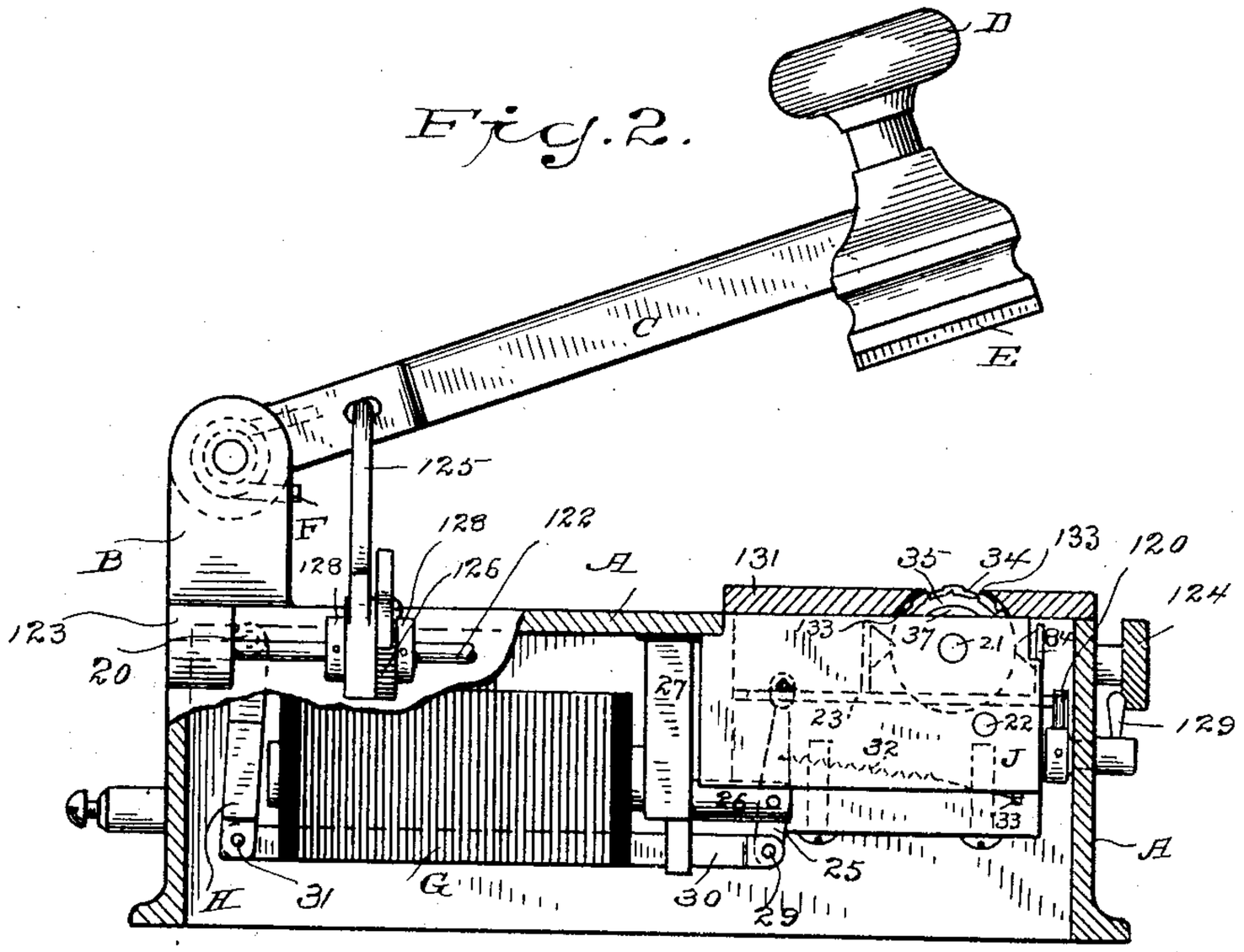


Fig. 2.



WITNESSES.

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INVENTOR.

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By A. W. Webster

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(No Model.) 3 Sheets—Sheet 2.

Fig. 3.

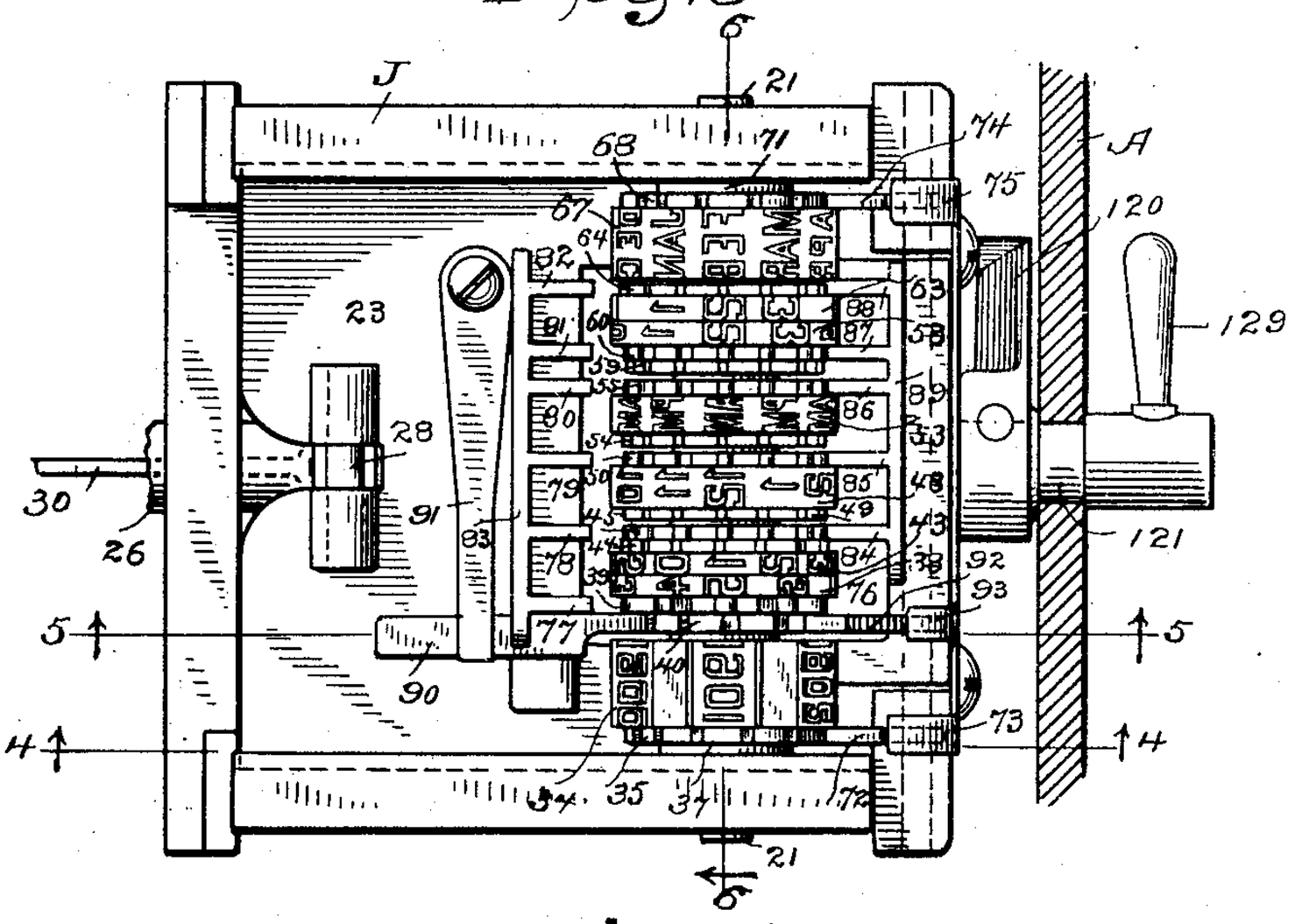

Fig. 4.

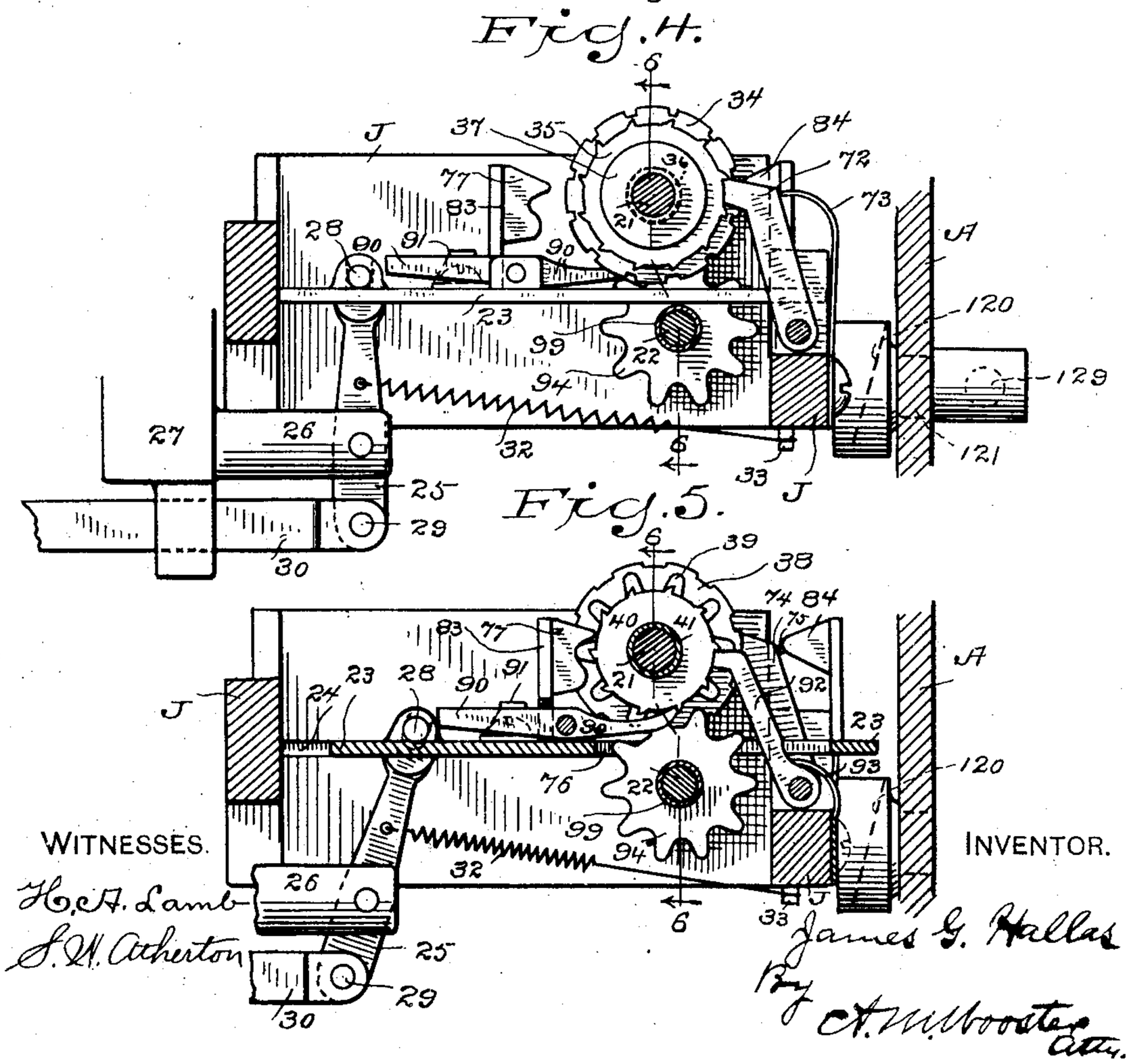

Fig. 5.

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Fig. 6.

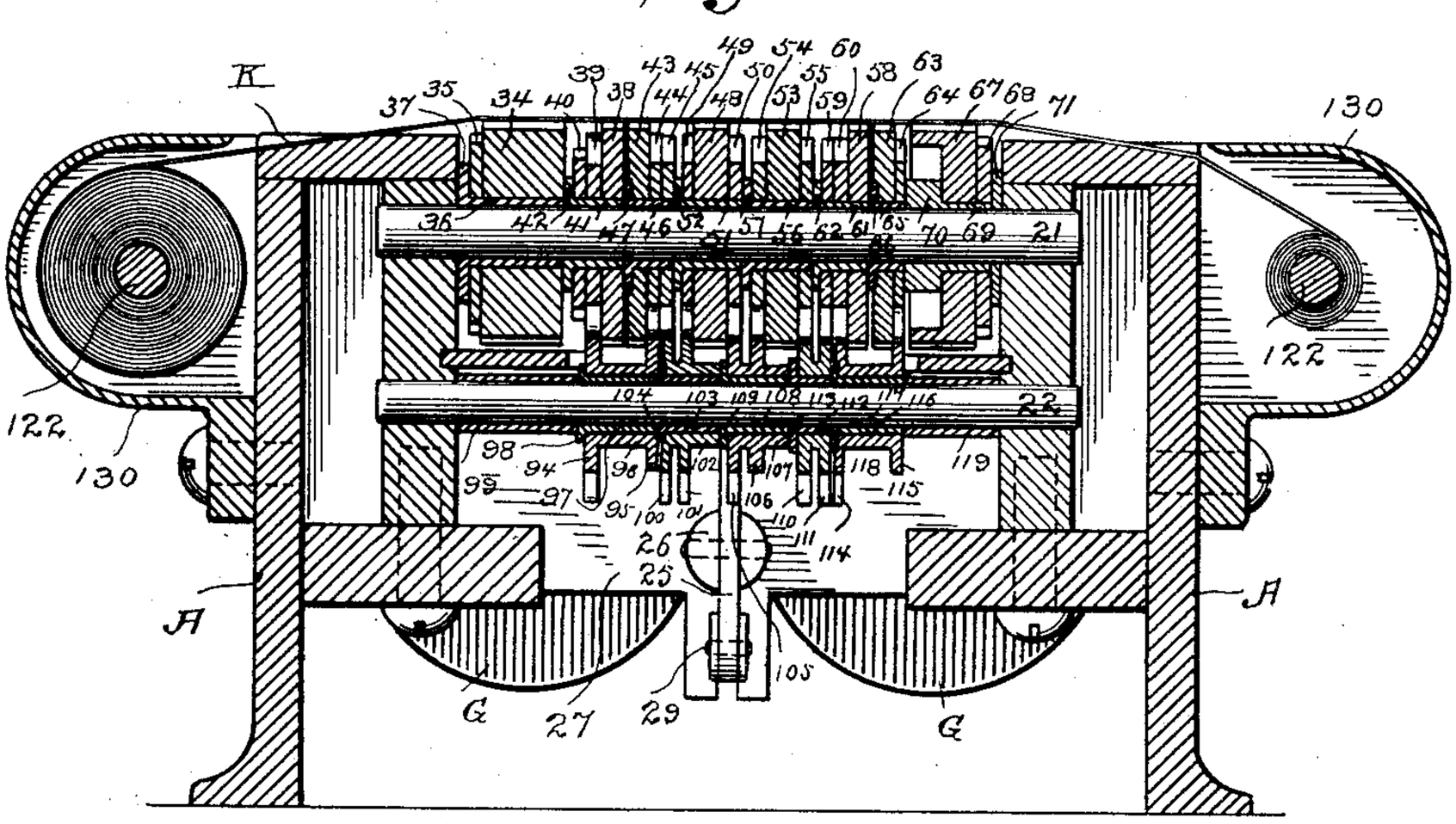
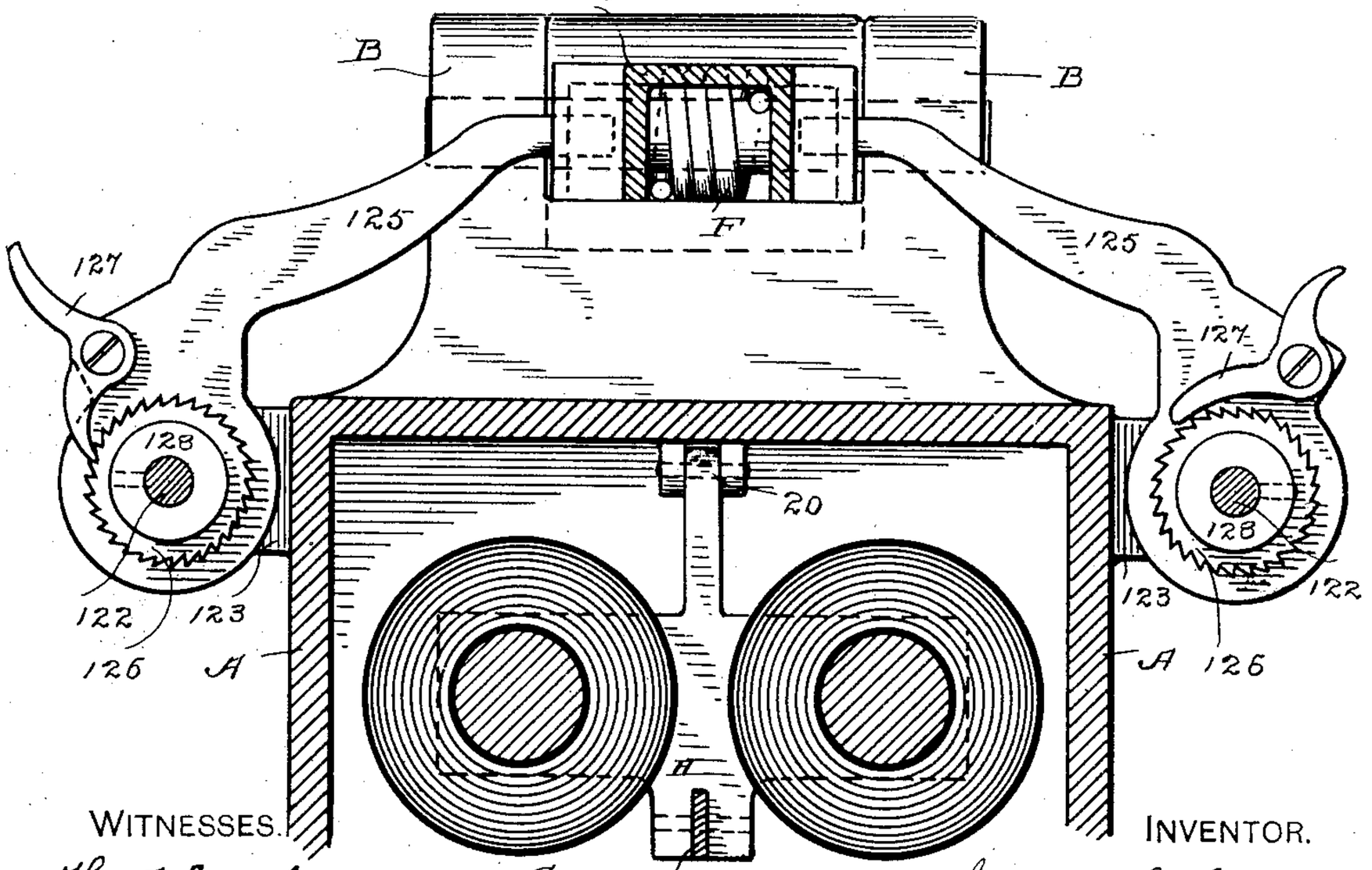


Fig. 7.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES G. HALLAS, OF WATERBURY, CONNECTICUT.

TIME-STAMP.

SPECIFICATION forming part of Letters Patent No. 686,606, dated November 12, 1901.

Application filed May 18, 1901. Serial No. 60,863. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. HALLAS, a citizen of the United States, residing at Waterbury, county of New Haven, State of Connecticut, have invented a new and useful Time-Stamp, of which the following is a specification.

My invention relates to the class of stamps commonly known as "time-stamps"—that is, stamps by means of which the date, time of day, and such other data as may be required may be printed upon letters and other documents by a single impression and in which the time is changed every minute by means of electrical connections; and my invention has for its object to provide a stamp of this character which shall be relatively simple and inexpensive to produce, durable and not likely to get out of repair, absolutely accurate so long as the electrical connections are maintained, and which, owing to the great and general improvements in the details of construction, notably the fact that springs are almost entirely dispensed with and the dating mechanism is located in the base instead of in the arm, shall be adapted to run with a very small current, much smaller, in fact, than has been possible with anything approaching accurate results in any device of the character heretofore placed upon the market.

With these ends in view I have devised the simple and novel time-stamp which I will now describe, referring to the accompanying drawings, forming part of this specification, and using reference characters to designate the several parts.

Figure 1 is a plan view of my novel time-stamp complete; Fig. 2, a side elevation, partly broken away, showing the slide locked at an intermediate position; Fig. 3, a plan view of the dating mechanism on an enlarged scale, the bed being removed, showing the position of the slide, driving-pawl, and stops at the instant of an electrical impulse—that is, while the armature is still in contact with the poles of the electromagnet and the slide is retracted; Fig. 4, a longitudinal section on the line 4 4 in Fig. 3, the parts being in the same position; Fig. 5, a longitudinal section on the line 5 5 in Fig. 3, but showing a changed position, the slide, driving-pawl, and stops being at their normal position—that is, after having effected an actuation of the time mechanism; Fig. 6, a transverse section on the line 6 6 in Figs. 3, 4, and 5; and Fig. 7 is a view, also on an enlarged scale, on the line 7 7 in Fig. 1.

A denotes the base, which may be of any ordinary or preferred design or construction, and B a bracket extending upward from the base, to which the swinging arm C is pivoted, said arm being provided with a knob D, an elastic pad E, and being normally retained at the raised position by means of a spring F.

G denotes an electromagnet secured within the base and having an armature H, shown as hinged to the top of the base, as at 20. The operative parts of the dating mechanism are mounted to turn on upper and lower shafts 21 and 22, fixed in a frame J, which is itself rigidly secured within the base. These parts receive motion from a slide 23, adapted to reciprocate in ways 24 in the frame and to receive its actuations from the armature in any ordinary or preferred manner. In the form illustrated in the drawings the connection intermediate the armature and the slide comprises a lever 25, fulcrumed on a stud 26, which extends from a transverse wall or abutment 27. The upper end of this lever is pivoted to the slide, as at 28, and its lower end is pivoted, as at 29, to a connecting-rod 30, the rear end of which is pivoted to the armature, as at 31. A spring 32, connected to the lever above its fulcrum and to the frame, as at 33, acts to normally retain the slide at the extreme of its forward movement. The operation of the slide is as follows: Each electrical impulse temporarily magnetizes the electromagnet which draws the armature into contact with the poles against the power of spring 32 and retracts the slide. An instant later—that is, at the cessation of the electrical impulse—the spring again draws the slide to its extreme forward position and returns the armature to its normal position—that is, out of contact with the poles of the electromagnet, as in Fig. 2. A driving-pawl 90 upon the slide engages a driving-ratchet 40 on shaft 21 at each forward movement and imparts a forward movement thereto. A spring 91 retains the pawl in engagement with the ratchet. This return movement of the slide, which is produced by spring 32 at the cessation of each electrical impulse, is the

actuating movement of the train of gearing and dating-wheels mounted and turning on shafts 21 and 22, as will be more fully explained.

Turning now to Figs. 3 and 6, I will enumerate the various dating-wheels, ratchets, and gear-wheels mounted to turn on upper fixed shaft 21. Commencing at the left in Fig. 6, the machine facing the operator as in use, 34 denotes the year-wheel, which has affixed to it a ratchet 35, said ratchet and wheel turning on a fixed sleeve 36, having a flange 37, which lies between the ratchet and the frame. Next toward the right is the second minute-wheel 38, which has affixed to it a gear-wheel 39 and the driving-ratchet 40, said second minute-wheel, gear-wheel, and ratchet turning on a fixed sleeve 41, having a flange 42, lying between the ratchet and year-wheel and separating them from each other, so that friction is avoided and movement of either the second minute-wheel or the year-wheel will have no effect upon the other. I designate ratchet 40 as the "driving-ratchet" for the reason that it is fixed to gear-wheel 39, which is the primary gear-wheel of the train, as will presently be fully explained. Ratchet 40 is locked against backward movement by a pawl 92, which is retained in the engaging position by a spring 93. Next toward the right is the first minute-wheel 43, which has affixed to it a gear-wheel 44 and a gear-wheel 45, lying side by side, said first minute-wheel and two gear-wheels turning on a fixed sleeve 46, having a flange 47, which lies between the first and second minute-wheels and separates them from each other, avoiding friction and preventing the movement of either from having any effect upon the other, said flange being shown as partly recessed into the first minute-wheel, thereby securing compactness of arrangement. Continuing toward the right, 48 denotes the hour-wheel, which has affixed to it a gear-wheel 49 and a gear-wheel 50, said gear-wheels lying on opposite sides of the hour-wheel and said hour-wheel and gear-wheels turning on a sleeve 51, having a flange 52, lying between gear-wheels 45 and 49 and separating them, so as to avoid friction. Continuing toward the right, 53 denotes the meridian-wheel, (indicating "A. M." and "P. M.,") which has affixed to it gear-wheels 54 and 55, lying on opposite sides thereof, said meridian-wheel and two gear-wheels turning on a fixed sleeve 56, having a flange 57, which lies between gear-wheels 50 and 54, separating them from each other, so that friction between them is avoided, each being free to move independently of the other. Continuing toward the right, 58 denotes the second day-wheel, which has affixed thereto a gear-wheel 59 and a gear-wheel 60, both lying on the side toward gear-wheel 55, said second day-wheel and two gear-wheels turning on a fixed sleeve 61, having a flange 62, lying between gear-wheels 55 and 59 and preventing friction between them, each being free to move independently of the other. Continuing toward the right, 63 denotes the first day-wheel, which has affixed thereto a gear-wheel 64, said first day-wheel and gear-wheel turning on a sleeve 65, having a flange 66, which lies between the first and second day-wheels, whereby friction between them is prevented, each being free to move independently of the other, said flange being shown as partly recessed into the first day-wheel. The last wheel toward the right is the month-wheel, which I have indicated by 67. This wheel has affixed to it a ratchet 68, said month-wheel and ratchet turning on a fixed sleeve 69, having a flange 70, which lies between gear-wheel 64 and the month-wheel, whereby friction is avoided, each being free to move independently of the other, said flange being shown as partly recessed into the month-wheel.

71 is a loose collar lying between ratchet 68 and the frame. Year-wheel 34 requires adjustment but once a year and is set by hand, said wheel being locked in position after adjustment by a pawl 72, which engages ratchet 35 and is retained in the engaging position by a spring 73, secured to the frame. The month-wheel requires adjustment once a month. This wheel also is set by hand and is retained in position after adjustment by a pawl 74, which engages ratchet 68 and is retained in the engaging position by a spring 75, also secured to the frame. 131 denotes a plate removably secured to the top of the base, as by screws 132, which serves as a bed and receives the impact of elastic pad E each time the stamp is used. The dating-wheels extend through an undercut slot 133 in the bed and slightly above the surface of the bed, the ribbon K, presently to be described, lying transversely across the bed and covering the portions of the dating-wheels which extend through the slot. (See Fig. 2.)

Slide 23 is provided with a recess 76 to receive without contact the gear-wheels, presently to be described, that are carried by lower fixed shaft 22.

77, 78, 79, 80, 81, and 82 denote stops or detents upon the slide, which are adapted to engage the respective gear-wheels mounted on shaft 21 on the side toward the electromagnet. These stops are shown as projecting from a plate 83, rigidly secured to and extending upward from the slide. 84, 85, 86, 87, and 88 denote other stops or detents upon the slide, which are adapted to engage the opposite sides of the respective gear-wheels mounted on shaft 21—that is, the side toward the front. These stops are shown as projecting from a plate 89, rigidly secured to and extending upward from the slide. The shape of these stops or detents is such as to adapt them to lock the gear-wheels with which they coact, it being of course unimportant, so far as the principle of my invention is concerned, whether a stop is so shaped as to receive a tooth of the corresponding gear-wheel or is so shaped as to enter between two teeth of

the corresponding gear-wheel. The two sets of stops of course act alternately, so that the gear-wheels will be locked at either extreme of the movement of the slide. It will be noted in Fig. 3 that stop 77 upon the slide is adapted to engage gear-wheel 39. There is no corresponding stop for this gear-wheel on the front side for the reason that this gear-wheel is affixed to driving-ratchet 40, which is locked against backward movement by pawl 92. In Figs. 3 and 4 the slide and driving-pawl are in the retracted position—*i. e.*, drawn back by the electrical impulse. When the forward movement of the slide takes place through the action of spring 32, gear-wheel 39 will be carried forward through the engagement of driving-pawl 90 with driving-ratchet 40 and will then be locked against further forward movement by the engagement therewith of stop 77, backward movement being of course prevented by the engagement of the driving-pawl with the "driving-ratchet," so called. It will be noted in Fig. 3 that stops 78 and 84 coact with gear-wheel 45, said stop 84 engaging and locking said gear-wheel at the instant of each electrical impulse, as in Figs. 3 and 4, and said stop 78 engaging and accurately setting said gear-wheel after each forward or return movement of the slide by which the time-wheels are changed. Stops 79 and 85 respectively coact with gear-wheel 50 in the same manner that stops 78 and 84 coact with gear-wheel 45. Stops 80 and 86 respectively coact in the same manner with gear-wheel 55, stops 81 and 87 respectively coact in the same manner with gear-wheel 60, and stops 82 and 88 respectively coact in the same manner with gear-wheel 64.

Turning again to Fig. 6, I will enumerate the various gear-wheels and pinions mounted to turn on fixed shaft 22 and describe the manner in which they coact with the gear-wheels mounted to turn on fixed shaft 21. Commencing at the left, ratchet 40 and gear-wheel 39 (which carries the second minute-wheel) on shaft 21 each have ten teeth. Gear-wheel 39 meshes with a ten-toothed gear-wheel 94 on shaft 22, which carries with it a one-toothed pinion 95, which in turn meshes with gear-wheel 44 on shaft 21, said gear-wheel 44 carrying the first minute-wheel and another gear-wheel 45. Gear-wheel 94 and pinion 95 are fixed to or made integral with a sleeve 96, which turns on a fixed sleeve 97, having a flange 98, said flange lying between gear-wheel 94 and a loose sleeve 99, the latter filling the space between said flange and the frame and rendering lateral movement toward the left of any of the parts carried by shaft 22 impossible. Gear-wheels 44 and 45 on shaft 21 each have twelve teeth. Gear-wheel 45 meshes with a twelve-toothed gear-wheel 100 on shaft 22, which carries a two-toothed pinion 101. Gear-wheel 100 and pinion 101 are fixed to or formed integral with a sleeve 102, which turns on a fixed sleeve 103, having a flange 104, which lies between pinion 95 and gear-wheel 100, separating them from each other and preventing friction, so that the movement of either will have no effect on the other, said flange in the present instance being shown as partly recessed into gear-wheel 100 in order to secure compactness of arrangement. Pinion 101 meshes with a twelve-toothed gear-wheel 49 on shaft 21, which carries the hour-wheel and a twelve-toothed gear-wheel 50. Gear-wheel 50 meshes with a twelve-toothed gear-wheel 105 on shaft 21, which carries with it a one-toothed pinion 106, which in turn meshes with the twelve-toothed gear-wheel 54 on shaft 21, which carries the meridian-wheel 53 and a twelve-toothed gear-wheel 55. Gear-wheel 105 and pinion 106 are fixed to or formed integral with a sleeve 107, which turns on a fixed sleeve 108, having a flange 109, which lies between gear-wheel 105 and the sleeve 102, which carries gear-wheel 100 and pinion 101, whereby friction between the parts carried by said sleeves is prevented, the parts upon either sleeve moving forward without the slightest effect upon the parts carried by the contiguous sleeves. Gear-wheel 55, carried by the meridian-wheel, meshes with a twelve-toothed gear-wheel 110 on shaft 22, which carries a five-toothed pinion 111. Gear-wheel 110 and pinion 111 are fixed to or formed integral with each other and turn on a fixed sleeve 112, having a flange 113, which lies between gear-wheel 110 and the sleeve 108, which carries gear-wheel 105 and pinion 106, whereby friction of the parts carried by said sleeves is prevented, as before. Pinion 111 meshes with the ten-toothed gear-wheel 59 on shaft 21, which carries another ten-toothed gear-wheel 60 and the second day-wheel 58. The ten-toothed gear-wheel 60 meshes with a ten-toothed gear-wheel 114 on shaft 22, which carries a one-toothed pinion 115. Gear-wheel 114 and pinion 115 are fixed to or formed integral with a sleeve 118, which turns on a fixed sleeve 116, having a flange 117, lying between gear-wheel 114 and pinion 111, separating them from each other and preventing friction, so that the movement of one will have no effect upon the other, said flange in the present instance being shown as partly recessed into gear-wheel 114 in order to secure compactness of arrangement. Pinion 115 meshes with the twelve-toothed gear-wheel 64 on shaft 21, which carries the first day-wheel 63. A loose sleeve 119 fills the space between sleeve 118 and the frame and renders lateral movement toward the right of any of the parts carried by shaft 22 impossible. The operation of this portion of my invention will be obvious from the description of the gearing, which has been made full and complete. The parts are so organized that the gear-wheels and pinions are all held tightly, so that they cannot move except as driven by the corresponding gear-wheel or pinion. The parts not moving to-

gether are separated in such a manner that the movement of one part has no effect whatever upon the contiguous part to which it is not connected, and each of the time-wheels is both accurately set and rigidly locked at each reciprocation in either direction of the slide. It will be obvious, there being an electrical impulse each minute, that the second minute-wheel 38 will change at each actuation, it being understood, of course, that the two minute-wheels, the hour-wheel, the meridian-wheel, and the two day-wheels bear the characters commonly used in stamps of this character. The first minute-wheel 43 receives motion through gear-wheel 39, (moving with the second minute-wheel,) gear-wheel 94, pinion 95, and gear-wheel 44. The hour-wheel 48 receives motion through gear-wheel 45, (moving with the first minute-wheel and gear-wheel 44,) gear-wheel 100, pinion 101, and gear-wheel 49. The meridian-wheel 53 receives motion through gear-wheel 50, (moving with the hour-wheel and gear-wheel 49,) gear-wheel 105, pinion 106, and gear-wheel 54. The second day-wheel 58 receives motion through gear-wheel 55, (moving with the meridian-wheel and gear-wheel 54,) gear-wheel 110, pinion 111, and gear-wheel 59. The first day-wheel 63 receives motion through gear-wheel 60, (moving with gear-wheel 59 and the second day-wheel,) gear-wheel 114, pinion 115, and gear-wheel 64.

Should it be required at any time to adjust any of the time-wheels without stopping the electrical impulses, I have provided a cam 120, carried by a shaft 121, journaled in the case, which is adapted to engage the slide and force it to an intermediate position, as in Fig. 2, and retain it against forward movement, it being obvious that when the slide is in this position both sets of stops will be out of engagement with the corresponding gear-wheels, so that not only the month and the year wheels, but the other time-wheels as well, may be adjusted should occasion require. The shaft is shown as provided with a finger-piece 129 for convenience in operation.

K denotes the ribbon, which passes transversely across the bed, resting upon the dating-wheels, and is wound from its ends on shafts 122, journaled in suitable bearings 123, and in ribbon-boxes 130 on opposite sides of the base. Each of these shafts is provided with a hand-wheel 124 for convenience in winding the ribbon by hand in either direction. I preferably, however, make the ribbon shift or feed automatically after each use of the stamp. In order to accomplish this result, I provide each of the ribbon-shafts with an arm 125, mounted to oscillate thereon, the inner ends of said arms loosely engaging arm C, so as to be oscillated thereby on the shafts each time arm C is oscillated, as in using the dating mechanism—*i. e.*, stamping a document.

126 denotes reverse ratchets rigidly secured to shafts 122, so as to carry the shafts in opposite directions, and 127 pawls adapted to engage the ratchets, as at the left in Fig. 7, or to be thrown out of engagement therewith, as at the right in Fig. 7. 128 denotes collars rigidly secured to the shafts outside of arms 125 and the ratchets, one of said collars acting to prevent lateral movement of the arms on the shaft.

It will be readily understood that in order to cause the ribbon to shift automatically each time the stamp is used it is simply necessary to place one of the pawls in engagement with the corresponding ratchet and the other pawl out of engagement with its corresponding ratchet, first turning the shaft forward by means of the hand-wheel, so as to insure that the ribbon is tightly wound thereon.

The operation of my novel time-stamp as a whole will be readily understood from the description already given. The operator simply places the document to be stamped upon the bed, the ribbon lying under it, and with the other hand produces a quick movement of arm C, causing the elastic pad to strike the back of the document to be stamped. The yielding blow of the pad upon the back of the document causes the ribbon to transfer the impression of the dating-wheels under it to the face of the document.

Having thus described my invention, I claim—

1. In a device of the character described the combination with dating-wheels and actuating mechanism therefor, of a base by which the dating-wheels and actuating mechanism are carried, a bed having a slot through which the dating-wheels extend, a swinging arm, a spring acting to normally hold the arm at the raised position, a ribbon resting upon the dating-wheels, shafts upon which the ribbon is wound from opposite ends, a ratchet on each shaft, and an arm loosely mounted on each shaft and engaged with the swinging arm and carrying a pawl adapted to be engaged with or disengaged from its respective ratchet, whereby either of said shafts may be turned slightly to shift the ribbon by movement of the arm.

2. In a device of the character described the combination with dating mechanism, a base by which it is carried, a bed having a slot through which the dating mechanism extends, and an arm C, of a ribbon resting upon the dating mechanism, shafts upon which the ribbon is wound from opposite ends, reverse ratchets carried by said shafts and arms 125 mounted to oscillate on the shafts and engaging opposite sides of the arm C and carrying pawls adapted to be thrown into and out of engagement with the ratchets respectively.

3. In a device of the character described the combination with dating mechanism and a base by which it is carried, of a reciprocating slide by which the dating mechanism is actuated, an electromagnet and armature,

and connections intermediate the armature and the slide.

4. In a device of the character described the combination with shaft 21, dating-wheels, gear-wheels and a driving-ratchet carried thereby and shaft 22 carrying intermeshing gear-wheels and pinions, of a slide, means for reciprocating the slide, and a pawl mounted on said slide and adapted to engage said ratchet.

5. In a device of the character described the combination with a series of dating-wheels, intermeshing gear-wheels and pinions and a driving-ratchet, of a reciprocating slide carrying a pawl engaging the ratchet.

6. In a device of the character described the combination with a series of dating-wheels, intermeshing gear-wheels and pinions and a driving-ratchet, of a reciprocating slide carrying a pawl engaging the ratchet, and series of stops engaging certain of the gear-wheels at the extremes of the movement of the slide, whereby said gear-wheels and the dating-wheels are locked in position.

7. In a device of the character described the combination with a series of dating-wheels, gear-wheels secured thereto respectively and a driving-ratchet secured to one of the gear-wheels, of a series of intermeshing gear-wheels and pinions and a reciprocating slide carrying a pawl engaging the ratchet.

8. In a device of the character described the combination with a series of dating-wheels having gear-wheels secured thereto, one of said gear-wheels carrying a driving-ratchet, and a series of intermeshing gear-wheels and pinions, of a reciprocating slide carrying a pawl engaging the ratchet, and series of stops engaging certain of the gear-wheels at the extremes of movement of the slide.

9. In a device of the character described the combination with a shaft 21, a series of dating-wheels having gear-wheels secured thereto, one of said gear-wheels being fixed to a driving-ratchet, and sleeves intermediate the wheels which move together and the shaft and having flanges intermediate contiguous wheels not moving together, whereby friction is prevented, of a shaft 22, intermeshing gear-wheels and pinions carried thereby and turning on flanged sleeves, and a reciprocating slide carrying a pawl engaging the ratchet whereby the train is actuated.

10. In a device of the character described the combination with dating-wheels, gear-wheels fixed thereto respectively, one of said gear-wheels carrying a driving-pinion, and intermeshing gear-wheels and pinions, of a slide carrying a pawl engaging the ratchet, an electromagnet and armature, a spring-controlled lever pivoted to the slide and a link intermediate said lever and the armature, whereby the slide is retracted against the power of the spring each time the electromagnet is magnetized, the return movement of the slide causing the pawl to actuate the ratchet.

11. In a device of the character described the combination with a series of dating-wheels, intermeshing gear-wheels and pinions and a driving-ratchet secured to one of the gear-wheels, of a reciprocating slide carrying a pawl engaging the ratchet, a ribbon resting upon the dating-wheels, shafts upon which the ribbon is wound, a swinging arm, and connections intermediate the shafts and the arm whereby the ribbon may be wound in either direction by a movement of the arm.

12. In a device of the character described the combination with a series of dating-wheels, intermeshing gear-wheels and pinions, and a reciprocating slide by which the train is actuated, of a spring-controlled swinging arm carrying an elastic pad which coacts in use with the dating-wheels.

13. In a device of the character described the combination with dating mechanism, a base by which it is carried and an arm carrying an elastic pad, of a slide, means for reciprocating the slide, and mechanism carried by the slide for actuating the dating mechanism.

14. In a device of the character described the combination with dating mechanism, a base by which it is carried, and an arm carrying an elastic pad, of a reciprocating slide by which the dating mechanism is actuated and stops upon the slide by which the dating-wheels are locked at each extreme of the movement of the slide.

15. In a device of the character described the combination with dating mechanism, a base by which it is carried and an arm C carrying an elastic pad, of a ribbon, shafts upon which it is wound from opposite ends and which carry reverse ratchets, and arms which oscillate on the shafts and engage opposite sides of arm C and carry pawls adapted to engage the ratchets.

16. In a device of the character described the combination with dating mechanism, a base by which it is carried and an arm carrying an elastic pad adapted to coact with the dating mechanism, of a slide, mechanism carried by the slide for actuating the dating mechanism, an electromagnet and armature, and operating connections intermediate the electromagnet and the slide.

17. In a device of the character described the combination with dating mechanism and a base by which it is carried, of a reciprocating slide by which the dating mechanism is actuated and stops upon the slide by which it is locked in operative position.

18. In combination, a driving-ratchet 40 and a minute-wheel 38 and a ten-toothed gear-wheel 39 carried thereby, a ten-toothed gear-wheel 94 meshing with gear-wheel 39 and carrying a one-toothed pinion 95, a twelve-toothed gear-wheel 44 meshing with pinion 95 and carrying a twelve-toothed gear-wheel 45

and a minute-wheel 43, a twelve-toothed gear-wheel 100 meshing with gear-wheel 45 and carrying a two-toothed pinion 101, a twelve-toothed gear-wheel 49 meshing with pinion 101 and carrying an hour-wheel 48 and a twelve-toothed gear-wheel 50, a twelve-toothed gear-wheel 105 meshing with gear-wheel 50 and carrying a one-toothed pinion 106, a twelve-toothed gear-wheel 54 meshing with pinion 106 and carrying a meridian-wheel 53 and a twelve-toothed gear-wheel 55, a twelve-toothed gear-wheel 110 meshing with gear-wheel 55 and carrying a five-toothed pinion 111, a ten-toothed gear-wheel 59 meshing with pinion 111 and carrying a day-wheel 58 and a ten-toothed gear-wheel 60, a ten-toothed gear-wheel 114 meshing with gear-wheel 60 and carrying a one-toothed pinion 115, and a twelve-toothed gear-wheel 64 meshing with pinion 115 and carrying a day-wheel 63.

19. In a device of the character described the combination with a series of dating-wheels and intermeshing gear-wheels and pinions, of a reciprocating slide by which the dating mechanism is actuated, a series of stops carried by the slide and adapted to engage certain of the gear-wheels at either extreme of movement, and a cam adapted to engage the slide and force it to an intermediate position and retain it against forward movement.

20. In a device of the character described the combination with dating mechanism and a reciprocating slide by which the dating mechanism is actuated, of a cam adapted to engage the slide and force it to an intermediate position and retain it against forward movement.

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

JAMES G. HALLAS.

Witnesses:
H. T. ROOT,
B. W. PARKS.