(No Model.) 2 Sheets—Sheet 1.

F. B. WOOD.

TIME AND DATE STAMP.

No. 303,382. Patented Aug. 12, 1884.

Fig. 1.

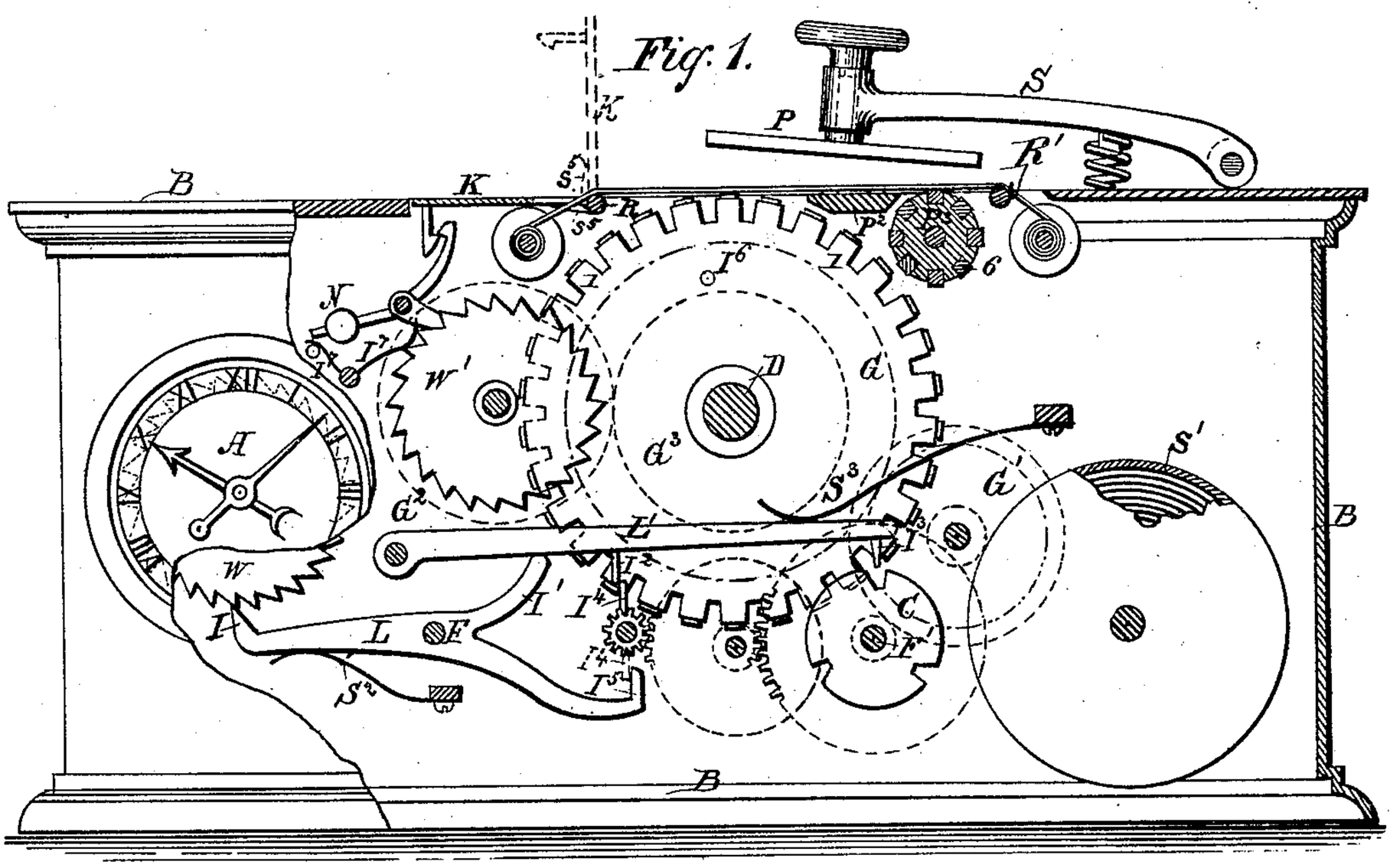
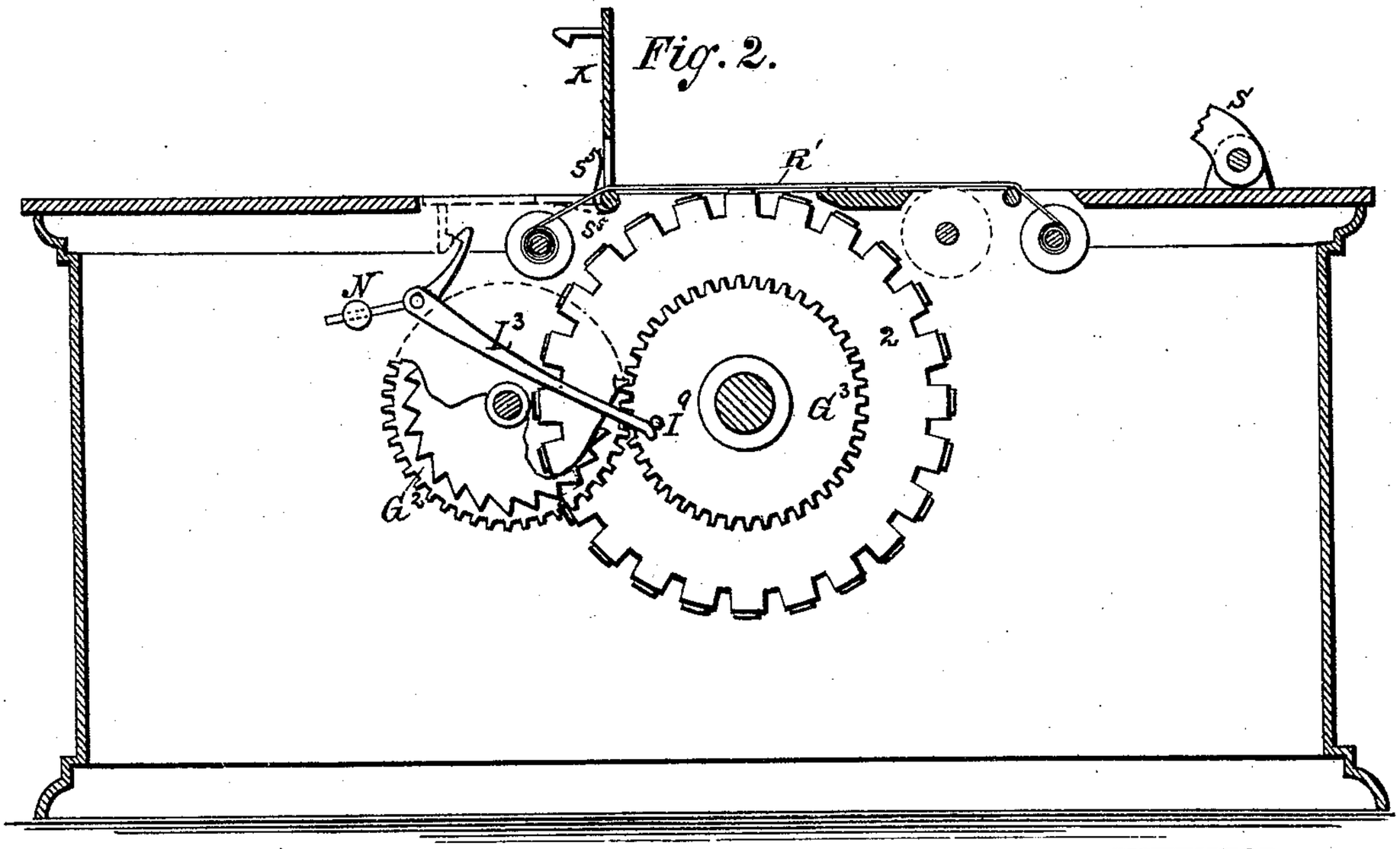


Fig. 2.



WITNESSES:

James A. Skilton.

W. H. Maginnis

INVENTOR

Frank B. Wood.

per

(No Model.) 2 Sheets—Sheet 2.

F. B. WOOD.

TIME AND DATE STAMP.

No. 303,382. Patented Aug. 12, 1884.

Fig. 3.

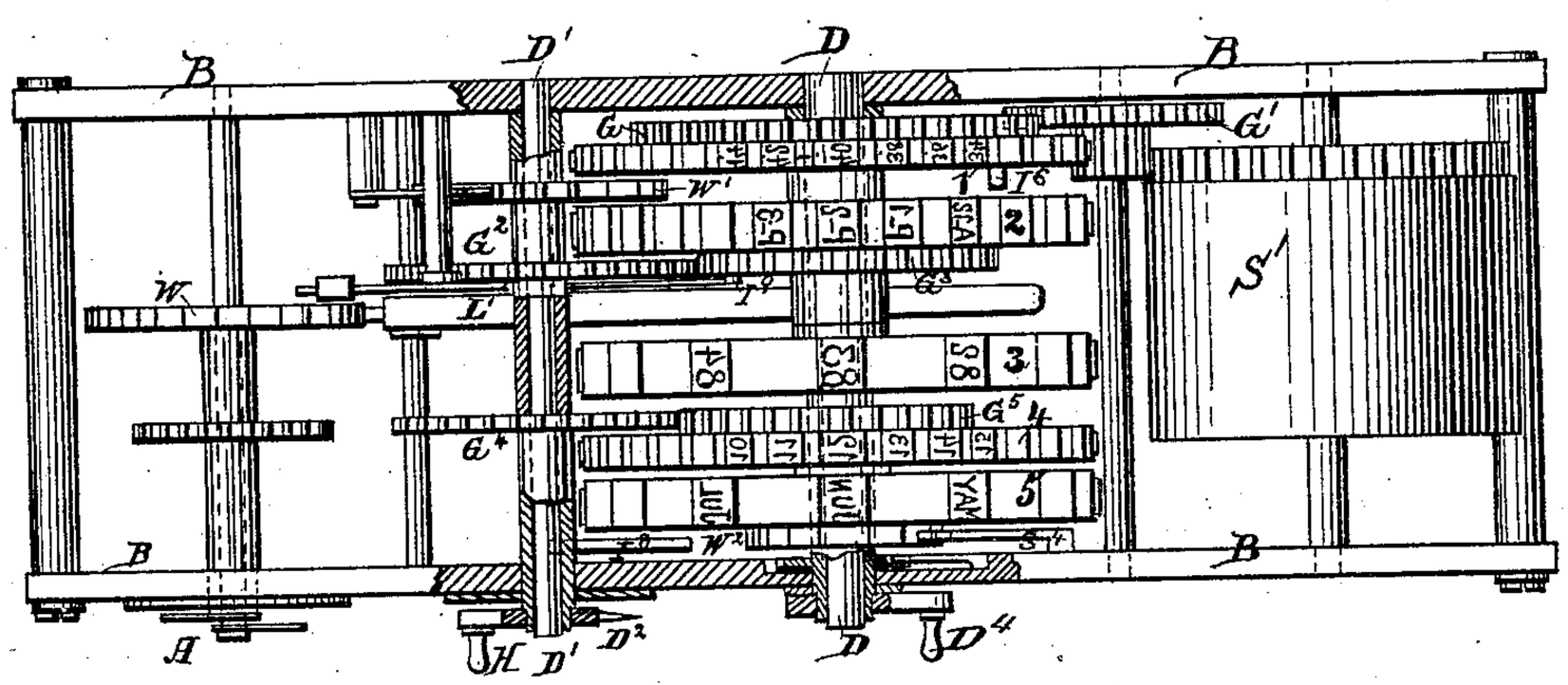


Fig. 4.

WITNESSES:
James A. Skilton
W. K. Maginnis

INVENTOR
Frank B. Wood.

UNITED STATES PATENT OFFICE.

FRANK B. WOOD, OF NEW YORK, ASSIGNOR TO JOHN C. ROBINSON, OF BROOKLYN, N. Y.

TIME AND DATE STAMP.

SPECIFICATION forming part of Letters Patent No. 303,382, dated August 12, 1884.

Application filed July 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. WOOD, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Time and Dating Stamp, (for which I have obtained no Letters Patent whatever,) of which the following is a specification.

My invention relates to improvements in time and dating stamps which are known under the title of "straight-line stamps," to distinguish them from dial-time stamps.

The object of the straight-line stamp is, in general, to print the time—year, month, and day—in straight instead of curved lines.

The particular objects of my invention are, first, to produce a durable stamp with independent motive power released at intervals, and moving time-wheels upon a shaft into proper position for receiving the pressure of the impression pad and stamp, this motive power being distinct from the clock-movement and its motor; second, a series of date-wheels so arranged upon the same shaft that by changing the date-wheel—*i. e.*, the day-of-month wheel—at the end of each month or year such change will also change the month and the year wheel, in connection with an indicator and preventor released at midnight, thereby preventing the stamping of any further documents until the date-wheel has been changed to the correct date, (done by hand;) third, to combine an eight-day time-piece with the time and date stamp and mechanism. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is in part a side and in part a sectional view. Fig. 2 is a sectional view showing the fly-tripping details. Fig. 3 is a top view, with the stamp, the type-plate, and other parts removed. Fig. 4 is a plan of stamping done.

Similar letters refer to similar parts throughout the several views.

A is the clock-face of the ordinary eight-day-clock movement, which it is not necessary to show or further indicate.

B is the frame and support of the time and date wheel mentioned, stamp, and apparatus.

The clock-movement is arranged to release the train-movement which operates the time-wheels Nos. 1 and 2 at intervals. The series of time and date wheels are movable on a fixed shaft, D, and are actuated by means of an independent spring, S′, or other motion, the clock-movement by its own spring. (Not shown.) By this arrangement I avoid any disturbance of the clock-movement arising from the irregular action of stamping or otherwise, and permit it to keep time accurately, the tripping action being regular and systematic and therefore subject to fine adjustment and control. The clock-movement strictly is any ordinary movement of that character, to which I add the tripping-wheel W, located on the minute-shaft. As shown, this wheel has thirty (30) teeth, to trip every two minutes. It may have sixty (60) teeth and trip the minute-wheel every minute, or twelve (12) teeth and trip every five minutes, or any other number of teeth which is a factor of sixty (60)—the number of minutes in an hour. Of course, the minute-wheel 1 must be divided and marked to correspond.

L is the tripping-lever, and its outer end is so placed as to make contact with the teeth of the trip-wheel W on the long side, (see Fig. 1,) the movement of which depresses the outer end of the lever L, raises the other end, and thereby raises the lever L′ and allows the minute type-wheel to move one step only under the control of its motor-spring S′. The trip-lever L moves freely on the shaft F, and is held up by the spring S^2, so as to cause the dog or pawl I to move in between the teeth of the wheel W at the proper time. When the trip-lever L is depressed by the action of the teeth of the wheel W upon the dog I, the inner end of the lever or the arm I′ engages and moves the lever L′, as shown in Fig. 1. The lever L′ has two pins or arms, I^2 and I^3. The first of these, I^2, engages the pin or arm I^4, and while it does so the minute-wheel 1 and its train are held stationary. The movement of the levers L and L′, as described, however, releases the pin I^4 and permits it to describe one-half of a circle, when it is arrested by coming in contact with the other arm, I^5, of the trip-lever L, as shown in dotted line, Fig. 1. This half-revolution also permits a slight movement of the entire train of wheels, thereby moving the notched wheel C on the shaft

F′ while the pin or arm I^3 is out of its slot in the notched wheel C, and effecting contact of notched wheel C with the pin or arm I^3 on the lever L′, thereby preventing the pin I^2 from engaging the pin I^4 and detaining the pin I^3 out of the slot in the notched wheel C during one-third of a revolution of the notched wheel C. When the dog or pawl I, having passed the highest point of any tooth of the wheel W, moves in under control of the spring S^2, the inner arm, I′, of the lever L also moves and allows its arm I^5 to release the pin or arm I^4, thereby permitting the further revolution of the pin I^4 and its shaft to the extent of eight revolutions in all during one-third of a revolution of the notched wheel C and its shaft. The release of the lever L′ takes place at the beginning of this movement when the spring S^3 takes the lever L′ in charge, bringing the pin or arm I^2 down, and eventually into contact again with the pin I^4, so as to hold the train-movement and the type-wheel 1 and the pin I^3 close upon the notched wheel C, so as to drop into one of the three slots of the notched wheel C, the latter action being necessary to permit the pins I^2 and I^4 to engage.

The tripping might be done by extending the lever L′ to the wheel W in place of and omitting lever L; but in that case the cam C, with its notches and the pin I^3, would become the stop for holding and detaining the train-movement in check. But I find that such an arrangement makes it impossible to release the train-movement when using the strongest shaft of the clock; and in that case, the cam C and pin I^3 being omitted, the regular movement of the train would be placed in charge of the pins I^2 and I^4, and since the force of the spring S′, actuating the train, varies as it runs down, it would be impossible to secure accuracy in that way, because the number of revolutions made by the pin I^4 would be liable to vary in any given time with the variations in the power of the spring. For these reasons I interpose the lever L with its arms I′ and I^5 between the lever L′ and the wheel W, thereby being enabled to use the wheel W on the minute-shaft for tripping the train, and thus providing against the wear of the teeth of that wheel, which, acting directly on the lever L′, would eventually fail to trip as desired. I am thus also able to relieve the pin I^3 and cam C of all stop action, except the holding of the pin I^2 out of contact with the pin I^4 during the proper number of revolutions, which having been made, the pin I^3 drops into a notch and permits the stop I^2 to drop into its field of action. The lever L′, with its pins I^2 and I^3 and the associated stop mechanism, becomes a positive time-lever, giving the necessary time for the action of the parts, and also in association with the lever L compensating for any wearing effect of the constant tripping action upon the teeth of the wheel W and the arm I.

The gear-wheel relations of the minute-wheel 1 and the cam C are such that a movement of the latter one-third of a revolution permits its motor to move the minute-wheel one step of the thirty it is arranged to make, since the gear-wheel G has one hundred and twenty (120) teeth, the power-wheel G′ moving four teeth at each step. Thirty repetitions of these movements will cause the entire revolution of the minute-wheel 1.

The minute-wheel is provided with a pin, 1^6, Figs. 1 and 3, located so as to make contact with one of the twenty-four (24) teeth of the wheel W′, as the minute-wheel 1 revolves once every sixty (60) minutes, or every hour, and moves it one step. This action causes the hour-wheel 2 to move one step, representing one hour, at the end of each sixty (60) minutes, and is transmitted through the gear-wheels G^2 and G^3, and presents the proper type-face to print each hour—the a. m. and the p. m., as well as the minute—in proper order, and this automatically.

I am aware that heretofore the time-wheels of a time-stamp have been automatically moved and changed by a power other than that which operated the clock-movements; but, so far as I know, this has only been done by the indirect use of that power, and not by means of an independent power, for in the cases to which I refer the time-power, in addition to moving the clock mechanism, was caused to also wind up a spring to be released at the proper time for the purpose of actuating the time type-wheels. This arrangement I have found objectionable and seek to avoid, since it brings an irregular stress upon the time-power, and while the stamping is taking place may subject the clock to jars, to the directly-transmitted force of the stamping pressure at times, and to other liabilities of derangement. I avoid these difficulties and objections by providing an entirely independent power for moving the time type-wheels, which is brought into action at the proper time by means of detents or tripping mechanisms, which are only called on to exercise the amount of force necessary to release this independent power at regular intervals by the use of a uniform force, and are actuated by the clock-power for that purpose. This enables me to secure the keeping of correct time by the clock-movement, which is an extremely important point in a time-stamp. The hour-wheel receives the action of the motor-springs S′ only once every hour, as described. Meantime it is held in place by a dog and spring, I′, bearing upon the wheel W′, or in any equivalent manner. In this machine the three date-wheels are moved by hand; but two of them are kept in proper relations to each other on substantially the same principle as that employed in regulating the relations of the minute and hour wheels 1 and 2. The year-wheel 3 I may move by hand once each year, detaining it in place by means of a pawl in any ordinary manner. The day and month wheels 4 and 5 are arranged and operated as follows: The gear-

wheels G^4 and G^5 are placed on the shafts D′ and D, respectively. The shaft D′ projects beyond the frame, and has a burred nut, handle, or other thumb-and-finger device, H, thereon to facilitate turning the shaft; also, a dial-finger or pointer and dial D^2 to guide the operator in moving the type-wheels. The gear-wheels G^4 and G^5 have sixty-two (62) teeth, and the day-wheel having thirty-one dates the movement to the extent of two teeth suffices to change the date from day to day. The month-wheel 5 has attached to it the twelve (12) toothed wheel W^2, while the shaft D′ has the arm or pin I^8 secured to it in such a position that at the end of each month, coming in contact with one of the twelve teeth of the wheel W^2, the month-wheel 5, which is spaced accordingly, is moved for one month and so as to present the letters indicating that month in line for stamping. The month-wheel is held in place during the month, or until the next movement, as described, by means of the spring S^4, which bears upon the long side of the teeth of the wheel W^2.

In addition to the means for printing the time and date, as described, I provide means for printing at the same time such words as "delivered," "received," "canceled," &c. In different kinds of business different words are required to be stamped, and it is usual to provide means for changing the type for this purpose.

It is found in practice that when the business of stamping begins in the morning, in stamps wherein the dates are changed by hand the changing is occasionally forgotten until a part of the stamping for the day has been done, and done erroneously with the date of a previous day. This annoyance I prevent in the manner which I will now describe.

Upon the twenty-four-hour wheel 2, (see Fig. 2,) at or opposite "P. 11," I place a pin, I^9, which, at the change to "A. 12," as described, strikes the trip-lever L^3, overcomes the balance-weight N, and releases the catch of the fly K, which, under control of the spring S^5, turns upon the ribbon wire R and stands upright in position to hinder the presentation of any card or paper for stamping, and calls attention to the necessity of making proper changes of date.

S is the stamp-arm, and P the stamp-pad. The pad of course extends over the six type-wheels and also over the type-plate P^2, which may contain the name of the concern or any desired legend, and when the pad is depressed the printed result is found substantially as shown in Fig. 4.

R′ is the ink-ribbon, which is operated in the ordinary manner, as shown.

D^4 is a handle attached to a sleeve which extends on the shaft D to the year-wheel, which it may be used to move, the month and day wheel fitting over this sleeve.

A ratchet-wheel may be placed on the shaft D′, and provided with a pawl for the purpose of holding the wheel provided with the figures indicating the day of the month.

I claim as my invention—

1. In a time-stamp, the following elements, in combination: first, a clock movement and power; second, an independent time-wheel train and power; and, third, an intervening tripping device or devices, substantially as described, actuated by the clock power and movement for the purpose of releasing the independent time-wheel train and power.

2. In a time-stamp in which the time type-wheels are actuated by an independent power, the following devices, in combination, for operating and controlling the hour-wheel: first, the minute-wheel 1, provided with a pin, I, arranged to engage and move a twenty-four-toothed wheel, W′, once during each revolution; second, the two gear-wheels G^2 and G^3; and, third, the hour-wheel 2.

3. In a time-stamp, the following elements, in combination: first, the tripping-lever L, provided with the pins or arms I, I′, and I^5; second, the detent-lever L′, provided with the pins I^2 and I^3; third, the pin I^4 and the notched wheel C; fourth, the minute-wheel 1, connected to the other elements hereof by a train of wheels and an independent power, which actuates them, and thereby causes the minute-wheel 1 to advance automatically step by step, substantially as shown and described.

4. In a time-stamp, the hour-wheel 2, provided with a pin, I^9, in combination with the tripping-lever L^3, and the fly K, provided with spring S^5, substantially as described.

FRANK B. WOOD.

Witnesses:
WM. H. BUTTERWORTH,
W. H. MAGINNIS.