4 Sheets—Sheet 1.

J. MOSS, J. H. SMITH & G. J. HILL.

Ticket-Printing and Recording-Machine.

No. 209,827. **Patented Nov. 12, 1878.**

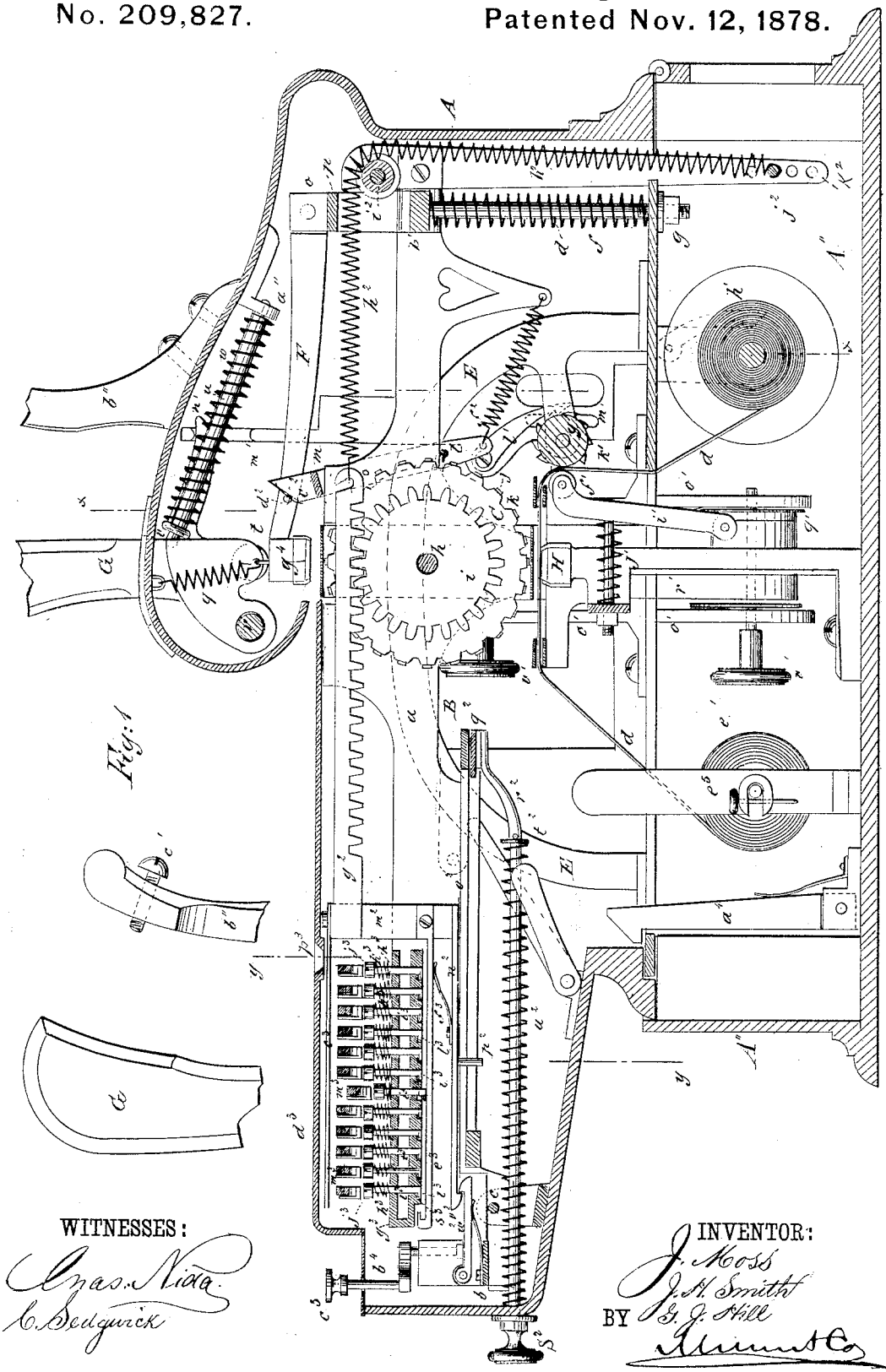

Fig. 1

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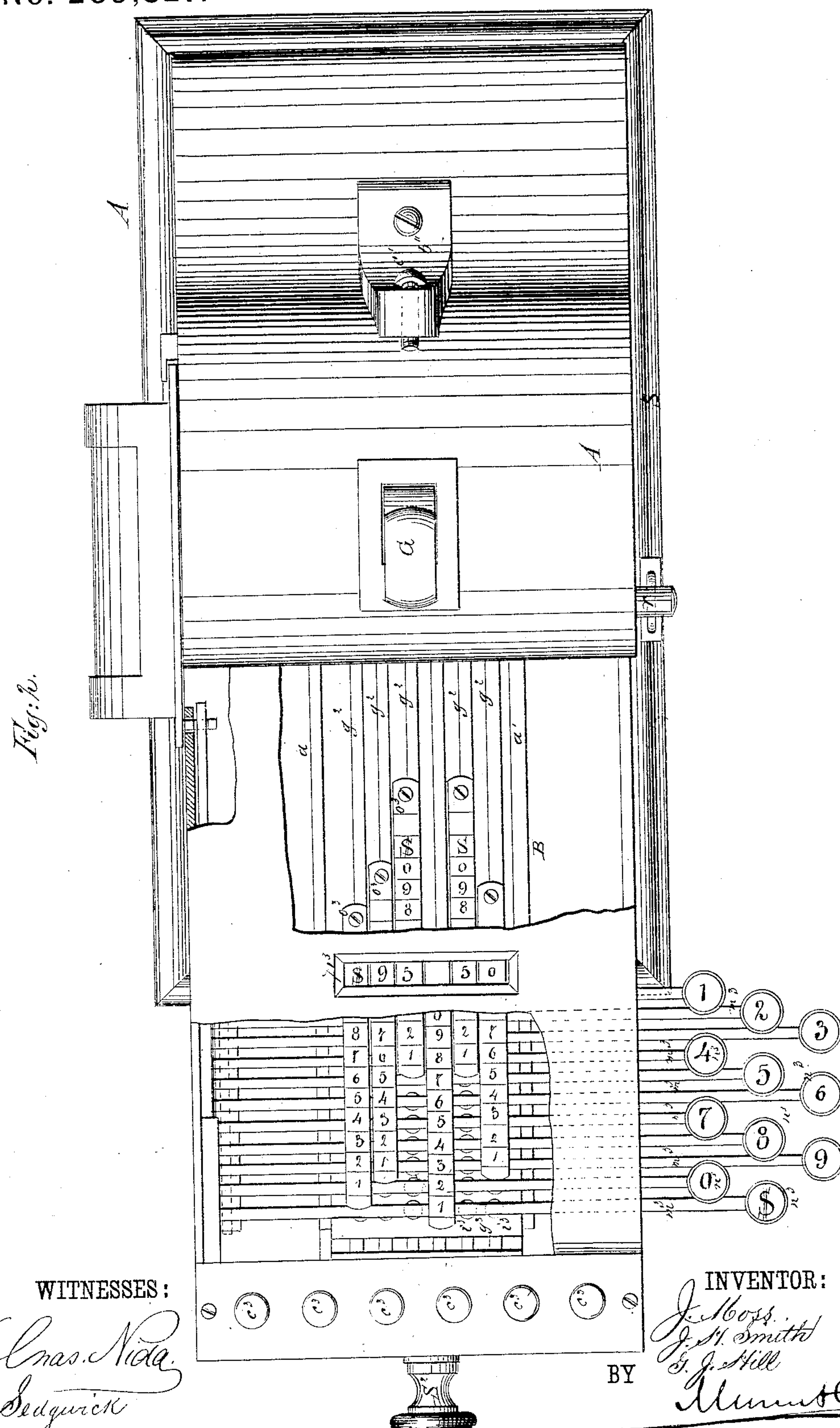

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4 Sheets—Sheet 3.

J. MOSS, J. H. SMITH & G. J. HILL.

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Fig: 3.

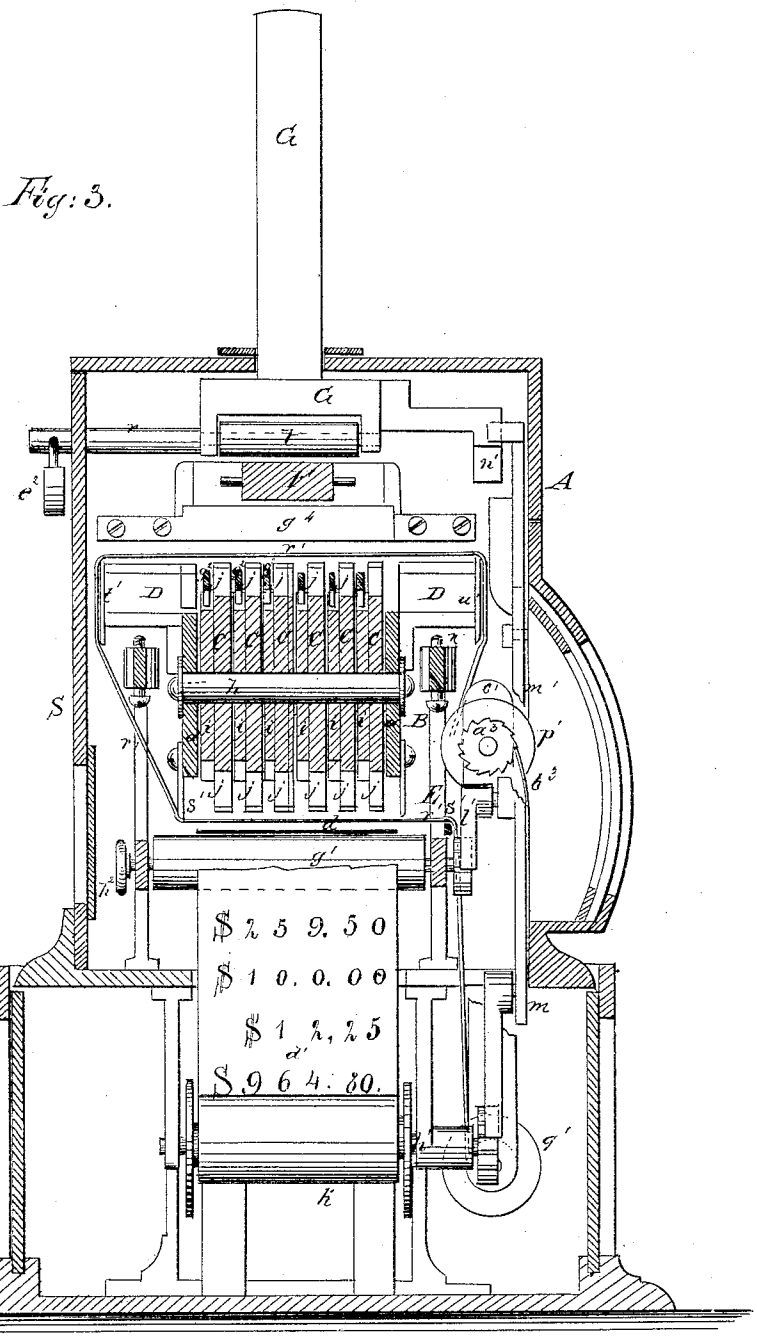

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Fig. 4.

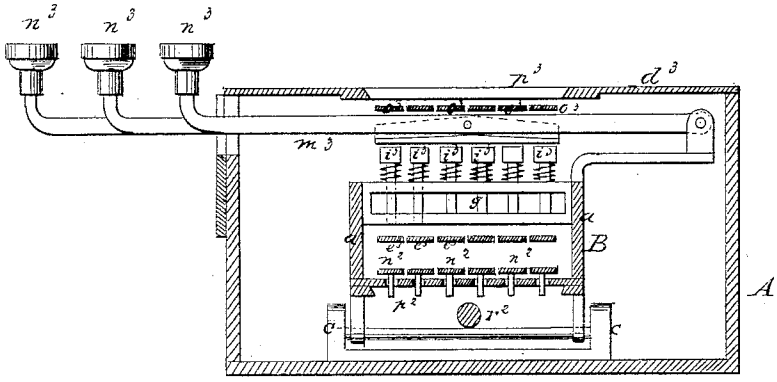


Fig. 5

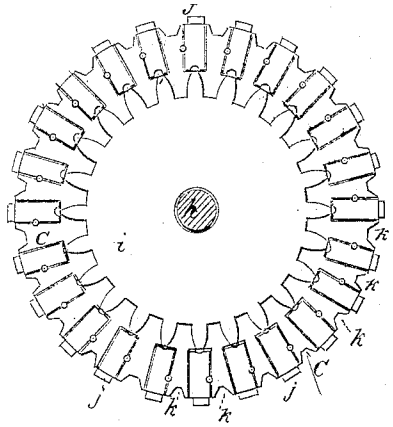
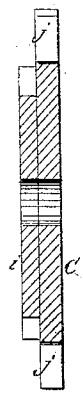


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN MOSS, OF NEW YORK, AND JOHN H. SMITH AND GEORGE J. HILL, OF BUFFALO, ASSIGNORS TO THE CASH RECORDING MACHINE COMPANY, OF NEW YORK, N. Y.

IMPROVEMENT IN TICKET PRINTING AND RECORDING MACHINES.

Specification forming part of Letters Patent No. **209,827**, dated November 12, 1878; application filed May 27, 1878.

To all whom it may concern:

Be it known that we, JOHN MOSS, of New York city, and JOHN HENRY SMITH and GEORGE JAY HILL, of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Cash-Recording Machine, of which the following is a specification:

Figure 1 is a sectional side elevation. Fig. 2 is a plan view, partly in section. Fig. 3 is a vertical transverse section taken on line *x x* in Fig. 1. Fig. 4 is a vertical transverse section taken on line *y y* in Fig. 1. Figs. 5 and 6 are detail views.

Similar letters of reference indicate corresponding parts.

This invention is to provide a machine for the purpose of keeping an exact record of all cash transactions, receipts, or disbursements in stores, offices, manufactories, or any business establishment or place where money is paid in. It is also intended to be a check on employés, and a prevention of dishonesty by clerks or others handling money received or paid out in such establishments. This is accomplished by registering on a paper strip inside the machine the amount of any transaction, and printing or stamping the same amount simultaneously upon the account, bill, or ticket inserted for that purpose, the two things being done at one operation or movement by the lever-handle, and the different amounts are set in the machine for printing or stamping by knobs outside of the case attached to the operating-levers, all as hereinafter fully described.

Referring to the drawing, A is the metallic casing which contains all of the working parts of the machine. In this casing is placed a frame, B, consisting of two side pieces, *a a'*, which are connected together by cross-bars *b b'*. This frame is pivoted to the front projecting portion of the casing at *c*, and is guided at the rear end of the casing by a stud, *d*, that projects downwardly from the frame B through the bottom of the casing. Upon this stud, between the frame B and bottom of the casing, there is a spiral spring, *f*, and upon the lower end of the stud, which is threaded, there is a nut, *g*, for limiting the upward movement of the frame B.

Upon a pin, *h*, which passes through the sides of the frame, there are several numbering-wheels, C, each of which carries two sets of numbers, and also two dollar-marks, which are arranged on diametrically-opposite sides of the wheel, and upon one side of each numbering-wheel there is a spur-wheel, *i*, which is engaged by a rack, as will be presently described.

The numbering-wheels each consist of a disk, which is slotted radially to receive ordinary type *j*, which are fastened in the slots by swaging out a portion of the metal of which the wheel is composed into the nicks of the type.

V-shaped notches *k* are formed in the periphery of the type-wheels to receive a registering-bar, *l*, which is carried by the forked lever *m*, which straddles the frame B, and is pivoted to it at each side.

To opposite sides of the frame B are secured sockets D, for receiving on one side type for printing the date, and upon the other side the word "Paid," or its equivalent, and the facsimile of the cashier's signature, or any other device that would be appropriate to the use to which the recorder is applied.

Below the sockets D there are curved standards B, which project upward from the bottom of the casing A, and have in their upper ends screws *n*, that limit the downward movement of the frame B, and thus regulate the impression. An arm, F, carrying at its free end a pad or platen for pressing paper on the type and numbering-wheels, is pivoted between ears *o*, that project from a cross-bar, *p*, attached to the rear end of the frame B.

The arm F is drawn upward by spiral springs, which are attached to the upper portion of the casing A, and it is pressed downward by an angled lever, G, that is fulcrumed on a rod, *r*, that projects from the fixed side of the casing A through the side S, which is removable.

The long arm of the lever G projects upward through the top of the casing A, and in the short arm a roller, *t*, is pivoted, which presses the upper surface of the arm F when the lever is operated.

A rod, *u*, provided with a collar, *v*, and surrounded by a spiral spring, *w*, is inserted in a cavity in the lever G, and extends through an

apertured ear, a'', that projects downward from the top of the casing. The spring w rests upon the ear a'', and, by pressing against the collar v, returns the lever G to its normal position after the apparatus has been operated. An arm, b'', projects from the top of the casing A, and through it a stop-screw, c^1, passes to limit the motion of the lever G. The casing A is hinged to a hollow base-piece, A'', which is provided with glass windows in its sides, and also with a spring-catch, a^4, which engages the casing A and prevents it from being turned on its hinges. This catch can be released only when the removable side s is taken from the machine.

Below the numbering-wheels C there is a table, H, which is secured to the bottom of the base-piece A'', and over which the paper strip d passes, upon which is printed the amount of cash receipts. This strip is drawn from a roll that is wound upon a drum or spool, e^1, that is supported by standards e^5, that project from the bottom of the base-piece A''.

From the table H the paper strip passes between the rollers f^1 g^1, thence downward to a cylinder, h^1, which is journaled in hangers that project downward from the bottom of the casing A, and upon which it is wound as it is discharged from the recording-machine.

The roller f^1 is journaled in a frame, i^1, that is hinged to the bottom of the casing A, and is forced into contact with the paper strip by the spring j^1, which rests against the support of the table H.

The contact-surface of the roller f^1 is made shorter than the width of the paper strip, to guide it and cause it to run straight through the machine.

The roller g^1 is journaled in the curved standards E, and is covered with soft rubber. Upon one of the gudgeons of the roller g^1 a milled wheel, h^2, is secured, and upon the other there is a ratchet-wheel, k^1, which is engaged by a spring-hook pawl, l^1, that is carried by a vertically-moving bar, m^1, placed in guides at the side of the casing A, and operated by an arm, n^1, that projects from the lever G into a notch formed in the side of the bar. At the side of the frame B there are two standards, o^1, in which are journaled two rollers, p^1 q^1, for containing the inking-ribbon r^1, which passes from the roller q^1 through a slotted guide, s^1, and over table H, and through a guide, s^1, attached to the other side of the frame B, thence upward over guides t^1, and over the type in the sockets D, and over the numbering-wheel C and guide w^1 to the roller p^1. The shafts of the rollers p^1 q^1 are each provided with a milled wheel, v^1, by which they may be turned; and upon the shaft of the roller p^1 there is a ratchet-wheel, a^3, which is engaged by a spring-pawl, b^3, attached to the bar m^1, at every upward stroke of the said bar.

By means of the vertically-reciprocating bar m^1 and the pawls attached thereto the paper strip d^1 is moved forward to receive a new impression, and the inking-ribbon is moved forward so as to present a new surface to the type.

The forked lever m is provided with two cam-ears, c^2, which are engaged by a pin, d^2, that passes through the arm F, so that when the said arm descends the forked lever is moved so as to force the rod l into the notches k of all of the wheels C and cause the line of the figures to register correctly. The forked lever m is returned to position after being moved by a spring, f^2.

The side s of the casing A is removable, and when it is in place on the casing it is secured by a padlock, e^2, whose hasp passes through a hole drilled in the end of the rod r.

The number-wheels are operated by a series of racks, g^2, which engage the spur-wheels i, and are connected at their rear ends with the spiral springs h^2, which run over pulleys i^2.

The springs h^2 are all attached to a rod, j^2, that is supported by arms k^2, that project downward from the end of the frame B.

The springs h^2 are capable of drawing the racks, so as to rotate the number-wheels when the racks are released by the mechanism presently to be described.

The racks g^2 are attached at their forward ends to standards m^2, that are secured to the guide-pieces n^2, that move along the upper surface of a slotted plate, o^2, that is supported by the frame B. The guide-pieces n^2 are each provided with a stud, p^2, that projects downward through slots in the plate, in position to be engaged by a cross-head, q^2, that is placed in guides formed in the under surface of the slotted plate o^2, and is attached to a rod, r^2, that projects through the front of the casing, and is provided with a head or handle, s^2, by which it may be drawn forward when it is desired to return all of the printing-wheels to a blank. Upon the rod r^2, between a collar, t^2, and the front of the casing A, is placed a spring, w^2, which carries the rod r^2 back after use.

Upon the forward end of the guide-pieces n^2 there are beveled ribs v^2, which are engaged by the spring-catches w^2, which are pivoted to the cross-bar b, which extends across the end of the frame B. The cross-bar b is apertured to receive a series of pins, b^4, which rest on the spring-catches w^2, and extend through the top of the casing A, and are provided with knobs or thumb-pieces c^3, which are a little lower than the table d^3, upon which is placed the bill to be checked. The top of the casing is offset to admit of this arrangement.

Above and parallel with the guide-pieces n^2 there are hooks e^3, which are pivoted to the standards m^2 and extend a short distance beyond the guide-pieces n^2. Between the said guide-pieces and hooks there are springs f^3, which are riveted to the guide-pieces and press the hooks upward.

Above the hooks e^3, and parallel with the slotted plate o^2, a guide, g^3, is supported by the frame B. In this block there are a number of transverse rows of holes, h^3, the num-

ber of holes in each row being equivalent to the number of hooks e^3, and the number of rows being equivalent to the number of characters or numbers in each series on the wheels C. In each of the holes h^3 there is a pin, i^3, having a head, j^3, between which and the guide g^3 there is a spring, k^3. The lower end of each pin is provided with a hook or L shaped head, l^3, that projects toward the front of the machine. Above each row of pins is placed a lever, m^3, which is pivoted between ears that are carried by the frame B near the side of the casing A, and projects through the opposite side of the casing, and is provided with a thumb-piece, n^3, upon which is marked a character or figure. For convenience in handling these levers they are made in three lengths, the longer and shorter ones alternating. There are nine rows of pins, i^3, which represent figures from 1 to 9, inclusive, and also one row for the cipher and one for the dollar-mark.

There are as many figure-wheels, thumb-pieces e^3, and intermediate parts as there are places for dollars, cents, and characters. To each rack g^2 a numbered strip, o^3, is attached, which projects toward the front of the machine. The figures and characters on each strip correspond with one of the sets of figures and characters on the wheels C, and there is a transverse slot, p^3, in the table d^3, through which one of the numbers on each of the strips appears as the numbering-wheels C are adjusted, thus indicating the correctness of the adjustment of the said wheels.

The portion of the casing A that contains the arm F and lever G is elevated above the table, and the casing is slotted at the sides to receive the bill to be checked. The bill, when inserted in the slots, passes below the platen g^4, on the end of the arm F, in position to be printed. The end of the table d^3 which is nearest the type-wheels is curved upward to guide the bill, so that it passes readily over the number-wheels.

The operation of setting the number-wheels is as follows: One of the thumb-pieces e^3, which represents the place of the figure or character to be set, is depressed. This liberates the guide-bar n^2 from the catch w^2, and permits the hook e^3 and all of the parts connected with it to move until the said hook engages a shoulder, s^3, formed on the guide g^3. One of the levers m^3, which represents the required number or character, is depressed, so as to project all of the pins i^3 in the row under the lever downward through the guide g^3. The pin immediately above the hook e^3 (that has been started by depressing the pin b^4) by this means disengages the hook e^3 from the shoulder s^3, when the hook and the rack g^2 (which is connected with it) are moved by one of the springs h^2 until the hook engages the hooked end of the pin i^3, which has disengaged it from the shoulder s^3. The hook e^3 is in this manner stopped, so as to bring the required figure on the indicating-strip o^3 below the slot p^3. The figure-wheel C, by this operation, will have been turned so as to bring the required figure under the inking-ribbon and in a proper position under the platen g^4. The corresponding figure on the opposite side of the wheel is at the same time in the proper position to print on the paper strip d. As many figures and characters as may be required are thus thrown into position for printing. When the wheels C are properly adjusted the bill, check, or other paper to be receipted or printed on is inserted between the inking-ribbon r^1 and the platen g^4, and the lever G and arm b'', are grasped in the hand and the lever is forced toward the arm b^2, giving the impression upon the check and also upon the paper strip d, the frame B and all contained or supported by it moving downward after the platen g^4 strikes the type. After the impression is made the parts are returned to their original position by drawing the rod r^2 by means of the knob s^2. When the platen rises the paper strip d is carried forward by the mechanism already described, and the inking-ribbon is moved a small distance to present a fresh surface to the type.

The entire machine may be raised at any time to inspect the record on the paper strip without disarranging any of the parts or changing the adjustment. At certain intervals—say, at the end of the day—the strip may be cut and the detached portion filed.

We do not claim type-wheels having movable bearings to admit of depression for marking or stamping purposes; nor do we claim operating ink-ribbon rolls by a pawl connected with a rocking or vibrating lever; but,

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the stationary table H and the stationary case A, of the frame $a\ a$, pivoted at one end of the case, and the type-wheels C, hung in fixed bearings in said frame and thus vibrating with it, the platen-lever F, the eccentric or rock-lever G, and the stationary handle b'', projecting vertically from the case parallel to or alongside the rock-lever, all as shown and described, for the purpose specified.

2. The combination, with the rolls e^1 and h^1, table or bed H, and type-wheels C, the idle-roller f^1, hung in the pivoted spring-pressed frame i^1, the actuating or feeding roller g^1, hung in stationary bearings, the ratchet k^1, and the pawl l^1, sliding frame m^1, and arm n^1, of the rocking lever G and the pivoted frame a, on which the type-wheels are hung, all as shown and described, whereby the operation of the lever G depresses the platen and moves the strip just after the descent of the frame carrying the type-wheels.

3. The vertically-sliding slotted frame m^1, having pawls b^3 and l^1, the rock-lever having the arm n^1, the spring w, the fixed feed-rolls p^1 and g^1, for moving the ink-ribbon and strip d, respectively, the frame $a\ a$, and type-wheels C, hung therein, and the stationary table or bed

H, all combined, as shown and described, for the purpose specified.

4. The case A, made in two longitudinal parts, hinged together at one end and detachably connected at the other, in combination with the table H and strip-carrying rolls, one attached to the bed of the case, and the type-wheels and ink-ribbon rolls attached to the hinged portion of the same, all arranged and operating as shown and described, for the purpose specified.

5. The combination, with the notched wheels, of the forked lever provided with two cam-ears, c^2, the pin d^2, the arm F, and the rod l, as and for the purpose specified.

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