

(No Model.)

3 Sheets—Sheet 1.

J. N. WILLIAMS.

CHECK PUNCHING MACHINE.

No. 385,741.

Patented July 10, 1888.

FIG. I.

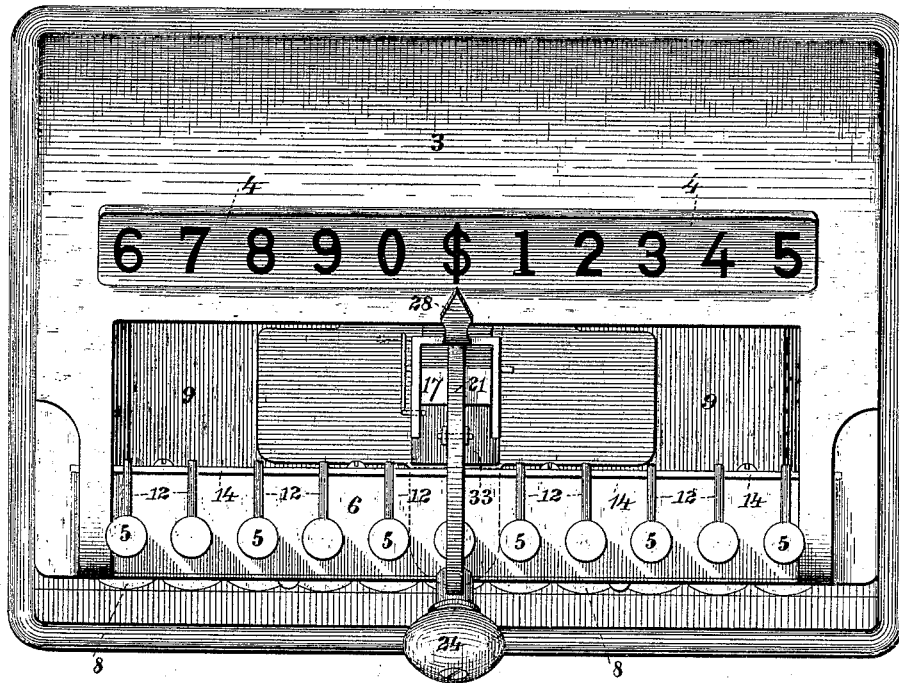
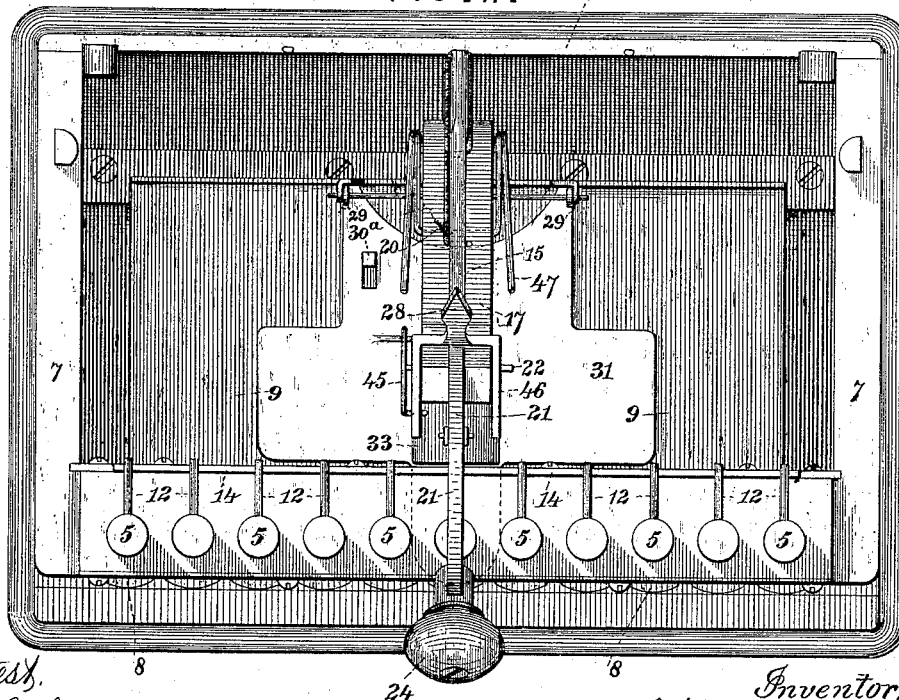


FIG. II.



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FIG. III.

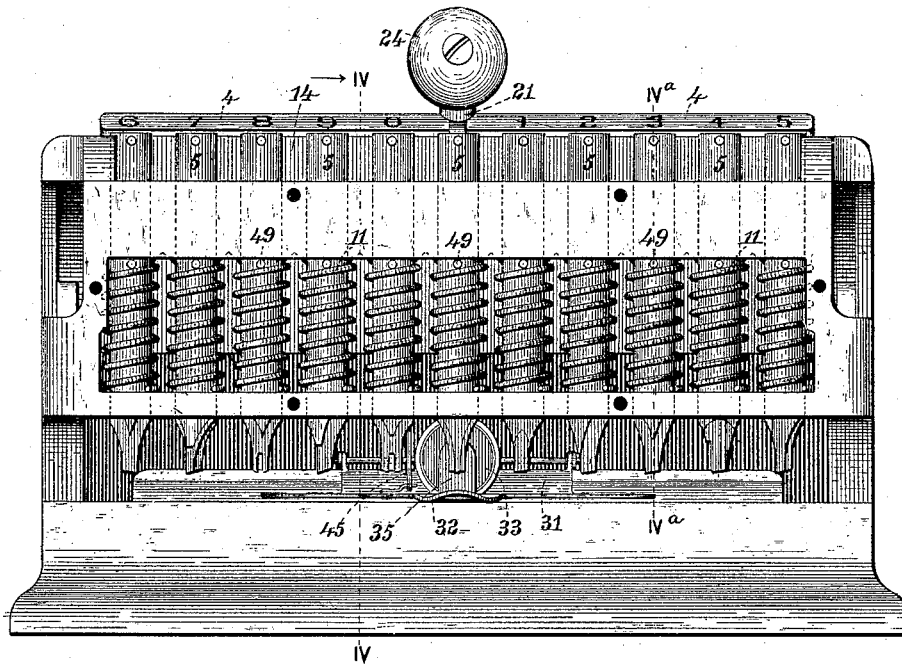


FIG. IV<sup>a</sup>

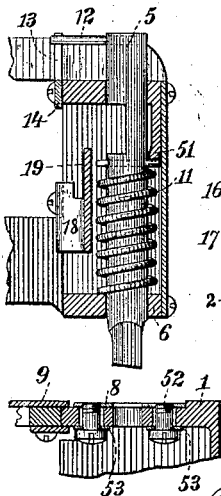


FIG. IV.

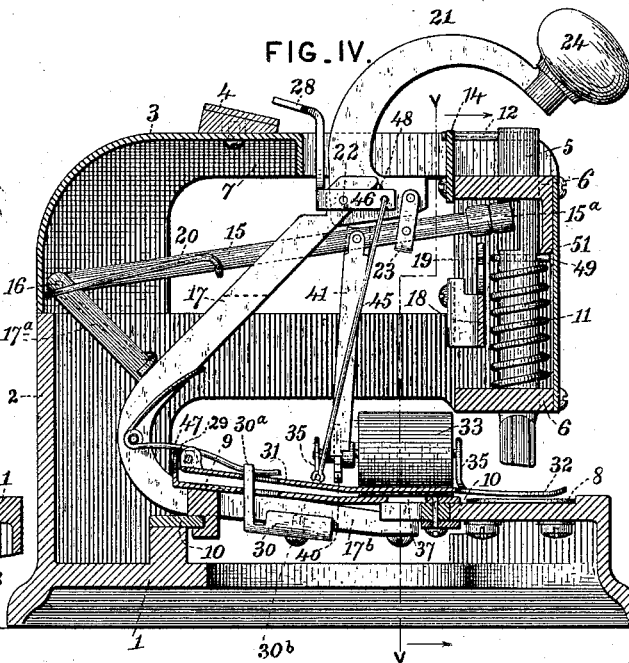
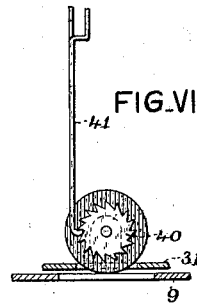


FIG. VII.



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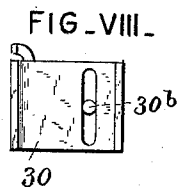
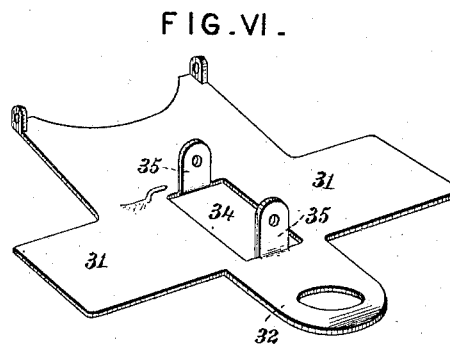
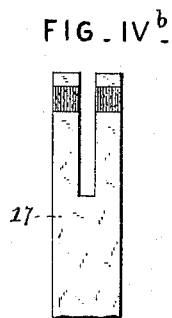
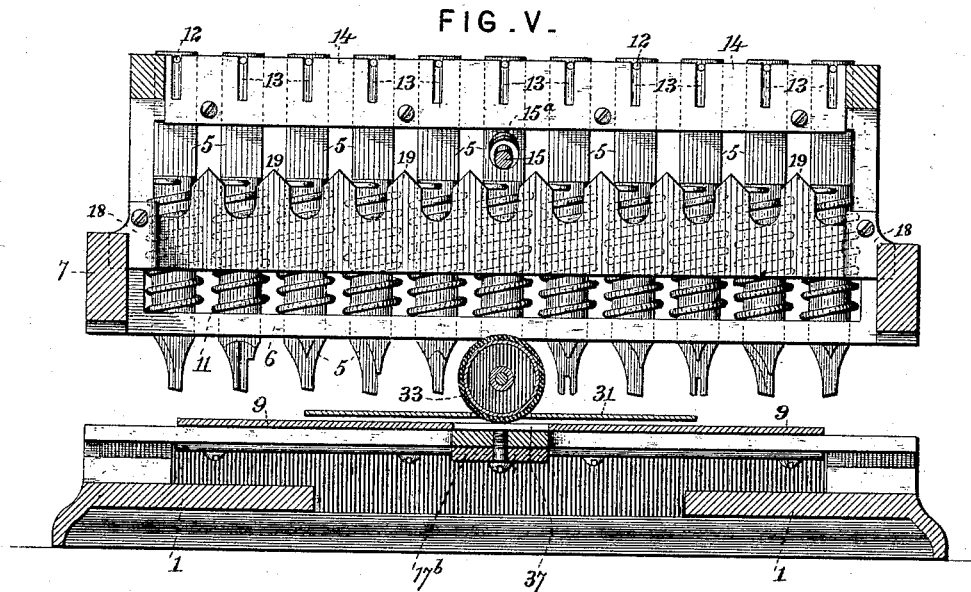
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3 Sheets—Sheet 3.

J. N. WILLIAMS.  
CHECK PUNCHING MACHINE.

No. 385,741.

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# UNITED STATES PATENT OFFICE.

J. NEWTON WILLIAMS, OF NEW YORK, N. Y.

## CHECK-PUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 385,741, dated July 10, 1888.

Application filed February 10, 1887. Serial No. 227,181. (No model.)

*To all whom it may concern:*

Be it known that I, J. NEWTON WILLIAMS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Check-Punching Machines; of which the following is a specification.

My invention relates to those machines which are employed to punch a check with figures indicating the amount for which it is made, so as to prevent any subsequent alteration or "raising" of the check.

To this end the invention consists in certain details of construction, more fully described with reference to the accompanying drawings, and pointed out in the claims.

In said drawings, Figure I is a top view of my improved punching-machine. Fig. II is a similar view with the top plate removed. Fig. III is a front elevation of the machine. Fig. IV is a vertical transverse section thereof in a plane indicated by the line IV IV, Fig. III. Fig. IV<sup>a</sup> is a transverse sectional view of the punches and dies in a plane indicated by the line IV<sup>a</sup> IV<sup>a</sup>, Fig. III. Fig. IV<sup>b</sup> is a rear elevation of the arm for supporting the hand and punch-operating levers. Fig. V is a vertical longitudinal section in a plane indicated by the line V V, Fig. IV. Fig. VI is a view in perspective of the clamp-plate detached. Fig. VII is an elevation view of the feed-pawl and roller. Fig. VIII is a plan view of the check stop-plate.

The main frame of the machine consists of a bed-plate, 1, which may be cast with a vertical plate, 2, at rear, supporting the cap-plate 3. The parts 2 and 3 are so arranged as to hide as much as possible the interior of the machine and protect it from dust. Near the front edge of the cap-plate 3 is provided an indicator-plate, 4, rigid on the cap-plate and bearing characters preferably arranged as shown in Fig. 1—namely, with the \$ in the center and the figures on each side thereof in such manner that those characters which are most frequently employed will be near the center.

55 are punches arranged vertically in series in bearings in blocks or plates 6 6. The punches 5 bear on their lower end characters which are shown on the indicator-plate 4, the

characters being arranged in the same order on the indicator-plate as in the line of punches. The bearing-blocks 6 are carried at each end by an arm, 7, projecting from the rear plate, 2, of the frame. Immediately under the punches on the base-plate 1 is arranged a series of corresponding female dies, 8. A check to be punched is placed between the punches and dies, the arms 7 being so arranged as to present no obstruction. When in this position, the check rests upon the table 9, which is guided in a path parallel with the series of punches, and which is brought close up against the rear of the dies. The guides of the table are shown in Fig. IV at 10.

The present invention contemplates the use of a series of punches in fixed bearings in connection with a table sliding with the check under the punches, being thus distinguished from those former machines in which the check is immovable (except while feeding) and the punches are moved over the same. In such a machine I find it important to increase the rigidity of the check, and thus prevent its entanglement with the fixed portions of the machine when being shifted thereon. To this end I prefer to make the table 9 with a slight upward bend at rear, as shown in Fig. IV, so that when the check is clamped thereon it will receive a slight transverse bend, and so be stiffened. The punches are pressed upward and away from their dies by springs 11. Projecting from the rear of each punch is a pin, 12, of soft steel or other pliable metal. These pins ride in vertical slots 13 in a plate, 14, fixed to the rear of the upper bearing-block 6. These pins and slots thus act as guides for preserving a precisely vertical and non-rotary movement to the punches, and by arranging the slots at a distance from the punches and making the pins 12 of pliable metal it will be seen that I am able to adjust the punches so as to make each correspond very accurately with its proper female die and to preserve such correspondence for a great length of time.

15 is a lever employed for depressing the punches. This lever is pivoted by pin 16 in an arm, 17<sup>a</sup>, and passes through a slot in the upper end of an arm, 17. The lower dotted line on the arm 17 in Fig. IV shows the position of the bottom of said slot. The arm 17,

though rigid with the table 9, is preferably made in a separate piece and riveted or screwed to the table, and in this connection another important effect of the inclined position of the rear of the table is noted, for the inclination of such rear end allows the approximately horizontal portion 17<sup>b</sup> of the arm 17 to be placed under the table, thus leaving the upper surface of the table clear, while it projects at the rear of the table above the guide 10, and so does not interfere with the free movement of the table. Arranged along in rear of the series of punches 5 is a plate, 18, having a series of sharpened projections, 19, arranged to alternate with the punches 5, and thus to direct the lever 15 as it descends to one side or the other until it is directly in rear of a punch which is to be depressed. The relative arrangement of the parts should of course be such that before the punch enters the paper the lever shall be directly over the center of the punch, and by this means the table 9, carrying the check, is brought to precisely the proper position before the character is punched out of the check. Preferably the lever 15, as shown, enters a cut-away portion in the punches. The cut-away portions of the several punches are in line, so that a path is afforded for the lever in its movement from one punch to another. After it has performed its part of depressing the punch, it will be lifted with the punch by spring 11 thereon, and further by a spring, 20, which insures the placing of the lever 15 slightly above the projections 19 after it has performed its work, so that said projections will not interfere with the movement of the lever from one punch to another. A roller may be provided at the front end of lever 15 to lessen the friction between the said lever and its bearings on projections 19 and punches 5. Preferably two such rollers, 15<sup>a</sup>, are provided—one bearing on the punch and the other on the projection—so that there will be no retardation of the roller, owing to its bearing at the same time on both members.

One of the main objects of the present invention is to effect the movement of the table 9 under the punch by means of the same member that depresses the punch. For this purpose the lever 15 might have a rigid projection extending within convenient reach of the operator; but preferably the arrangement clearly shown in Fig. IV is employed. As here shown, a bell-crank lever, 21, is pivoted in the slot in the upper end of arm 17 by a pin, 22. The upper member of this lever 21 carries a finger-piece, 24, while the lower member is connected by a link, 23, with the lever 15. The upwardly-projecting portion of the lever 21 is curved over sufficiently to prevent its impinging on plate 14 or on the punches when it is depressed. An index, 28, is also carried by the arm 17, being pivoted thereto by pin 22 in such position as to travel over the indicator-plate 4 and assist in locating the proper punch to be depressed beneath the lever 15.

The holding plate or clamp 31 is pivoted to lugs 29 on the table, so as to partake of the sliding movement of the latter. The stripper 32, for removing the check from the punch, is formed on the forward part of the holding-plate 31, so as to surround the lower end of the punch when the latter is depressed. A rod, 45, connects the holding-plate 31 with an arm, 46, projecting from the index 28, so that the index serves as a thumb-piece for raising the holding-plate 31 when a check is to be placed under the punch. The spring 47, bearing under the arm 17 at one end and pressing upon the plate 31 at its other end, insures the clamping of the check between the table and holding-plate with sufficient pressure. A plate, 30, is fixed by slot and set-screw 30<sup>a</sup> under the portion 17<sup>b</sup> of the arm 17, and has an upwardly-projecting stop, 30<sup>a</sup>, passing through slots in the table 9 and plate 31, and there is thus provided an adjustable limit to the insertion of a check.

A guide and pressure roller, 33, rests, when there is no check in position, upon the table 9, projecting for this purpose through the slot 34 in the holding-plate 31. This roller is carried by lugs 35, projecting from the plate 31. To insure the feeding of a check in a right line, I form in table under the roller a slot, 37, less in width than the length of the roller, so that said roller will bear upon the check only on each side of the slot instead of throughout its whole length. The roller 33 is actuated by a ratchet-wheel, 40, and spring-pawl 41, the latter being fixed at its upper end to the lever 15. Preferably the means of attachment of the pawl of this lever is that shown. A tongue is struck out of the pawl, the part remaining being bent under the lever 15, and then up against the side thereof. This part, together with the said tongue, is then fixed to the lever by a pin passing through the whole. It will be seen that the hooked spring-pawl 41 feeds only during the upward movement of lever 15 after the punching operation, and it is made of such length that it does not come in contact with the ratchet on its upward movement until the punch has left the paper. While the paper is being fed forward, pressure on it is lessened.

A stop, 48, may be provided on the horizontal arm of lever 21, which, impinging against the arm 17, limits the upward movement of said lever, and consequently of the lever 15, and in this manner friction of the inner end of the lever or of its rollers 15<sup>a</sup> against the punches may be prevented. The upward movement of the punches, however, is limited by stops 49, placed in holes 50 in the punch and impinging upon the plate 51, fixed to the upper bearing-block 6. The plate 51 may be bent inwardly against the punch, as shown in Fig. IV, so that it bears against stops 49, close to the punch. The other end of the holes 50 may receive the upper ends of springs 11.

In order to insure the most perfect agreement of each die with its proper punch, I find

it necessary to provide slight capacity of adjustment of the dies upon the bed-plate. For this purpose the holes provided in the bed-plate for the passage of the die-plate-fixing screws 52 are, as shown in Fig. IV<sup>a</sup>, made slightly larger in diameter than said screws. When these screws are being tightened after the die-plate has been adjusted to the desired position, I have found that the friction of the screw-heads on the under side of the bed-plate is apt to cause a slight displacement of the die-plate. I therefore place copper or other soft-metal washers, 53, between the screw-heads and the under side of the bed-plate, so that when the screws are tightened any sharp points or irregularities on their heads will cut their way through the soft metal, while the greater friction of the comparatively larger surface of the die-plate on the upper side of the bed-plate will insure the retention of the die-plate to the exact position in alignment with its punch to which it has been adjusted.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with the bed-plate 1, having straight parallel guides 10, a table, 9, moving on said guides, an arm, 17, fixed to said table and projecting forward over it, a series of vertically-sliding punches, 5, mounted parallel with the movement of the table, a punch-operating lever, 15, mounted in the arm 17, and a hand-lever, 21, also mounted in said arm 17 and adapted to operate the punch-operating lever, substantially as set forth.

2. The combination of the bed-plate 1, having straight parallel guides 10, a table, 9, guided thereon, a spring holding-plate, 31, hinged to said table, a feed-roller, 33, supported on and projecting through a slot in said holding-plate and having ratchet-wheel 40, a punch-operating lever pivotally connected to said table, a pawl carried by said lever for operating said ratchet-wheel, means, substantially as described, for operating said lever, and series of dies and punches, substantially as set forth.

3. The combination of a series of punches mounted in fixed bearings, a fixed indicator-

plate having characters corresponding in position with those on the punches, a movable table, a holding-plate pivoted thereto, and an index carried by said table, moving over said indicator-plate, and connected with said holding-plate, as and for the purposes set forth.

4. The combination of a series of punches, a lever for operating the same, a plate having projections for guiding said lever, and two anti-friction rollers on said lever to bear on said punches and projections, substantially as and for the purpose set forth.

5. The combination of a series of punches, a plate having a series of slots arranged parallel to said punches, and long pins of flexible metal carried by said punches and running in said slots, substantially as and for the purpose set forth.

6. The combination of a table, a clamp or holding plate thereon, and a roller carried by said holding-plate, said table being slotted under said roller in the direction of the feed, substantially as and for the purpose set forth.

7. The combination of a movable table, a holding-plate resting thereon, both table and plate being slotted transversely, a bent arm, 17, fixed under the table and projecting over it, a plate, 30, adjustable by a slot and set-screw on arm 17, and a stop, 30<sup>a</sup>, on said plate 30, passing through the slots in the table and holding-plate, substantially as and for the purpose set forth.

8. The combination of a series of punches and a table for receiving a check to be punched thereby, having a transverse bend or inclination, substantially as and for the purpose set forth.

9. The combination of the series of punches, a table guided in a path parallel therewith, paper-holding plate and feed mechanism carried by said table, a single punch-operating lever mounted on said table, and hand-lever, also mounted on said table and adapted to operate table, punch-operating lever, and feed mechanism, as set forth.

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Witnesses:

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JAMES BRADY.