

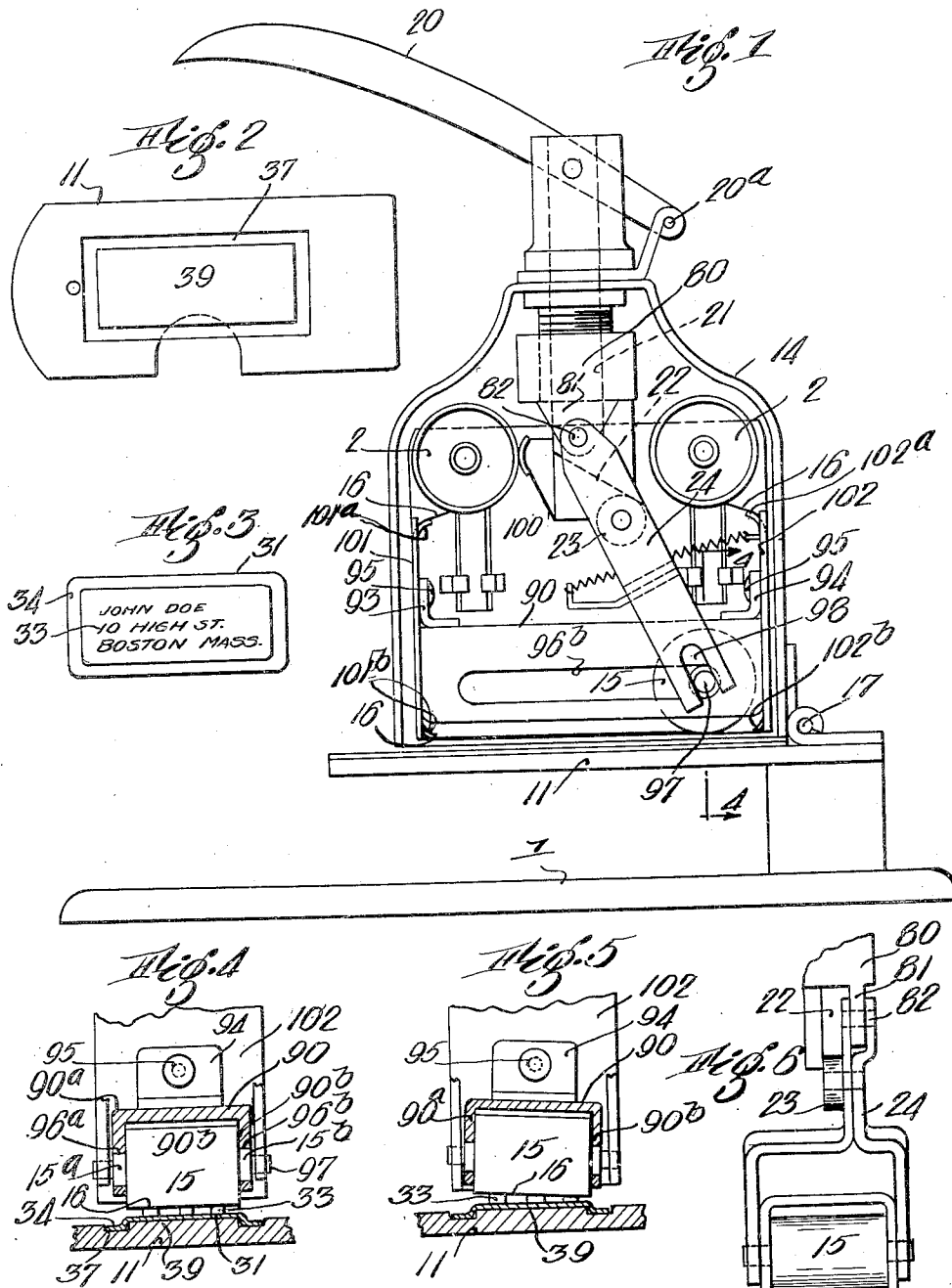
April 21, 1931.

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1,801,596

PRINTING DEVICE

Filed June 21, 1930



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UNITED STATES PATENT OFFICE

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PRINTING DEVICE

Application filed June 21, 1930. Serial No. 462,764.

This invention relates to printing devices operating with customer-carried tokens having the imperfections described above. Other advantages, objects of invention and structural improvements will be apparent from the explanation in this specification and its accompanying drawing of a specific illustrative embodiment of my invention.

For the purposes of illustration and by way of example my invention will be explained by reference to its embodiment in a device of the type claimed in my copending application, Serial No. 404,290, filed November 2, 1929.

In the drawings:

Fig. 1 is a front elevation of a printing device illustrative of my invention, the device having one wall of its casing removed;

Fig. 2 is a plan view of the backing member or plate holder of the device of Fig. 1, on a reduced scale;

Fig. 3 is a plan view of a printing plate in the form of a token adapted to be carried by a customer and adapted to be utilized in the machine of Fig. 1 for printing a customer's name and address upon a sales slip;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is a sectional view similar to that of Fig. 4 but showing, in exaggerated degree, the cooperation of the device with an imperfect printing plate;

Fig. 6 is a fragmentary side elevation of a pressure roller and parts of its actuating mechanism, the casing of the machine and certain other parts being removed for clarity of illustration.

Referring to Fig. 3 a thin sheet metal printing plate 31, such as disclosed in afore-said application Serial No. 374,715 and suitable for use in the device of the present invention, includes a central struck-up portion having thereon lines of type characters 33 which may spell in direct order the name and address of a customer who carries the plate. A depending flange 34 (Figs. 3 and 4) preferably extends completely around the central type-bearing portion of the plate, this conformation of the plate performing the dual function of imparting strength and some rigidity to the ductile plate, and of

providing for the positioning of the plate in a printing device.

The printing device of Fig. 1 is provided with a base indicated generally by the reference character 1 which includes a backing member 11 recessed at 37 (Fig. 2) to receive the depending flange 34 of a sheet-metal printing plate 31. Fig. 4 illustrates a preferred interfitting relation of the sheet-metal printing plate 31 and the backing member 11 which forms part of the base. As shown in Fig. 4, a central portion 39 of the backing member extends within the struck-up portion of the printing plate 31 and in this interfitting relation the plate is retained with its type characters 33 in printing position, both by means of the engagement of the flanges 34 with the sides of the groove 37 (which act as raised guide members) and by the engagement of the outwardly facing shoulders of the central portion 39 of the backing member with the inwardly facing parts of the plate at the side of its struck-up central portion. However, the printing plates may be detachably retained in either of these ways, that is, solely by the engagement of their flanges 34 with the sides of the recess or by the engagement of the outwardly facing shoulders of the central projection 39 on the backing member with the inwardly facing parts of the plate at the sides of the struck-up central portion thereof. The plate, through thus positioned against horizontal displacement, may readily be removed vertically.

A casing 14 containing a pressure member, herein shown as a roller 15, and an ink ribbon 16 together with suitable ribbon advancing mechanism, is pivoted at 17 to the backing member portion of the base, and may be swung to the right in Fig. 1 to give access to the upper side of the printing plate retaining means for the insertion of the printing plate and the sheet or sheets to be printed. An operating handle 20 associated with the casing and pivotally mounted thereon at 20^a serves to depress a vertical plunger 21 carrying a cam 22 at its lower end. A sleeve 80, fixed to the casing, is provided with a depending extension or bracket 81, which carries a transverse pivot pin 82 extending therethrough. Upon this pin 82 is pivotally mounted a bifurcated actuating arm 24, as shown particularly in Fig. 6. The arm 24 carries near its upper end a cam follower 23 adapted to engage with and be moved by the cam 22 mounted on the plunger 21. Thus depressing the actuating handle 20 causes the cam 22 to swing the bifurcated arm 24 about its pivot 82, to the left in Fig. 1.

Referring to Fig. 1 the casing 14 preferably is provided with an inner shell comprising a vertical back portion 100 and vertical side portions 101 and 102, this inner

shell being fastened rigidly, for instance at its back portion 100, to the casing 14. The vertical side portions 101 and 102 are spaced from the adjacent side walls of the casing 14 (Fig. 1) and are provided with inwardly directed curved portions 101^a, 101^b, 102^a and 102^b which enable these side portions 101 and 102 to serve as guides for the ink ribbon 16, between ribbon-reels 2.

Referring to Figs. 1, 4 and 5, a channel-shaped guide member 90 having depending vertical flanges 90^a and 90^b is provided with vertically extending brackets 93 and 94 fast thereto. These brackets 93 and 94 are pivotally mounted by means of loosely fitting rivets 95 (Figs. 1, 4 and 5) to the side portions 101 and 102 respectively of the inner shell 101 of the casing. Thus the channel-shaped guide 90 is capable of tilting about an axis parallel to its direction of length, for instance from the position of Fig. 4 to that of Fig. 5.

The pressure roll 15 is mounted within the channel-shaped guide 90 and is provided with journals 15^a and 15^b, which engage and roll in slots 96^a and 96^b in the opposite flanges of the guide 90. The roll 15 is provided with an axially extending pin 97 which extends to either side of the guide 90 and engages loosely within slots 98 in the opposite branches of the bifurcated arm 24. In this way swinging of the bifurcated arm 24 by actuation of the handle 20, as explained above, serves to move the pressure roll 15 across the casing and over a printing plate retained by the base. By virtue of the pivotal mounting of the guide 90 within the casing, the pressure roll 15 is adapted to conform to irregularities in height of the various lines of type characters on a printing plate. The pin and slot connection between the roll 15 and the bifurcated arm 24 permits actuating movement of the handle 20 to be communicated to the roll 15 in any of the various tilting positions which the roll may assume.

In the operation of the device, the casing 14 is swung to the right in Fig. 1 to expose the upper surface of the backing member 11, and the typographical plate 31 is inserted with its flange 34 within the recess 37. A sheet of a sales book (or a plurality of sheets with interposed carbon paper) may then be placed upon the upper surface of the printing plate with the main body of the book occupying the space between the backing member 11 and the remainder of the base. Then by swinging the casing 14 down to the position of Fig. 1 by means of the handle 20 and then further depressing the handle 20, the pressure roll 15 may be moved over the inked ribbon 16, the sheet or sheets to be printed, and the printing plate, thereby to reproduce the indicia of the plate upon the upper surface or surfaces of the sheet

or sheets inserted in the machine. The guide 90 and the pressure roll 15 are free, as the pressure roll reacts with the printing plate, to tilt about an axis parallel to the direction of movement of the roll, so that uniformity of printing is obtained even in the case of non-uniformity of height of the type characters of the various lines.

I claim:

10 1. A stamping device for printing from individual printing plates having raised type characters thereon, comprising a base including means for detachably retaining a printing plate with its type characters in
15 printing position, a movable head, and a pressure member carried by said head, said pressure member being mounted on said head for tilting with respect thereto.

20 2. A stamping device for printing from individual printing plates having raised type characters thereon, comprising a base including means for detachably retaining a printing plate with its type characters in printing position, a movable head, and a
25 pressure member carried by said head and movable over a printing plate to press sheets of paper against a printing plate retained by the base, said pressure member being mounted for tilting with respect to the head
30 upon reacting on the printing plate, thereby to print evenly from non-uniform plates.

3. A stamping device for printing from individual printing plates having raised type characters thereon, comprising a base
35 including means for detachably retaining a printing plate with its type characters in printing position, a movable head, and a pressure member carried by said head for pressing a sheet against the plate, said pressure member being mounted for movement
40 over the printing plate and for tilting with respect to the head to accommodate irregularities in the printing plate.

4. A stamping device for printing from individual printing plates having raised type characters thereon, comprising a base including means for detachably retaining a printing plate with its type characters in
45 printing position, a movable head, a pressure member movable over the plate for pressing a sheet against the plate, a guide on said head for the pressure member, said guide being mounted on said head for tilting
50 with respect thereto, thereby to permit the pressure member to accommodate itself to irregularities in the printing plates.

5. A stamping device for printing from individual printing plates having raised type characters thereon, comprising a base including means for detachably retaining a printing plate with its type characters in
60 printing position, a movable head, a pressure roller, a guide for restraining said roller to movement across the plate, said

guide being mounted on said head for tilting with respect thereto.

6. A printing device for printing from individual printing plates, comprising a base including means for detachably retain-
70 ing a printing plate with its type characters in printing position, a casing movable toward and from the base, a guide pivoted to said casing for tilting relative thereto, a pressure member retained by the guide and
75 movable across the casing over the printing plate, and means for moving said pressure member when the latter is in various tilting positions.

7. A printing device for printing from
80 individual printing plates having lines of type characters thereon, comprising a base including means for detachably retaining a printing plate with its type characters in printing position, a casing movable toward
85 and from the base, a guide pivoted to said casing for tilting relative thereto about an axis generally parallel to the lines of type characters on the printing plate, a pressure member retained by the guide and movable
90 across the casing over the printing plate, and actuating means for moving said pressure member across the printing plate while permitting tilting of the guide and pressure members to accommodate irregularities in
95 the printing plate.

8. A printing device for printing from individual printing plates, the combination of means for detachably retaining a printing plate with its type characters in printing
100 position, a pressure roller movable over a printing plate thus retained, and roller-guiding means having tilting movement about an axis generally parallel to the direction of movement of the roller over the
105 plate.

9. In a printing device for printing from individual printing plates, the combination of means for detachably retaining a printing plate in printing position, a pressure
110 roller movable over a printing plate thus retained, and roller-guiding means bodily rotatable about a fixed axis for positioning the roller for printing, and having tilting movement about an axis generally parallel
115 to the direction of movement of the roller over the printing plate to permit the roller to conform to the configuration of the plate.

10. In a printing device for printing from individual printing plates having raised
120 type characters thereon, the combination of a base including means for detachably retaining a printing plate with its type characters in printing position, a casing pivotally mounted with respect to the plate-
125 retaining means, a channel-shaped guide within the casing over the plate-retaining means, said guide having slots in its opposite flanges, a pressure roller including journals extending into said slots, and a
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pivotal connection between said guide and the casing to permit tilting of the roller about an axis generally parallel to the said slots.

- 5 11. A printing device of the class described comprising a base, a raised portion projecting from the immediately adjacent portions of the base and a detachable printing plate having a generally rectangular
10 recess on its rear face, type characters projecting from the plate opposite to said recess, the said raised portion having an outwardly facing shoulder on each of its four sides and the plate having marginal abut-
15 ments on the four sides of said recess for cooperating with said shoulders to prevent lateral displacement of the plate from the said raised portion in two dimensions.

- 20 12. A printing device of the class described comprising a base, a raised portion projecting from the immediately adjacent portions of the base and a detachable sheet metal printing plate having marginal
25 flanges which define a generally rectangular recess in its rear face, the plate having projecting type characters on its face opposite to said recess, the recess of the plate and the said raised portion being of such relative proportions that the plate may be super-
30 posed on the base with the said raised portion extending within said recess, thereby to prevent lateral displacement of the plate from the platform in two dimensions while allowing the plate to be removed from the
35 device by movement perpendicular to the base and raised portion.

- 40 13. A printing device of the class described comprising a holder for supporting a printing plate having a bottom recess and a marginal flange substantially bordering the recess, said holder comprising a base having a raised portion projecting from the immediately adjacent portions thereof and corresponding to the plate recess, and a
45 raised guide substantially surrounding the said raised portion and bordering an intervening recess for receiving the marginal flange of the plate.

- 50 14. A printing device of the class described including a holder for supporting a printing plate having a bottom recess and a marginal flange substantially bordering the recess, said holder comprising a base, a raised portion projecting from immediately
55 adjacent portions of the base and adapted to extend within the recess of the plate, and a raised guide substantially surrounding said raised portion and bordering an intervening recess for receiving the marginal
60 flange of the plate, whereby the holder is adapted to position the plate in both longitudinal and transverse dimensions.

- 65 15. A printing device of the class described including a holder for supporting a printing plate having a bottom recess and

a marginal flange bordering the recess, said holder comprising a base, a raised portion projecting from the immediately adjacent portions of the base and adapted to extend within the recess of the plate, and raised
70 guide portions on the base spaced from said raised portion, thereby defining a recess for the reception of the marginal flange of the plate between said guide portions and the said raised portion.

Signed by me at Boston, Massachusetts,
this 2nd day of June, 1930.

RICHARD M. DUGDALE.

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