

April 28, 1936.

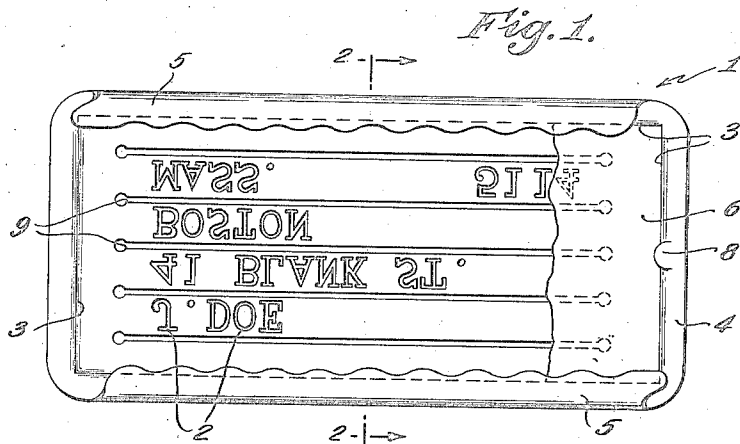
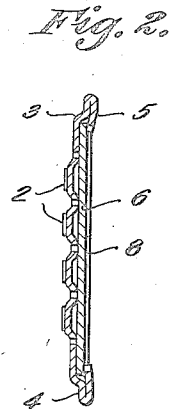
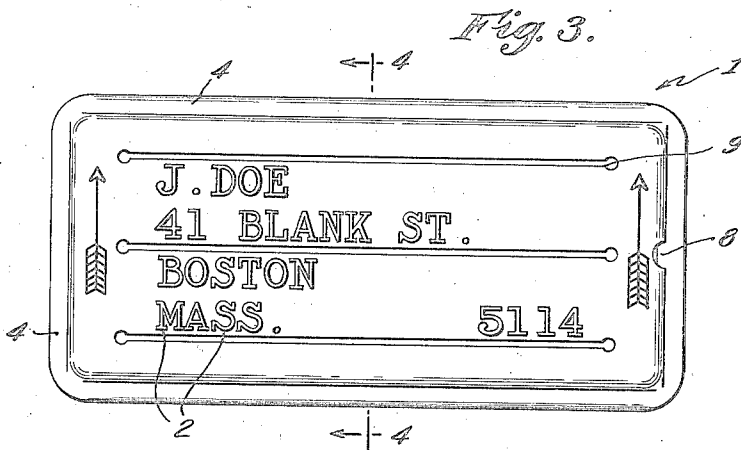
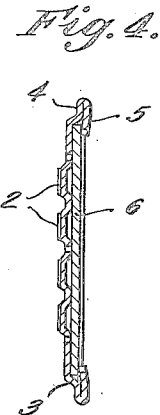
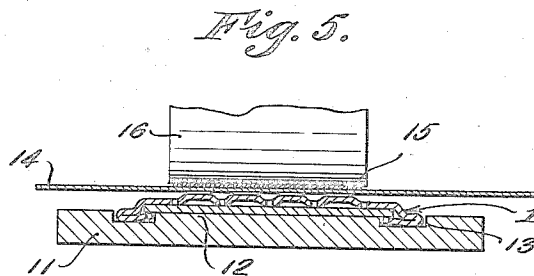
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2,039,074

PRINTING PLATE

Filed May 23, 1935

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

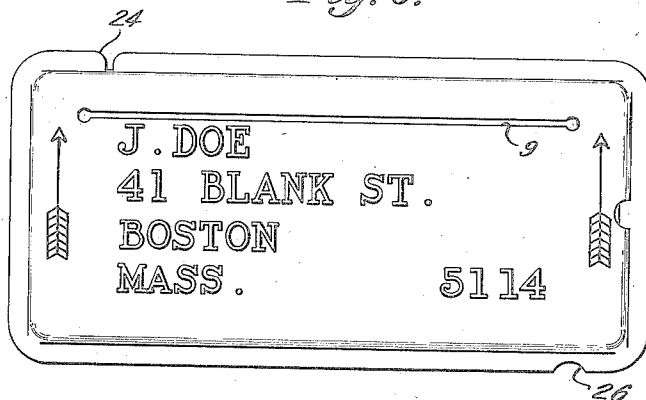


Fig. 7.

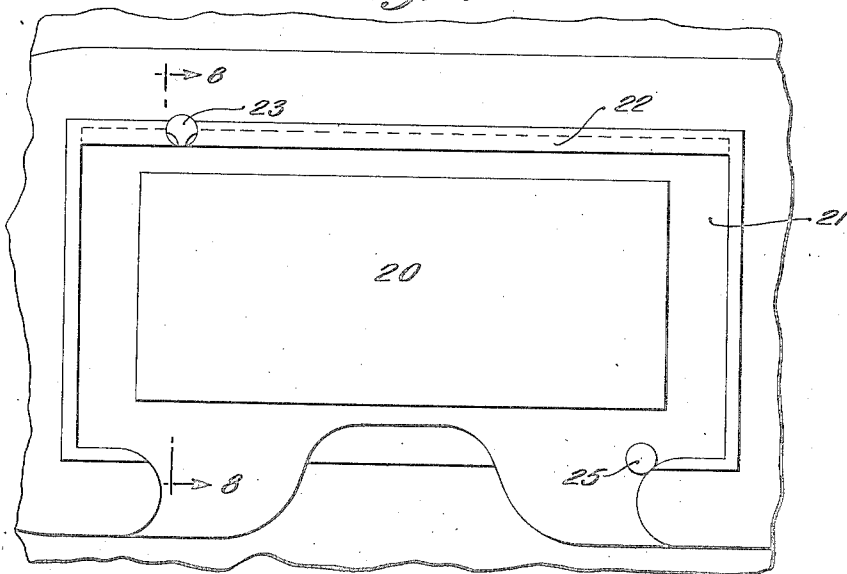


Fig. 8.

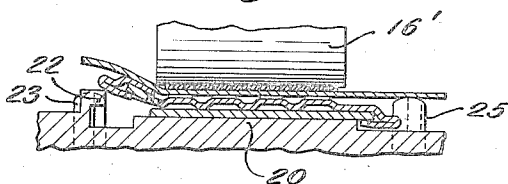
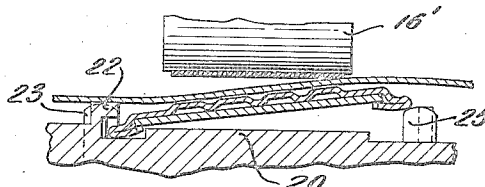


Fig. 9.



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UNITED STATES PATENT OFFICE

2,039,074

PRINTING PLATE

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Application May 23, 1935, Serial No. 23,000

14 Claims. (Cl. 101—369)

This invention relates to printing plates of the portable type and more particularly to devices adapted to serve not only as printing plates but also as customers' tokens for identification in department stores and other retail establishments. Plates of this type and machines for printing with such plates are disclosed, for example, in the following patents of the assignee of this patent: No. 1,795,480, No. 1,801,593, No. 1,801,594, No. 1,801,595, No. 1,801,596, No. 1,801,597, No. 1,829,586, No. 1,852,644, No. 1,912,264, No. 1,945,264, and No. 1,951,596.

An outstanding difficulty with plates of this character results from their tendency to become distorted, sometimes due to abuse in the printing machines, but usually due to twisting and bending while carried in pockets or pocket-books. Prior printing plates, when distorted, have not printed well, usually printing some of the letters too heavily and others too lightly or not at all.

Heretofore all efforts to overcome this difficulty have been in the direction of reinforcing or stiffening the plates to prevent distortion. These efforts have not only been unsuccessful, due to limitations in weight, hardness of metal, etc., but in many cases they have aggravated the trouble by making it more difficult to straighten the plates after distortion without substantially reducing distortions.

The present invention attacks the problem in the opposite direction; instead of stiffening the plates they are made more pliable so that they are not so likely to become permanently distorted. When they are so distorted they may readily be straightened by hand and indeed they print substantially as well without being straightened before use in the machine. This result is obtained by providing one or more openings in that portion of the plate in which the letters are embossed, the openings preferably being in the form of slits extending parallel with the rows of letters at least substantially the full length of the rows. By providing a plurality of slits the plate is divided into bands, with one or more rows of letters per band, the bands being flexible to permit the letters on the respective bands to adjust themselves to the proper printing level more or less independently of the letters on adjacent bands. The slits terminate short of the ends of the plate so that the resulting bands are interconnected by the marginal portions of the plate which constitute a frame for the central printing portion. The greatest flexibility is obtained by providing a slit between each pair of

juxtaposed rows of letters and above and below the top and bottom rows respectively, but under most conditions a lesser number of rows affords adequate flexibility. In the case of a plate having four lines of letters for example, one slit between the two middle lines and slits above and below the top and bottom lines, respectively, afford a degree of flexibility almost as great as though five slits were employed. Indeed a single slit at the top or bottom of the plate affords a marked degree of flexibility as well as other advantages as hereinafter pointed out.

For the purpose of illustration, typical embodiments of the invention are shown in the accompanying drawings in which,

Fig. 1 is a rear view of one form of printing plate;

Fig. 2 is a transverse section on line 2—2 of Fig. 1;

Fig. 3 is a front view of another form of printing plate;

Fig. 4 is a transverse section on line 4—4 of Fig. 3;

Fig. 5 is a detail sectional view showing one way of using the printing plate;

Fig. 6 is a front view of still another form of printing plate;

Fig. 7 is a plan view of the base or platen of a printing machine such as shown in copending application Serial No. 15,073, filed April 6, 1935; and

Figs. 8 and 9 are transverse sections of the machine shown in Fig. 7 with the plate of Fig. 7 improperly applied thereto in two different positions respectively.

The particular embodiments of the invention illustrated in the drawings comprise printing plates 1 of the type disclosed in the patent to Dugdale No. 1,912,437, granted June 6, 1933. The central portion is embossed to form the printing characters 2 in non-reversed order, a recess is provided in the back of the plate by transverse bending of the plate near the margin to form offset portions comprising shoulders 3 with flanges 4 outside the shoulders. The flanges along the long edges of the plate have integral extensions which are folded back against the flanges to form lips 5 which overlap the recess and therefore overhang the margins of the card 6 mounted in the recess. As shown in Fig. 1, the lips 5 terminate short of one end of the plate (the right-hand end in Fig. 1) so that the card may be inserted in the recess by slipping it endwise under the lips between the right-hand ends of the lips and the shoulder at the right-hand end of the plate. To

prevent accidental displacement of the card a struck-up tab 8 is provided to overhang the end of the card after the card has been slipped into the recess.

5 In accordance with the principle of the present invention the central raised portion of the plate carrying the embossed letters is provided with slits 9 extending endwise of the plate between certain of the rows of letters and above and
10 below the top and bottom letters. In Figs. 1 and 2 a slit is provided between each pair of adjacent rows of letters, whereas in Figs. 3 and 4 each band defined by the slits carries two rows of letters. While the greater number of slits illustrated in Figs. 1 and 2 provides somewhat
15 greater flexibility, I have found that the fewer number illustrated in Figs. 3 and 4 is satisfactory in most cases.

Fig. 5 illustrates a portion of a printing machine such as shown in the patent to Dugdale No. 1,795,480, granted March 10, 1931, this machine comprising a base plate 11 having a raised central portion 12 to fit into the recess in the back of the printing plate 1 and a surrounding channel
25 13 to receive the offset marginal portion of the plate. The paper 14 to be printed is laid over the printing plate and a sheet of carbon paper or an ink ribbon 15 is disposed over the sheet to be printed. The roller 16 is then rolled over the
30 carbon paper or ink ribbon compressing it against the sheet to be printed and the latter against the printing plate. By arranging the letters in non-reversed order on the plate they are caused to print sheets in non-reversed order, it being understood of course that the present invention is
35 in nowise restricted to the use of this non-reversed order.

From the foregoing it will be evident that when using a plate constructed in accordance with the
40 present invention, in a printing machine such as illustrated for example in Fig. 5, each row of letters can be pressed downwardly against the raised portion 12 of the base or platen so that even if the plate is considerably distorted when placed
45 in the machine each row of letters will print legibly.

As fully disclosed in the aforesaid copending application the printing machine illustrated in Fig. 7 comprises a base or platen having a raised
50 central portion 20 surrounded by a depressed channel 21. Overhanging the rearward side of the channel 21 is a lip 22. This lip prevents the printing plate from being applied to the platen directly from above. To apply the printing plate
55 to the platen, with the offset marginal portion of the plate seating in the channel 21 and the raised central portion 20 projecting up into the recess in the back of the plate, the rear edge of the plate must first be inserted under the lip 22
60 and the plate then swung downwardly against the plate. A pin 23 extends through the lip 22, thence through the marginal portion of the channel 21 and thence into the platen, the printing plate being notched as shown at 24 in Fig. 6 to
65 accommodate this pin. Another pin 25 is provided in the channel 21 to fit into the recess 26 in the opposite edge of the plate. These pins are intended to prevent the use of plates of unauthorized customers, the plates of each customer being notched to correspond to the pins of the machines in those stores in which the customer has credit. For example, the pins 23 in the machines
70 of the stores of a certain city may be arranged at different locations along the channel 21, each cus-

tomers having his plate notched at one or more places corresponding to the location of the pins in the particular stores in which he has established credit. On the other hand, the pins 25
5 in all of the machines of a certain city may be arranged at the same location.

It has been found that in some cases sales clerks fail to insert the edge of the plate under the lip 22 but on the contrary apply the plate to the machine with the upper margin of the plate overlying the lip 22 as shown in Fig. 8. In the majority
10 of such cases the customer has authorized credit at the store where he presents the plate and it is therefore desirable that the plate should print in the normal way even though misapplied to the
15 machine. By providing a single slit in the plate as illustrated at 9' in Figs. 6, 8 and 9 the plate will print satisfactorily when thus misapplied. This is accomplished as illustrated in Fig. 8 because of the fact that the pressure roller 16' can
20 press the central portion of the plate down against the platform 20 by virtue of the slit 9', thereby causing all the rows of letters to print satisfactorily. However if a customer presents his plate in a city where he does not have a
25 charge account, and therefore does not have his plate notched to accommodate the pin 25 as located in the machines in that city, his plate will not seat in the channel 21, even if properly applied to the machine, but will assume the position
30 illustrated in Fig. 9 where the right-hand margin of the plate is held in elevated position by the pin 25. Without a slit at the bottom of the plate corresponding to the slit 9' at the top of the plate, the plate will not print for the reason that the roller presses the paper against the plate only
35 along one side as illustrated in Fig. 9. Thus the sales clerk's attention is called to the fact that the customer does not have authorized credit.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the
40 appended claims.

I claim:

1. A sheet metal printing plate comprising parallel bands each having raised letters and marginal portions interconnecting the bands at the ends, said bands being flexible transversely of the plane of the plate to permit each band to move
45 independently to proper printing level.

2. A sheet metal printing plate comprising parallel bands each having raised letters and a frame portion surrounding said bands and interconnecting them together at their ends, the bands being independently movable transversely of the plane of the plate.

3. A sheet metal printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having openings adjacent the rows in the central portion only.

4. A sheet metal printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having slits extending parallel to said rows in the central portion only.

5. A sheet metal printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having openings between certain of the rows and above and below the top and bottom rows respectively, the openings being confined to said central portion.
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6. A printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having slits extending parallel to said rows between certain of the rows and above and below the top and bottom rows respectively, said openings being confined to said central portion.

7. A printing device of the type used as a customer's token comprising a thin plate of sheet material having rows of letters embossed in the plate, the plate having slits extending parallel to said rows adjacent certain of the rows.

8. A printing device of the type used as a customer's token comprising a thin plate of sheet material having rows of letters embossed in the plate, characterized by openings through the plate between certain of the rows and above and below the top and bottom rows respectively.

9. A printing device of the type used as a customer's token comprising a thin plate of sheet material having rows of letters embossed in the plate, the plate having slits extending parallel to said rows between certain of the rows and above and below the top and bottom rows respectively.

10. A printing plate comprising parallel bands

each having raised letters and marginal portions interconnecting the bands at the ends, the letter bands and marginal portions being integrally formed from a single sheet of material.

11. A printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having an opening adjacent the rows in the central portion only.

12. A printing plate having a central portion provided with rows of raised letters and offset marginal portions integral with the raised-letter portion, the plate having a slit extending parallel to said rows in the central portion only.

13. A printing device of the type used as a customer's token comprising a thin plate of sheet material having rows of letters embossed in the plate, characterized by an opening through the plate along a line adjacent the aforesaid rows.

14. A printing device of the type used as a customer's token comprising a thin plate of sheet material having rows of letters embossed in the plate, the plate having a slit extending parallel to said rows on one side of the rows.

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