

May 10, 1960

J. R. BRADFORD

2,935,941

PRINTING PLATE ASSEMBLY AND ITS ELEMENTS

Filed Oct. 31, 1955

2 Sheets-Sheet 1

FIG. 1

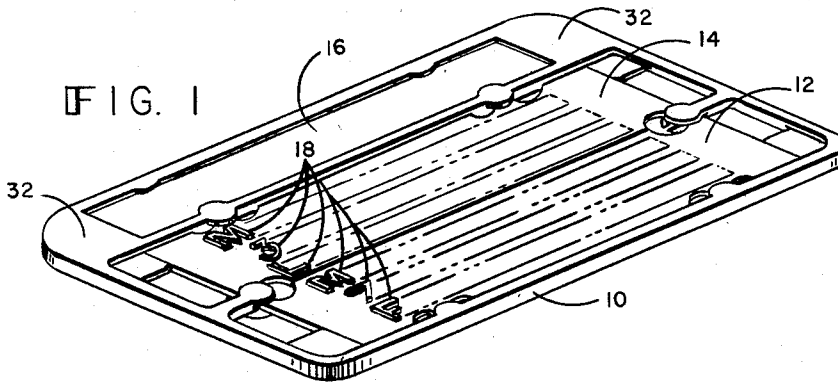


FIG. 2

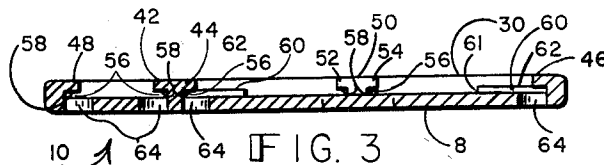
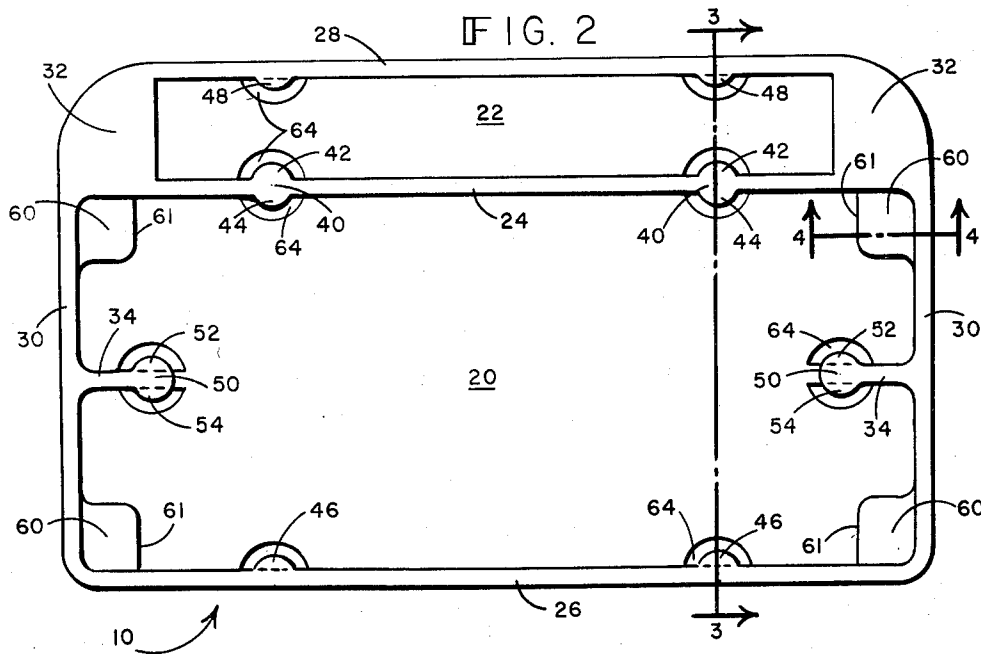
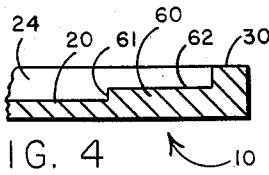


FIG. 4



INVENTOR,
John R. Bradford
BY
Rosland V. Patrick
Atty.

May 10, 1960

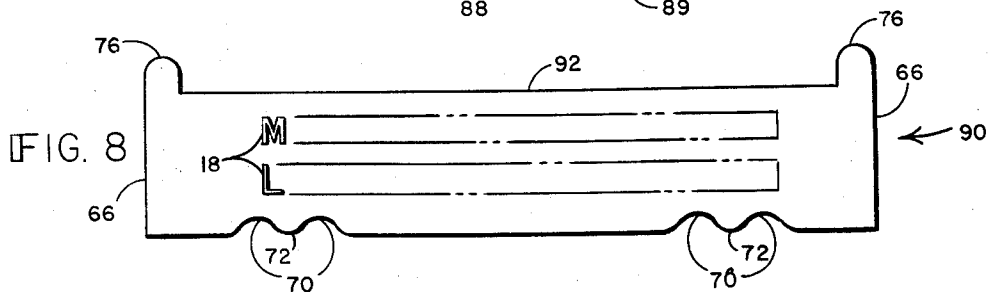
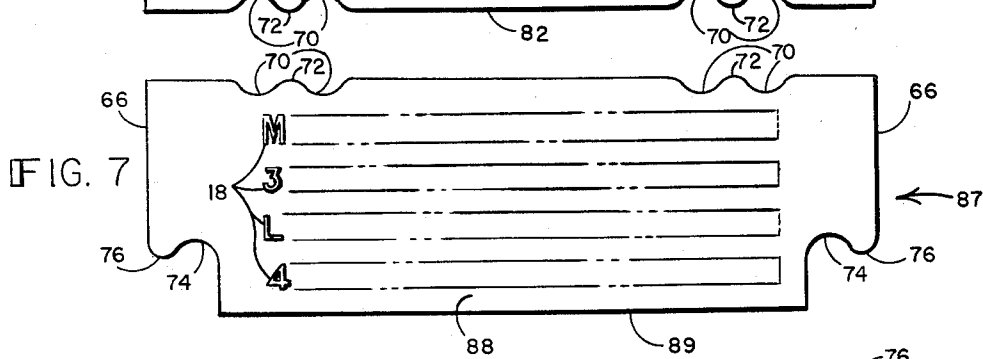
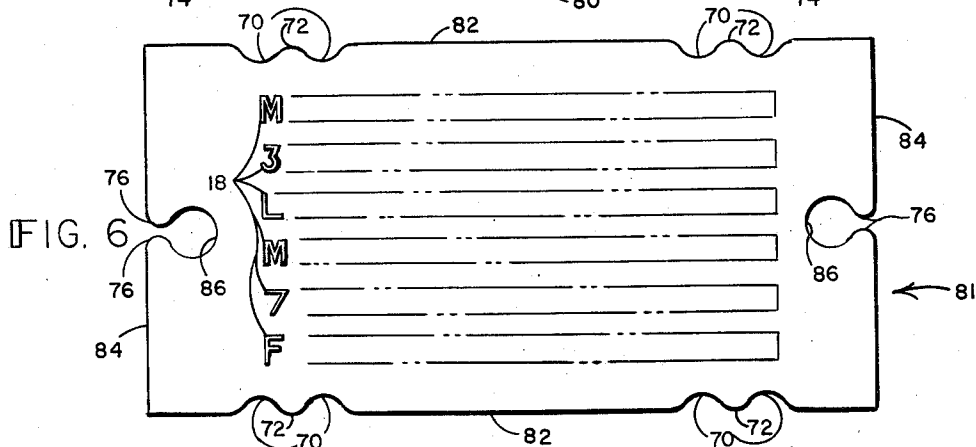
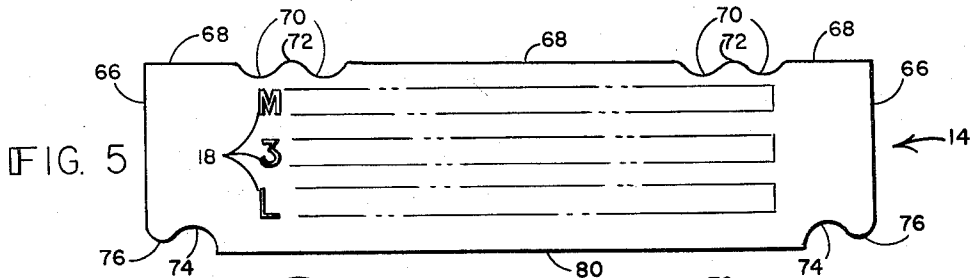
J. R. BRADFORD

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2 Sheets-Sheet 2



INVENTOR.
John R. Bradford
BY *Rosland V. Patuck*
Atty.

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PRINTING PLATE ASSEMBLY AND ITS ELEMENTS

John R. Bradford, Sharon, Mass., assignor to Farrington Manufacturing Company, Needham Heights, Mass., a corporation of Massachusetts

Application October 31, 1955, Serial No. 543,663

1 Claim. (Cl. 101—369)

This invention relates to devices for use in conjunction with printing mechanisms to imprint from raised or other printing characters carried by such devices, onto business papers or documents, information and data, such as accounting and identification information, useful in various transactions and procedures. More particularly, this invention provides a printing plate assembly which is especially adapted to releasably carry one or more than one printing plate thereon, so as to provide increased flexibility in bringing together any desired collocation of pre-prepared printing characters for printing therefrom in a single step.

A primary object of the present invention is to provide such a printing plate assembly including a multiplicity of discrete, independently releasable, printing plates, each of the latter carrying raised or other printing characters adapted for printing therefrom.

Another object of this invention is to provide such an assembly in which any of such discrete printing plates may be easily removed and replaced with other printing plates bearing if desired different printing characters, and in which particular printing plates may be re-used in different permutations and combinations.

Still another object is to provide such an assembly in which may be mounted for printing therefrom plates of varying widths, suitable for carrying thereon, respectively, varying numbers of lines of raised characters or indicia.

Another object is to provide such an assembly in which a single printing plate may be mounted if desired.

Another object is to provide such an assembly which is in size, weight, and construction adapted for easy handling, filing and storage.

A further object is to provide novel printing plates adapted for interchangeable use in the novel assembly and a novel printing plate holder for retaining the same.

Still another object is to provide such an assembly in which may be mounted removably a further informational element, the latter carrying information in form for reading the same therefrom.

Other objects, advantages, and features will appear from the following description of presently preferred embodiments of the assembly and elements thereof, taken in conjunction with the drawings, in which:

Fig. 1 is an isometric view of a printing plate assembly embodying the invention;

Fig. 2 is a plan view of the novel printing plate holder shown in Fig. 1;

Fig. 3 is a sectional view at 3—3 of Fig. 2;

Fig. 4 is a partial sectional view at 4—4 of Fig. 2;

Fig. 5 is a plan view of a novel printing plate suitable for mounting alone or together with another printing plate in the printing plate holder of Figs. 1 and 2, and of width for accepting up to three lines of raised characters of normally desirable size;

Fig. 6 is a plan view of a larger printing plate suitable for mounting by itself in the printing plate holder,

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and of width for accepting up to six lines of such raised characters;

Fig. 7 is a plan view of another different sized plate suitable for mounting alone or together with a second printing plate, and the width for accepting up to four lines of such raised characters; and

Fig. 8 is a plan view of yet another sized plate, suitable for mounting alone or together with a second printing plate, and of width for accepting up to two lines of raised characters.

Fig. 1 shows a printing plate assembly comprising a printing plate holder 10 releasably carrying in recesses on its face, metal printing plates 12 and 14 and a flexible paper strip 16. The printing plates 12 and 14 carry thereon raised characters 18 for printing therefrom, and may be removed or replaced in the printing plate assembly, as hereinafter more particularly described. The paper strip 16 is also removable and replaceable, and may bear any desired writing or printing.

The printing plate holder 10 is shown in more detail in Figs. 2, 3, and 4. Said plate holder is formed from any suitable material, such as plastic, with generally parallel upper and lower surfaces 6 and 8 respectively, the upper face 6 being recessed over most of its surface to define a printing plate receiving recess 20 and a flexible strip receiving recess 22, said recessed areas being separated by the internal longitudinal rib 24. Parallel to said longitudinal rib 24 and extending along the opposite longitudinal edges of the plate holder 10 are upstanding edge walls 26 and 28. The transverse edge walls 30, together with the longitudinal wall 26 and rib or wall 24 define the printing plate receiving recess 20. The corner walls 32, together with the longitudinal wall 28 and rib 24, define the flexible strip receiving recess 22.

Extending inwardly for a short distance from the transverse border walls 30 parallel to and below the longitudinal rib 24, are a pair of stub walls 34.

The top surfaces of all walls are coplanar to define the upper surface 6.

Carried by the longitudinally extending walls 26, 28, and 34 and rib 24 are a multiplicity of transverse undercut projections, or catches, for receiving and retaining in place printing plates, and, in the area 22, the flexible strip 16.

The longitudinal rib 24 carries a pair of elements 40, each said element including a projection 42 on the upper side of retaining a paper strip 16 and a projection 44 on the lower side for retaining a printing plate as 14. The longitudinal border walls 26 and 28 also each carry a pair of inwardly directed similar undercut projections 46 and 48 respectively, for retaining a printing plate as 12 and a strip 16, respectively. The stub walls 34 each carry at the end 50 thereof similar undercut oppositely facing projections 52 and 54 for retaining printing plates.

As best shown in Fig. 3, all of said projections 42, 44, 46, 48, 52, and 54 are undercut as at 56 to define lower surfaces 58 which are in a plane parallel to but above the plane of the bottom of the recess 20, the distance between such planes being sufficient to accommodate the thickness of the printing plates as 12 and 14, and a flexible strip 16.

Disposed generally in the corners of the area defined by the rib 24 and walls 26 and 30 are four step-up or overcut abutments 60, the surfaces 62 of which are coplanar and lie in a plane intermediate the planes of the bottom of the recessed area 20 and of the upper surface 6 of the plate holder.

In the embodiment shown, the body of the holder is cut out in areas 64, lying beneath the catches, to permit

forming the undercut surfaces 58 by a molding operation, and also removal from the mold.

In Figs. 5 through 8 are shown four embodiments of novel printing plates according to the invention, which can be interchangeably mounted in the printing plate holder 10. These printing plates all comprise thin sheets, suitably of metal, upon which raised characters 18 for printing therefrom have been embossed, being upset sufficiently from the top surface of each printing plate to extend slightly above the upper surface 6 of the plate holder.

In Fig. 5 is shown the printing plate 14. Spaced inwardly from each transverse edge 66 thereof, the longitudinal edge 68 thereof is cut away at relieved portions 70 to define a pair of catch-engaging lobes 72. Each lower corner of the printing plate 14 is cut away in a generally S-shaped cut to define a pair of catch-engaging lobes 76 and relieved portions 74.

In Fig. 5 the embossed characters 18 for printing are seen raised in the direction of the viewer. The printing plate 12 in Fig. 1 is a duplicate of printing plate 14, as shown in Fig. 5, except that it is turned over.

The printing plate 14 is assembled into the printing plate holder 10 to achieve the assembly shown in Fig. 1 by laying said printing plate 14 on top of said plate holder 10, but in a position longitudinally displaced from its final assembled position, so that two of the notches or relieved portions 70 lie directly over the catches 44, and one transverse edge 66 overlies an overcut abutment 60. In this position the lobes 72 fall alongside the catches 44, and the lobes 76 fall alongside the catches 52. The slightly flexible printing plate 14 is then pressed downwardly under the thumb and slid sideways to move the lobes 72 underneath the catches 44 and the lobes 76 underneath the catches 52. Sidewise movement will be automatically stopped at the correct point when the leading edge 66 of the printing plate comes up against an edge 61 of one abutment 60 and then the trailing edge 61 will drop in place within the other abutment 60, since the transverse dimension of plate 14 is slightly less than the distance between the step walls 61. It will be apparent that in the embodiment shown the printing plate could be initially laid down with either the left hand notch of each pair of notches 70 or the right hand notch of each pair of notches 70 overlying the catches 42, and then moved in either a rightward or a leftward direction, as the case may be, to engage the lobes underneath the catches. Similarly, the second printing plate 12 may be assembled into the printing plate holder 10.

The flexible strip 16 may be secured in position simply by sliding it under the catches 42 and 48 into the recessed area 22, its flexibility providing adequate bending during insertion or removal.

The modified embodiment of Fig. 6, indicated generally at 81, which can carry six lines of raised characters for printing therefrom, can be visualized as corresponding to a plate 12 and a plate 14 joined together and made integral along the edges thereof corresponding to edge 80 of plate 14. Accordingly, there are two pairs of notches 70 on each opposed longitudinal edge 82, each pair defining therebetween a catch-engaging lobe 72. Along the transverse edges 84 appear reentrant holes 86, corresponding in effect to the union of two of the large notches 74 of plates 12 and 14, and define a pair of facing catch-engaging lobes 76 along each transverse edge 84.

The embodiment of Fig. 6 is inserted into the printing plate holder 10 in the same general manner as described for the embodiment of Fig. 5. The printing plate 81 is laid on top of the plate holder 10, displaced sideways from its final assembled position in such a manner that four of the notches 70 overlie the catches 44 and the catches 46, and one end 84 overlies two abutments 60. Now the four lobes 72 fall alongside the two catches 44 and the two catches 46, and the four

lobes 76 fall on the corresponding side of the two catches 52 and the two catches 54. The printing plate could as previously described be laid down initially with the plate displaced to either the right or left of the assembled position. Thereafter, the plate is pressed down with the thumb as before, and slid to the assembled position, the upper pair of the lobes 72 sliding under and engaging catches 44, the lower pair of the lobes 72 sliding under and engaging catches 46, and the four lobes 76 sliding under and engaging catches 52 and 54. Sidewise sliding movement of the plate 81 with respect to the plate holder 10 is of course stopped when an edge 84 of said plate engages the edges 61 of abutments 60.

The modified embodiment of Fig. 7, generally indicated at 87, is capable of carrying up to four lines of characters. This plate 87 is very like the plate 14, of Fig. 5, except that the bottom portion extends downwardly a greater distance to edge 89. This provides space for an extra line of indicia or characters for printing therefrom. Insertion of the plate 87 into plate holder 10 is by the same procedure as described in connection with plate 14.

Especially suited for use in conjunction with plate 87 is the plate 90, a further modification shown in Fig. 8, which is adapted for carrying up to two lines of characters thereon. This plate 90 is very similar to the plate 12, except that between the lobes 76 the plate has been cut away to the longitudinal edge 92. The plate 90 may be inserted similarly to the other plates, as described.

It will be apparent that my invention provides a novel device for carrying raised indicia for printing therefrom, with advantages including interchangeability of printing plates; releasable retention of printing plates carrying varying areas adapted for bearing indicia; acceptance simultaneously of more than one printing plate, of equal size or of unequal size; and use of different printing plates therein in varying permutations and combinations.

Other embodiments within the invention will occur to those skilled in the art, the herein described embodiments being illustrative only. For example, a corresponding one of each pair of notches 70 could be omitted.

I claim:

A printing plate assembly for use in conjunction with printing mechanisms for printing from characters which comprises a flexible printing plate holder and at least one printing plate, the upper surface of said holder being provided with a printing plate receiving recess defined by a pair of longitudinal walls and a pair of transverse edge walls and being interrupted between said longitudinal walls by a stub wall parallel thereto and extending partially inwardly from each of said transverse edge walls, each of said longitudinal walls carrying at least one undercut projection extending over said recess, and each of said stub walls having at the inner end thereof a pair of oppositely transversely directed undercut projections extending over said recess, each said printing plate comprising a thin sheet including a multiplicity of lobes to cooperate with said undercut projections and with relieved portions adjacent said lobes, said lobes including at least one transversely outwardly extending lobe in a longitudinal edge of said plate and one oppositely transversely extending lobe positioned at some location along each transverse edge of said plate, said recess having an overcut abutment at each of the four corners thereof, the inner edges of said abutments being spaced longitudinally just sufficiently to accommodate a printing plate, and the surfaces of said abutments lying in a plane intermediate the surface of said holder and the bottom of said recess.

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