

Aug. 12, 1947.

C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets-Sheet 1

FIG. 1

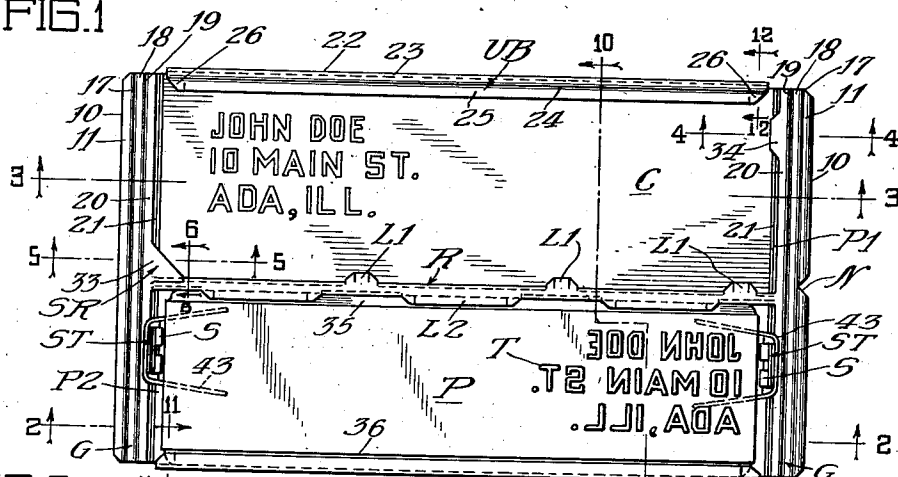


FIG. 2

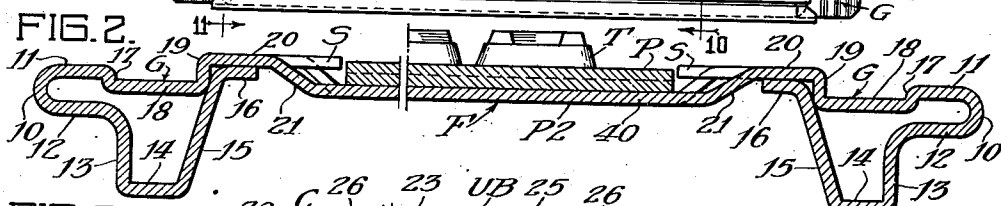


FIG. 3

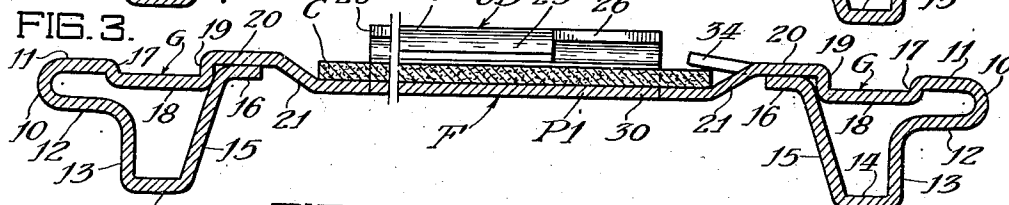


FIG. 4

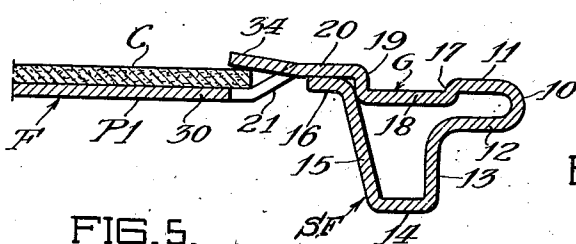


FIG. 5

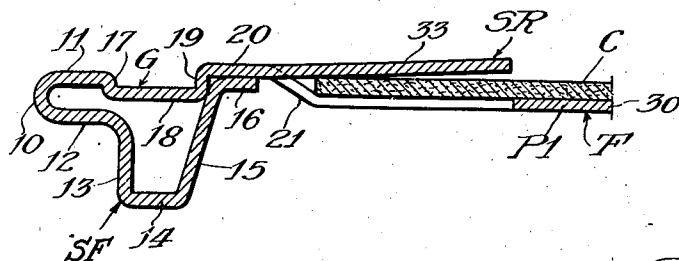
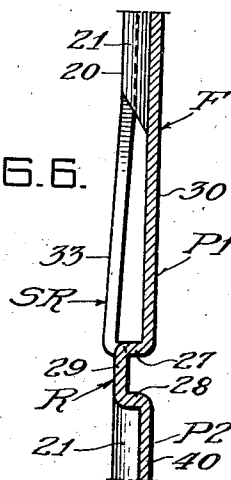


FIG. 6



Inventor:
Carl J. Hueber
By Wallace & Cannon
Attorneys

Aug. 12, 1947.

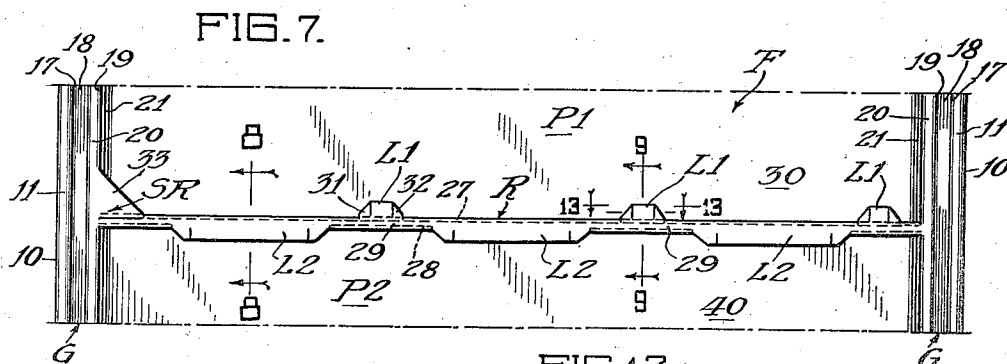
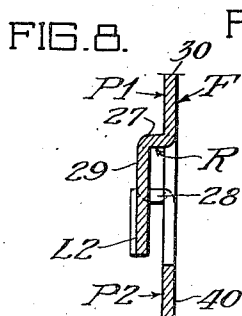
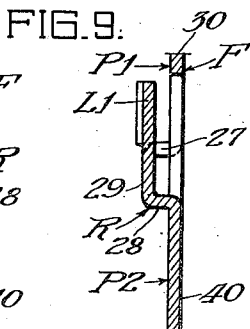
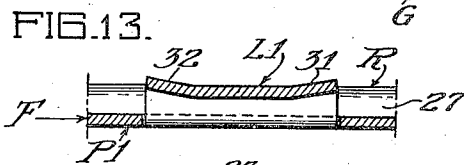
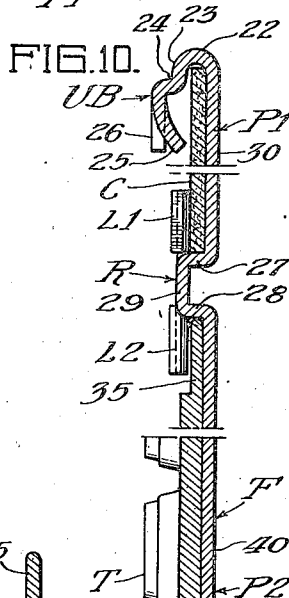
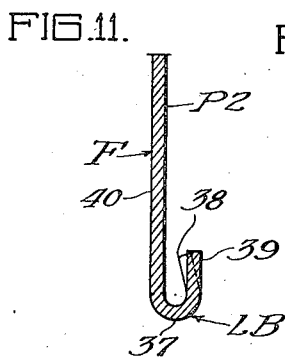
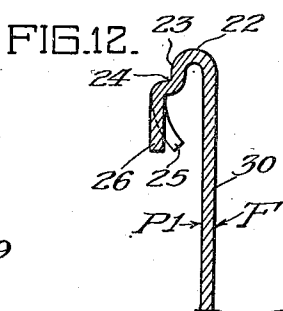
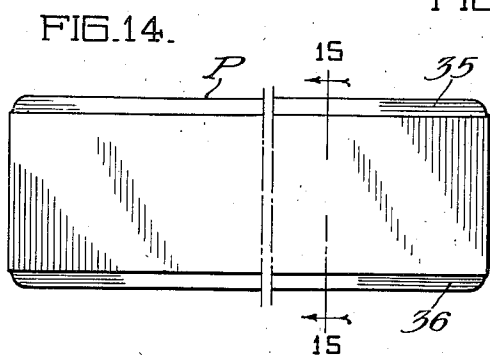
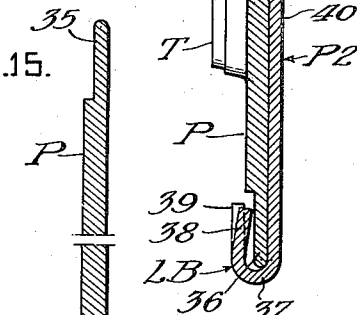
C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets-Sheet 2



Inventor:
Carl J. Hueber
By Wallace & Cannon
Attorneys

C. J. HUEBER

PRINTING PLATE AND CARRIER THEREFOR

8 Sheets-Sheet 3

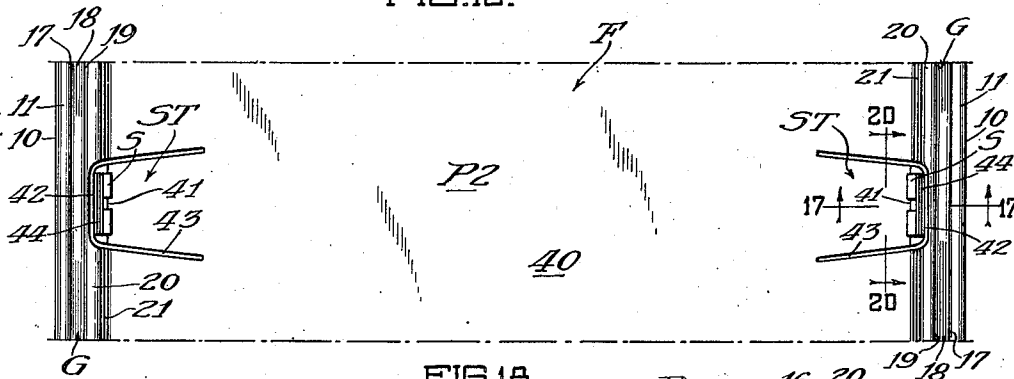
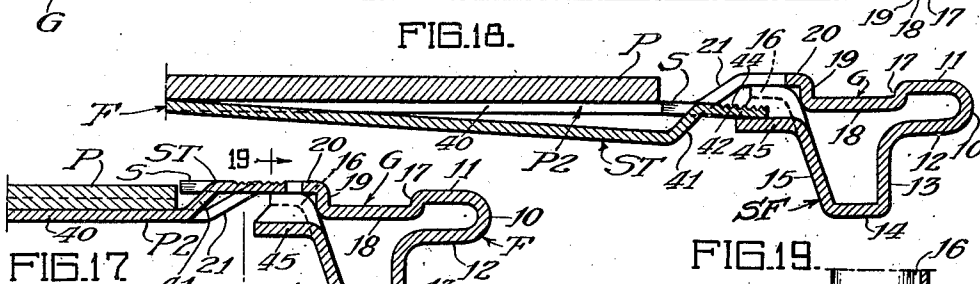
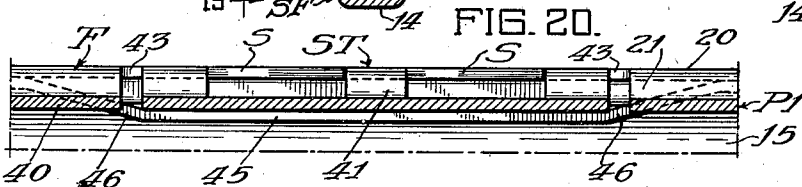
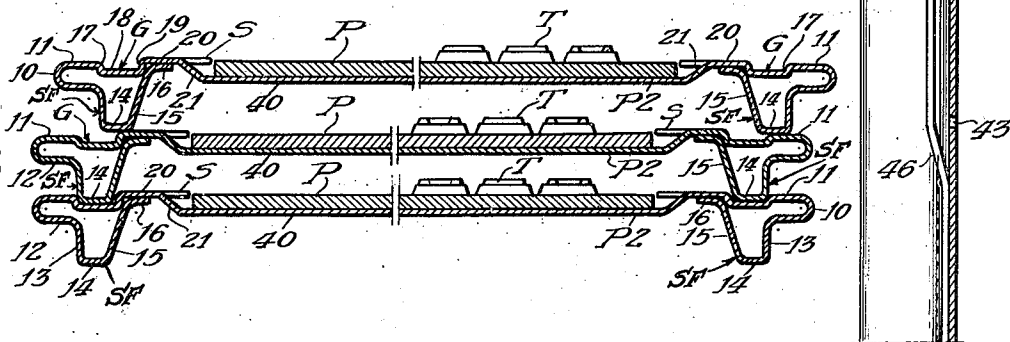


FIG.17

FIG.19

FIG. 20.



Carl J. Hueber.

By Wallace & Cannon
Attorneys

Aug. 12, 1947.

C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets-Sheet 4

FIG. 22.

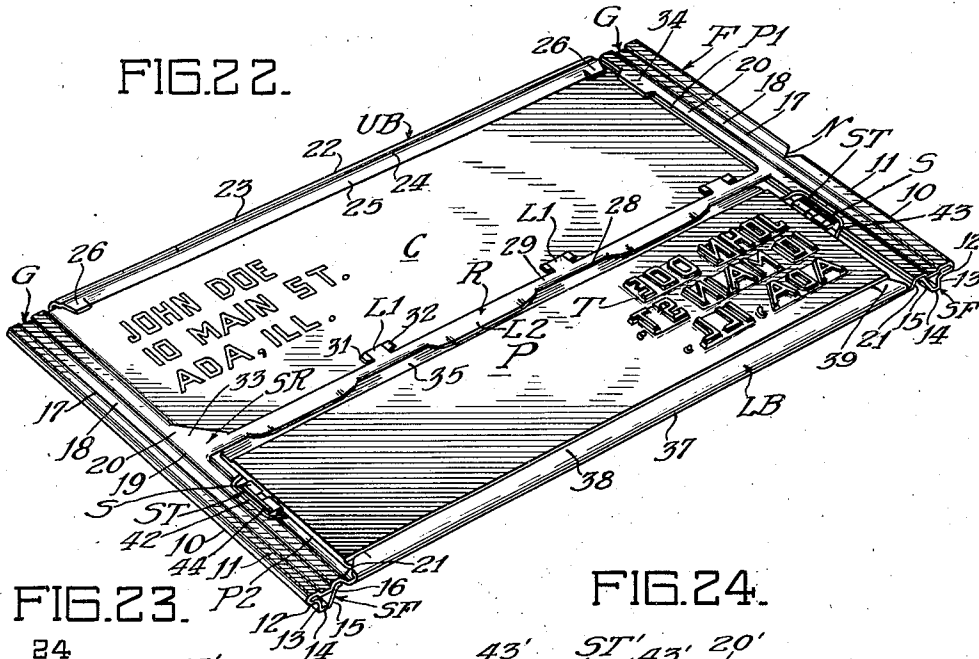


FIG. 23.

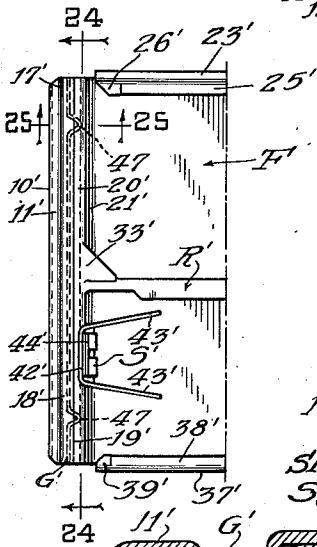
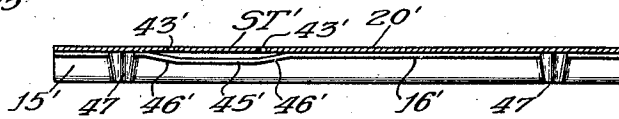


FIG. 24.



Aug. 12, 1947.

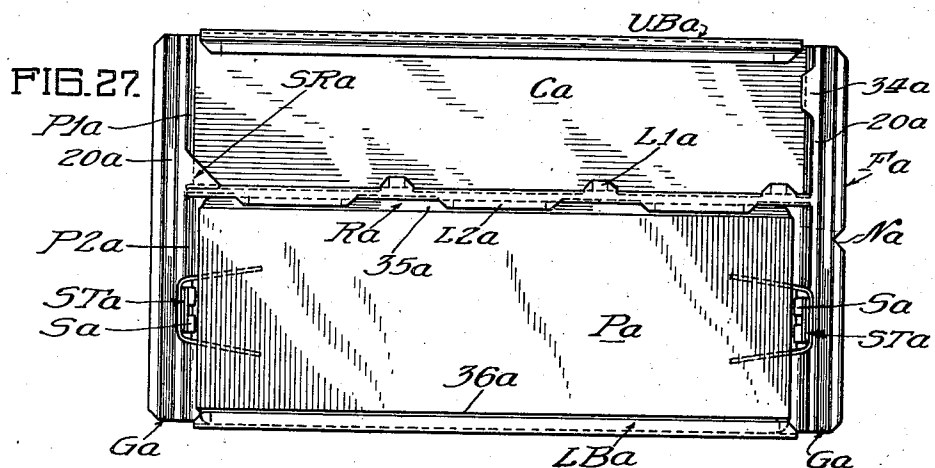
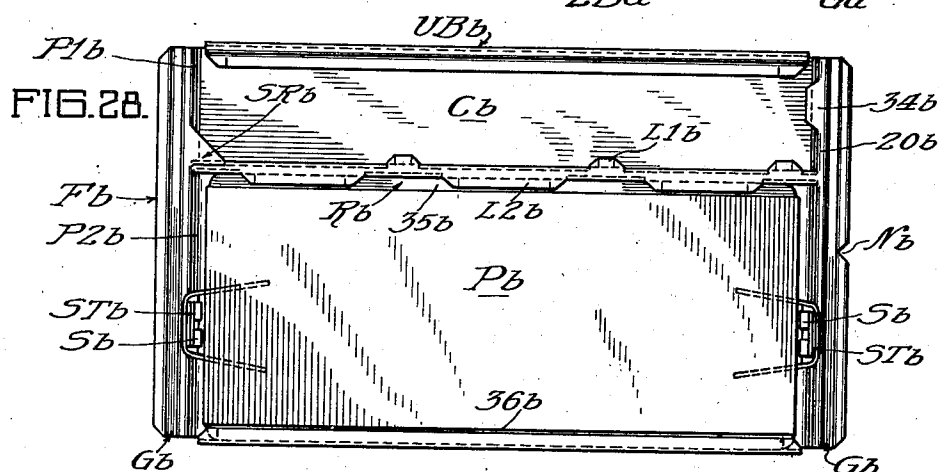
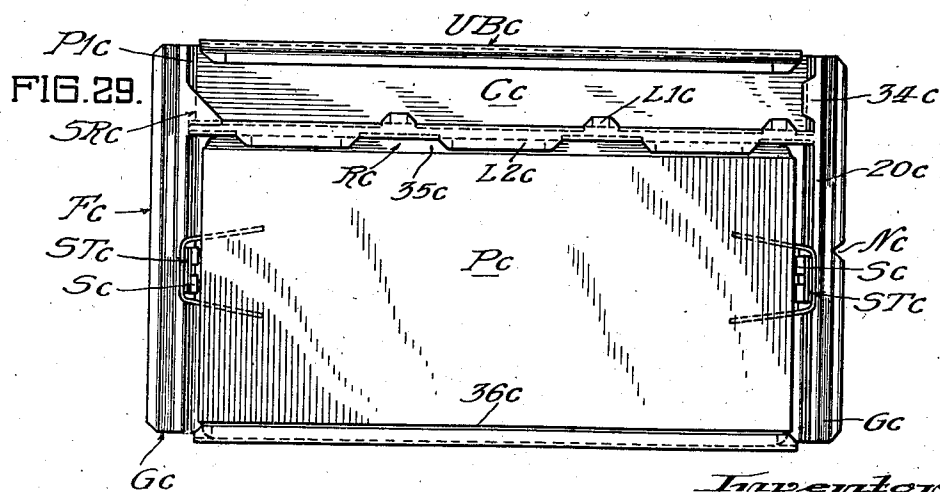
C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets-Sheet 5



Inventor:
Carl J. Huebner
By Wallace & Cannon
Attorneys

Aug. 12, 1947.

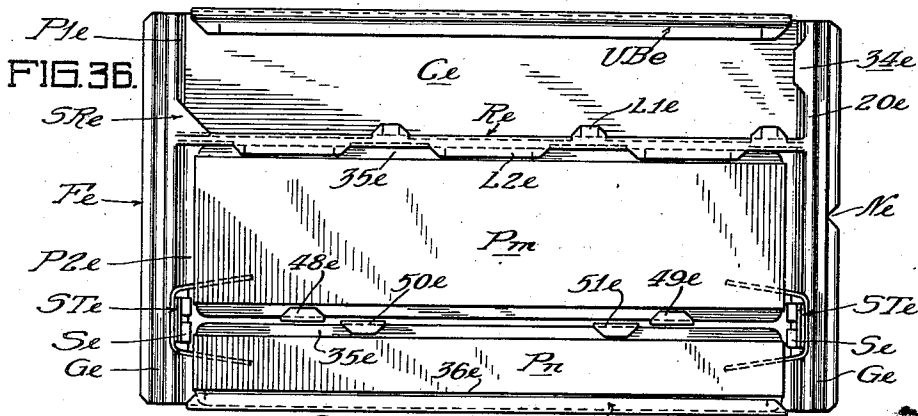
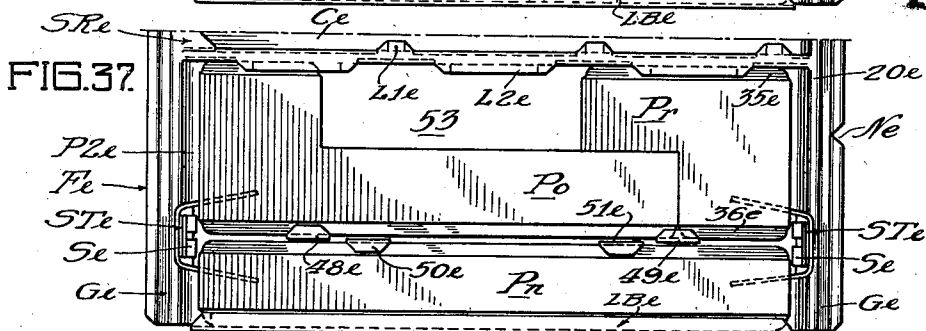
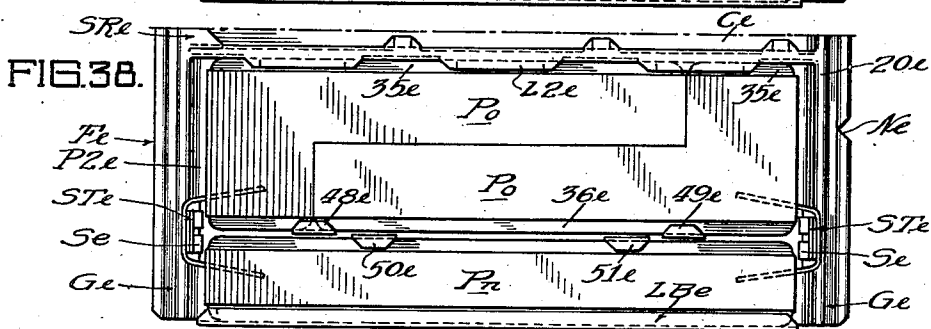
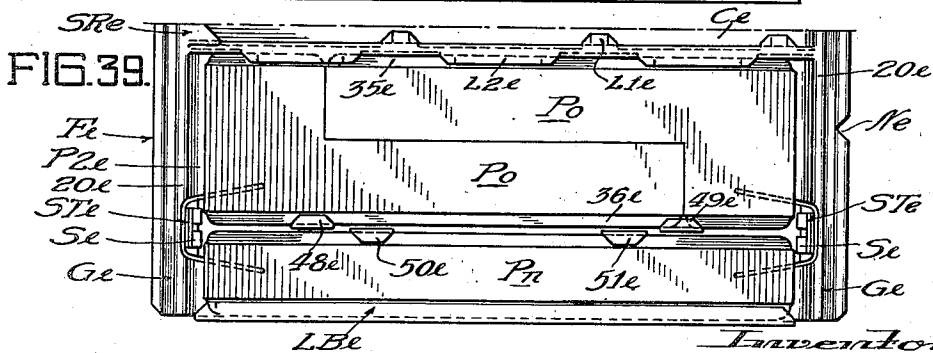
C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets-Sheet 7



Inventor:
Carl J. Hueber
By Wallace & Cannon
Attorneys

Aug. 12, 1947.

C. J. HUEBER

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Filed July 9, 1942

8 Sheets—Sheet 8

FIG. 40.

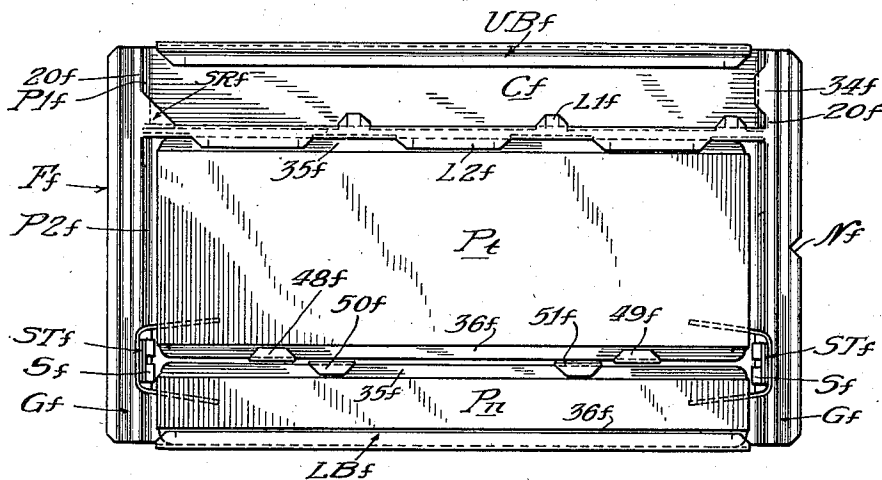
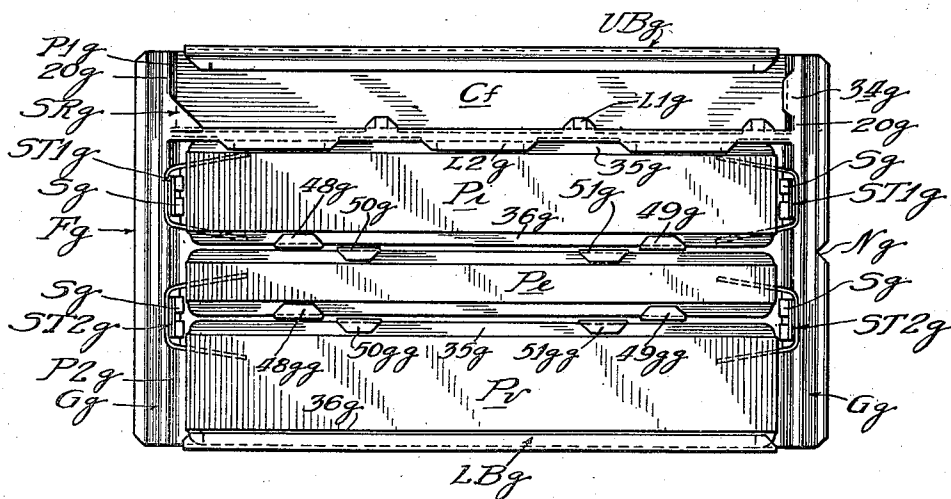


FIG. 41.



Inventor:
Carl J. Hueber
By Wallace & Cannon
Attorneys

UNITED STATES PATENT OFFICE

2,425,323

PRINTING PLATE AND CARRIER THEREFOR

Carl J. Hueber, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware

Application July 9, 1942, Serial No. 450,320

27 Claims. (Cl. 101—369)

1

This invention relates to printing devices that embody carriers for printing plates and, desirably, index cards, such cards bearing impressions from at least selected of the type characters provided on the printing plates, and this invention primarily has to do with such carriers and the retention of the printing plates and index cards thereon.

The carriers or frames of printing devices, as these have been fabricated heretofore, have been arranged to retain the printing devices and index cards on the relatively flat faces thereof by having retaining means struck up from the bodies of the carriers, at least some of such retaining means having been formed to overlie selected of the marginal portions of the plates and cards. Since the plates and cards have been rested on the relatively flat faces of the carriers and also since these plates and cards have been of substantially uniform thickness throughout the areas thereof, the retaining means therefor afforded on the carriers, that have been arranged to overlie at least selected of the marginal portions of the plates and cards, have so projected above the faces of the carriers that when one carrier was slid over another, as is often required in the handling of the printing devices, the projecting retaining means on an underlying printing device would catch onto the superimposed device and thereby impair relative sliding between the devices.

Hence one of the important objects of the present invention is to enable the retention of printing plates and index cards on the carriers therefor in such a manner that one carrier may be freely slid over another, and other objects related to this are to provide pockets on the faces of the carriers in which the plates and cards may be disposed so that such plates and cards will lie below panels along the margins of such pockets and which are afforded on one of the faces of the carriers; to so arrange such panels on one carrier that another carrier will so engage these panels that relative sliding movement between the carriers may be effected; to extend plate and card retaining means from the portions affording such panels on the carriers and to extend such retaining means in substantially parallel relation with the adjacent faces of the carriers whereby the faces of the carriers on which the plates and cards are disposed will be free of objectionable projections of the nature that might impair relative sliding between two or more carriers; to so arrange the plate and card retaining means that are thus afforded on the carriers that the

2

plates and cards may be expeditiously associated therewith and thereafter be retained thereby; and to so arrange such plate and card retaining means along the marginal portions of the plate and card pockets afforded on the carriers as to insure retention of the plates and cards in such pockets.

In those instances where the printing plates that are to be retained on carriers of the kind to which this invention pertains are to have type characters embossed thereon to appear in relief on one of the faces of the plates and in intaglio on the opposite faces thereof, it is advantageous to so dispose the relief faces of such type characters relative to the retaining means afforded for the plates on the carriers that impressions will not be made from such retaining means when impressions are made from the relief faces of the type and to enable the foregoing to be accomplished is another of the important objects of the present invention.

It is customary to form the printing plates of material of sufficient thickness to support embossed type characters against printing pressure and to permit necessary handling without deformation. Usually the thickness of the material is greater than the depth of the plate receiving pockets that are afforded in the novel frames or carriers of the present invention. Among the reasons for this is that the index cards that are retained on carriers of this invention are relatively thin and where, as in the novel carriers of the present invention, pockets are afforded for the reception of such index cards and for the reception of such printing plates, it is advantageous to so form pockets that they are of substantially equal depth for so to do facilitates fabrication of the printing device carriers and is advantageous for other reasons. Hence, if the printing plates that are adapted for use in the present invention were of substantially uniform thickness throughout the areas thereof, it would be necessary to arrange the retaining devices on the carriers for the plates, and which are adapted to overlie marginal portions of the plates, in such a way that such retaining devices would project above the faces of the printing plates to such an extent that impressions might be made therefrom when impressions are made from the relief faces of type characters embossed on the plates.

However, since it is among the objects of the present invention to avoid making such objectionable impressions, the marginal portions of the printing plates that are adapted for use in the novel carriers of the present invention are

3

formed to be of reduced thickness relative to those portions of the plates whereat type characters are to be embossed thereon and the retaining devices for the printing plates that are afforded on the frame are formed so as to be adapted to cooperate with such portions of reduced thickness, and among other important objects of the present invention are to utilize such an interrelation between the printing plates and the retaining devices therefor afforded on the novel carriers of the invention; to so relate the portions of reduced thickness on the printing plates and the retaining means on the carriers adapted for cooperation with such portions that the exposed faces of such retaining means will lie close to the face of the printing plate on which the type characters are embossed to appear in relief; and to also so relate the pockets afforded in the novel carriers of this invention for the reception of the printing plates and the printing plates and the retaining means adapted to overlie at least selected marginal portions of such plates that the exposed faces of the retaining means may be arranged substantially in the planes of the faces of the plates on which type characters embossed thereon appear in relief.

The retaining means of the above referred to nature that are afforded on the printing device carriers or frames are usually so related to each other on the carriers that the printing plates may be slid therinto so as to thereby be held against movement in two different directions. It is customary to provide depressible portions on the printing device carriers in such positions as to enable such portions to cooperate with the adjacent ends of the printing plates and thereby be effective to prevent movement of the printing plates in an angular direction angularly related to the angular direction in which movement of the printing plates on the carriers is prevented by the retaining means into which the printing plates are slid as aforesaid.

Therefore, among other important objects of the present invention are to afford novel depressible portions on printing device carriers of the character to which the present invention pertains; to form a plurality of stops on depressible portions of this character and to dispose such stops on such portions in such positions that such stops may cooperate with one or more printing plates arranged on the carriers embodying such portions; to limit the extent to which such depressible portions may be depressed so as to thereby avoid the likelihood of distortion of such depressible portion in the course of use of the printing device carriers; to so relate an elevated part on a depressible portion of the aforesaid character and a depressed part on a carrier including the depressible portion that the depressible portion may be depressed out of plate engaging position so as to thereby enable a plate to be slid thereover and into or out of retaining means adapted to overlie marginal portions of the plate; to so relate such elevated and depressed parts that the depressible portion may be depressed only sufficiently to enable a printing plate to be slid over such depressible portion for the purpose and in the manner just described; and to dispose parts of such depressible portions in the planes of the panels afforded on the novel carriers of the present invention along the marginal portions of the plate and card receiving pockets afforded in such carriers.

Printing device carriers of the character to which this invention pertains are customarily so

4

arranged that the plates and cards to be retained thereon may be disposed in side by side relation and retaining means respectively adapted to overlie adjacent marginal portions of the plates and cards are arranged on the frame to respectively project in opposite directions so that selected of such retaining means will overlie marginal portions of the cards and other of the retaining means will overlie adjacent marginal portions of the plates. Heretofore it has been customary to strike up such retaining means from the portions of the carriers intermediate the plates and cards arranged thereon in side by side relation, and such oppositely projecting retaining means have heretofore been independently formed and because of this it has been necessary to afford a wide variety of tools in order to enable such means to be afforded on various styles of printing device carriers, it being customary to afford printing device carriers of the nature to which this invention pertains in a wide variety of styles respectively adapted to receive plates and cards of varied widths and, in many instances, so as to enable a plurality of printing plates to be accommodated on a single carrier. However, in each of the various styles of such printing device carriers, which provide for accommodation of at least one printing plate and an index card, there are portions of such plates and cards that extend in side by side relation.

Hence, among further important objects of the invention are to utilize a standard arrangement of oppositely projecting retaining means respectively adapted to overlie adjacent marginal portions of plates and cards arranged in side by side relation; to enable such a standard arrangement to be embodied in any of the various styles of printing device carriers irrespective of the relative widths of the plates and cards to be retained on such carriers; to so relate the various retaining means in such a standard arrangement thereof that oppositely projecting retaining means may be arranged in juxtaposition one to the other without impairing the required rigidity of the carriers in which such arrangement is embodied; and to enable such a standard arrangement to be produced by tools which may be utilized in the production of any of the various styles of printing device carriers that are to be afforded.

The plate and card receiving pockets that are afforded in the novel carriers of the present invention are disposed on the carriers in side by side relation so that the plates and cards arranged therein will likewise lie in side by side relation and where resort is had to such arrangement, it is advantageous to provide a physical separation in carriers intermediate the pockets, and so to do is yet another object of this invention.

Printing devices of the character to which this invention pertains are customarily mounted in trays or drawers when not in use and it is of course advantageous to enable as many of such devices to be accommodated in a particular drawer or tray as can be conveniently stored therein, and for this and other reasons it is advantageous to form the printing device carriers of relatively light gauge material and to enable this to be accomplished is yet another object of this invention, and objects related to the foregoing are to so reenforce a printing device carrier that it may be made of relatively light gauge material and yet be sufficiently rigid.

Among other objects of this invention are to

5

so standardize carrier and plate arrangements that a plurality of different plate arrangements may be embodied in a single carrier and also so that a particular plate arrangement may be utilized in a number of different carriers; to enable the foregoing to be accomplished in a novel manner; and to so relate a printing plate receiving pocket and printing plate retaining means provided on a particular carrier that a wide variety of plate arrangements may be accommodated on a particular carrier.

It is frequently necessary in the course of use of printing devices of the character to which this invention pertains to handle stacks of such devices as where a plurality of such devices are to be introduced into the magazine of a printing machine of the character, for example, disclosed in Hueber Patent No. 2,070,549, patented February 9, 1937, and of course there are many other instances where stacks of printing devices of the character to which this invention pertains will need to be handled. Thus yet further objects of this invention are to relate parts of the printing device carriers of the character to which this invention pertains in such a novel manner that parts of one carrier may interfit with parts of another carrier so as to thereby expedite the handling of stacks of such printing devices and insure against displacement of the various printing devices in the stack thereof; to impart a predetermined configuration to projecting elements on a printing device carrier and to form portions complementary to such predetermined configuration in the carrier so that when the predetermined configuration on the projecting elements on one carrier are fitted into the complementary portions on another such carrier, the carriers will be so interconnected as to resist lateral separation thereof; and, specifically, to provide parallel grooves in one face of a printing device carrier and complementary portions on elements aligned with such grooves and which project from the other face of the carrier whereby such complementary portions on different carriers may be interfitted.

Inasmuch as it is advantageous to protect the relief faces of type characters embossed on printing plates mounted in carriers of the character to which this invention pertains, it is customary to provide what are called spacing flanges on such carriers. However, it has been observed that in the course of stacking printing devices one upon the other there is a tendency for the spacing flange on a superimposed printing device to catch along the marginal edge of an underlying device and oftentimes considerable manipulation is necessary before such engaged parts may be separated.

Hence, still further objects of this invention are to so arrange printing device carriers or frames, and particularly the spacing flanges thereof, that stacking of the printing devices may be expeditiously effected; to form guides on the inwardly disposed face of a spacing flange of the aforesaid character of such nature that these guides will be effective to facilitate disposing one printing device on another; and to so relate engageable edge portions of spacing flanges and printing device carriers that separation of such edges may be expeditiously effected in the event of engagement thereof.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illus-

6

tration, show preferred embodiments and the principle thereof and what I now consider to be the best mode in which I have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings,

Fig. 1 is an elevational view, drawn to an enlarged scale, of a printing device embodying the present invention;

Figs. 2 to 6, inclusive, are sectional views, drawn to a yet further enlarged scale, and taken substantially and respectively on the lines 2—2, 3—3, 4—4, 5—5 and 6—6 on Fig. 1;

Fig. 7 is a fragmentary elevational view, also drawn to an enlarged scale, of the medial part of the printing device illustrated in Fig. 1 and in which view the printing plate and index card shown in Fig. 1 are deleted;

Figs. 8 and 9 are sectional views, drawn to the same scale as Figs. 2 to 6, and taken substantially and respectively on the lines 8—8 and 9—9 on Fig. 7;

Figs. 10, 11 and 12 are sectional views, also drawn to the same scale as Figs. 2 to 6, and taken substantially and respectively on the lines 10—10, 11—11 and 12—12 on Fig. 1;

Fig. 13 is a sectional detail view, also drawn to the same scale as Figs. 2 to 6, and taken substantially on the line 13—13 on Fig. 7;

Fig. 14 is an elevational view, drawn to an enlarged scale, of an unembossed printing plate of the character adapted for use in a printing device frame illustrated in Fig. 1;

Fig. 15 is a sectional detail view, drawn to a further enlarged scale, taken on the line 15—15 on Fig. 14;

Fig. 16 is an elevational view, also drawn to an enlarged scale, of a portion of the printing device frame shown in Fig. 1 and illustrating the yieldable retaining means embodied in such frame and from which view the printing plate shown in Fig. 1 has been omitted;

Fig. 17 is a sectional view, drawn to the same scale as Figs. 2 to 6 and taken substantially on the line 17—17 on Fig. 16;

Fig. 18 is a sectional view, similar to Fig. 17, and showing the manner in which one of the yieldable retaining means illustrated in Fig. 16 may be depressed to enable insertion and removal of the printing plate into and from the printing device frame;

Fig. 19 is a sectional view, drawn to an enlarged scale, and taken substantially on the line 19—19 on Fig. 17;

Fig. 20 is a sectional view, drawn to the same scale as Figs. 2 to 6, and taken substantially on the line 20—20 on Fig. 16;

Fig. 21 is a sectional view drawn to an enlarged scale and in which a plurality of printing devices are shown in section in the manner similar to that in which the printing device is illustrated in Fig. 2 and in which view the manner in which the printing devices of this invention may be stacked one upon the other to facilitate handling thereof is illustrated;

Fig. 22 is a perspective view, drawn to an enlarged scale, of the printing device shown in Fig. 1;

Fig. 23 is a fragmentary elevational view, also drawn to an enlarged scale, of the left-hand end of a printing device such as that shown in Fig. 22

and in which view a modified form of the invention is illustrated, and also from which view the printing plate and index card shown in Fig. 22 have been omitted;

Figs. 24 and 25 are sectional views, each drawn at an enlarged scale, and taken substantially and respectively on the lines 24—24 and 25—25 on Fig. 23;

Fig. 26 is a view drawn to the same scale as Figs. 2 to 6 and wherein a pair of printing devices are illustrated in section, in the manner in which the printing device is shown in Fig. 2, and in which view the manner in which the modified form of the invention shown in Figs. 23, 24 and 25 is adapted to function is illustrated;

Figs. 27, 28 and 29 are elevational views, drawn to the same scale as Fig. 1, and which views are similar to Fig. 1 but which show modified forms of the printing device illustrated in Fig. 1;

Fig. 30 is an elevational view, drawn to the same scale as Fig. 1, of another form of printing device embodying the present invention and wherein a plurality of printing plates are retained on the novel printing device frame shown in this view;

Figs. 31 to 34, inclusive, are fragmentary elevational views, drawn to the same scale as Fig. 30, of the printing device frame shown in Fig. 30 and illustrating the manner in which various arrangements of a plurality of printing plates may be retained on the printing device frame shown in Fig. 30;

Fig. 35 is a sectional detail view, drawn to an enlarged scale, taken substantially on the line 35—35 on Fig. 30;

Fig. 36 is an elevational view, drawn to the same scale as Fig. 1, of still another form of printing device embodying the present invention and wherein a plurality of printing plates are retained on the novel printing device frame shown in this view;

Figs. 37, 38 and 39 are fragmentary elevational views, drawn to the same scale as Fig. 36, of the printing device frame shown in Fig. 36 and illustrating the manner in which various arrangements of a plurality of printing plates may be retained on the printing device frame shown in Fig. 36; and

Figs. 40 and 41 are further elevational views, drawn to the same scale as Fig. 1, of yet other forms of printing devices embodying the present invention.

The printing device illustrated in Figs. 1 and 22 and related views embodies a frame or carrier *F* which is desirably fabricated from sheet metal or other sheet material, for example, in the manner disclosed in Berthelsen Patent No. 2,070,573, patented February 16, 1937. It will be understood, however, that the frame so illustrated may be produced in other ways without departing from the ambit of the present invention.

An index card *C* and a printing plate *P* are detachably retained on the frame *F* and inasmuch as the frame *F* is desirably substantially rectangular in outline, the card *C* and the plate *P* are also substantially rectangular in outline and are so arranged on the frame *F* that the longer dimensions of the card and plate extend in parallel relation with each other and across the longer dimension of the substantially rectangular frame. The card *C* is mounted along what may well be called the top or upper part of the frame *F* while the plate *P* is mounted along what may well be called the bottom or lower part of the frame. Means are provided on the frame *F* which are

effective to retain the card *C* and the plate *P* in the aforesaid relation on the frame *F* and, since the frame is desirably made of relatively light gauge sheet material, it is reinforced by including reinforcing formations therein, particularly in the means effective to retain the card and plate on the frame, as will be explained hereinafter.

The frame *F* has spacing flanges *SF* formed along the shorter edges thereof by folding the marginal portions of the material of the frame along such edges in such manner that a rounded edge *10* is provided along these shorter edges of the frame, each such rounded edge interconnecting spaced apart but substantially parallel portions *11* and *12*. The portion *12* is disposed to lie on the rear face of the frame *F* as contrasted with the portion *11* which is disposed on the front face of the frame on which the card *C* and plate *P* are mounted. Each such portion *12* extends inwardly from a rounded edge *10* and merges into a vertically extending portion *13* which, in turn, merges into a horizontally disposed rail *14*, each such rail *14* desirably being disposed to extend parallel to, but in spaced relation with, the main body of the frame *F*. The rails *14* are of relatively substantial width, in the form of the invention shown in the accompanying drawings, and at the inner ends thereof these rails merge into upwardly and inwardly extending parts *15* which have flanges *16* at the free edges thereof that are disposed to lie against the rear face of the main body of the frame *F* inwardly of the rounded edges *10* on the frame.

Each of the portions *11* extends inwardly from a rounded edge *10* in an amount somewhat less than the inward extent of the portions *12* and the portions *11* terminate in vertically extending shoulders *17* which serve to connect ledges *18* with the portions *11*. Vertically extending shoulders *19* at the inner ends of the ledges *18* connect these ledges with panels *20* which extend parallel to the plane of the portions *11* but which panels *20* are spaced above the upper faces of the portions *11*, the aforesaid flanges *16* being disposed to underlie the panels *20*. Each ledge *18* is slightly wider than the rails *14* and the rails *14* respectively underlie the ledges *18* which ledges, in cooperation with the shoulders *17* and *19*, afford grooves *G* into which the rails *14* on another and similar printing device are adapted to fit when the printing devices arranged are stacked one upon the other, as will be explained in greater detail hereinafter.

The manner in which the shorter marginal portions of the body of the frame *F* are folded, as above described, and particularly the formation of the spacing flanges *SF* and the grooves *G*, imparts a configuration to these portions of the frame which serves to reinforce and strengthen the frame transversely thereof, which is to say, in the direction of the shorter dimension of the substantially rectangular frame. This reinforcement of the frame, in combination with other reinforcement included therein, as will be explained, enables the novel frame of this invention to be made of lighter gauge material than has heretofore been employed in the manufacture of printing device frames. This is particularly true because the frame or carrier as *F* is also effectively reinforced longitudinally, which is to say, in the direction of the longer dimension thereof. Such longitudinal reinforcement of the frame *F* is afforded by the configuration imparted to the means included on the frame which are effective

tive to retain the card C and the printing plate P thereon, as will be explained.

Pockets are provided in the frame F for the reception of the card as C and the plate as P by depressing portions of the body of the frame beneath the plane of the panels 20, the panels so depressed extending between the spaced apart and parallel panels 20. Thus, as best shown in Figs. 2 and 3, the portion of the frame F intermediate the two parallel panels 20 is depressed beneath the plane of these panels to afford a pocket P1 for the reception of the card C and a pocket P2 for the reception of the plate P, the edges of such depressed portions being connected to the inner edges of the panels 20 by inclined parts 21. The pockets P1 and P2 are separated longitudinally of the frame by a rib R, Figs. 1, 7 and 10, described more fully hereinafter, and which, as best shown in Fig. 7, extends between the respective panels 20 with the upwardly disposed face thereof arranged to lie in the plane of the upper faces of the panels 20.

Among the devices which are effective to retain the card C in the pocket P1 is the bead UB. This bead is afforded by folding the marginal portion of the material of the frame, along the upper edge thereof and which is disposed between the inner edges of the inclined parts 21, over onto the face of the frame. Moreover, such configuration is imparted to the bead UB as will serve to reinforce the frame F longitudinally thereof.

Thus, as best shown in Figs. 10 and 12, the aforesaid marginal portion along the upper edge of the frame F is folded to afford a rounded edge 22 which serves to interconnect the bottom 30 of the pocket P1 with a part 23 that extends in parallel but spaced apart relation with the bottom 30 of the pocket P1 so that, as best shown in Fig. 10, the upper marginal portion of the index card C may be neatly accommodated beneath the portion 23. The portion 23 merges into a crimped portion 24 which is disposed intermediate the portion 23 and a flange 25 that is inclined, preferably on a slight radius, toward the bottom 30 of the pocket P1 but which terminates in spaced relation therewith, as illustrated best in Fig. 10, so as to enable the index card C to be freely inserted therebelow. The marginal portions at the ends of the flange 25, indicated by 26, as best shown in Figs. 10 and 12, are extended in parallel but spaced apart relation with the adjacent face of the frame, for a purpose to be explained presently.

Additional retaining means for the card C are formed on the frame F and among such means are the lips L1 that are provided on the rib R at spaced intervals along the extent thereof between the panels 20. Thus by referring to Figs. 7 and 10 it will be seen that the rib R includes walls 27 and 28 which extend upwardly from the bottoms 30 and 40, respectively, of the pockets P1 and P2 and which walls merge into a panel 29 that extends in parallel but spaced apart relation with the bottoms 30 and 40, respectively, of the pockets P1 and P2, and the upper face of which is disposed to lie in the plane in which the upper faces of the panels 20 are disposed. The lips L1 are formed at intervals along the extent of the rib R, as for example at those intervals illustrated in Figs. 1 and 7. These lips extend in the plane of the panel 29 of the rib R and outwardly beyond the wall 27 thereof, such lips being struck from the underlying material of the bottom 30 of the pocket P1, as shown best in Fig. 9, and the wall 21.

Since the lower edge of a card C inserted into the pocket P1 is adapted to be disposed against the wall 27 of the rib R, it will be seen that the lips L1 are disposed to extend over the marginal portion of a card having the lower edge thereof so engaged with the wall 27, the lower faces of the lips L1 being spaced from the adjacent face of the bottom 30 of the pocket P1 in such an amount as to neatly accommodate the card C therebelow, as shown in Fig. 10. Moreover, since the card C is adapted to be slid beneath the retaining devices L1, concurrently with the sliding of the opposite marginal portion of the card beneath the flange 25, it is advantageous to form the side edges of the lips L1 so that these portions extend upwardly at a slight inclination with respect to the medial parts of the lips, this being shown best in Fig. 13, where such upwardly extending portions are respectively indicated by 31 and 32.

An index card as C is desirably slid into the pocket P1 to be disposed between the inwardly disposed faces of the rounded corner 22 and the wall 27. In the form of the invention shown in Fig. 1 and related views, the card is slid into the pocket P2 from the right-hand edge of the printing device carrier, as it is viewed in Fig. 1, and it is for this reason that the part 26 is provided at the right-hand end, as it is viewed in Fig. 1, of the flange 25, as well as the upwardly inclined end portions 32 on the lips L1, such part and portions insuring that the card will pass beneath the flange 25 and the lips L1 as it is being inserted into the pocket P1 as above described. Furthermore, even though the card is intended to be slid beneath the flange 25 and the retaining devices L1 in the manner described, the left-hand end portions 31 of the retaining devices L1 and the left-hand end portion 26 of the bead UB, as these retaining devices and bead are viewed in Fig. 1, are formed as above described for so to do contributes to a symmetry in appearance in these retaining devices and bead. However, since the index card C is intended to be slid into the pocket P1 from the right-hand end of the frame as above described, means are provided to insure that, once the index card C has attained proper position in the pocket P1, displacement thereof from the pocket will be prevented. Moreover, the means that are thus provided are also effective to prevent the index card from being pushed out of the left-hand end of the pocket P1 as it is viewed in Fig. 1 as an incident to the insertion of the card into this pocket.

Thus, a combined stop and retaining means SR is formed at the juncture of the rib R with the panel 20 at the left-hand end of the pocket P1 as the same is viewed in Fig. 1. This combined stop and retaining means includes a gusset 33 which is disposed substantially in the plane of the panels 20 and 29, into which it merges although, as best shown in Figs. 5 and 6, this gusset 33 is inclined to project slightly above the panel 29 so as to thereby afford a somewhat enlarged entrance into which the lower corner at the leading end of an index card may pass, in the course of insertion of the card into the pocket P1, so as to thereby insure disposition of this corner of the card in the combined stop and retaining means SR.

Desirably, an index card C that is to be inserted into a pocket as P1, is so sized that when it is inserted into proper position in the pocket P1, the shorter edges of the card will lie adjacent

to the lower edges of the inclined parts 21 along the side edges of the pocket P1. Therefore, when an index card is inserted into the pocket P1 in the manner above described, the trailing end thereof must be caused to ride over and beyond the retention 34, Figs. 1 and 4, which, as best shown in these views, is in the form of a lip that extends inwardly from the panel 20 along the right-hand side of the pocket P1 as the same is viewed in Fig. 1, this lip 34 desirably being located along the extent of this panel 20 adjacent to the upper end thereof. As best shown in Fig. 4, the lip or retention 34 is struck up from the underlying portions of the inclined part 21 and the adjacent part of the bottom 30 of the pocket P1 and also as clearly illustrated in Fig. 4, this lip is desirably inclined upwardly toward the free end thereof so as to thereby afford an enlarged entrance beneath this free end. Thus, once an index card C has been passed into the pocket P1, the trailing end thereof may be passed beyond the free edge of the lip 34 by applying sufficient force to flex the flexible card sufficiently to enable the trailing edge thereof to be disposed beyond the free edge of this lip. The disposition of the aforesaid marginal portion of the card beneath the lip 34 is effective to prevent the card from climbing up the adjacent face of the adjacent inclined part 21 and therefore displacement of the card from the pocket P1 is effectively prevented.

Thus an index card as C is effectively retained in the pocket as P1, once it has been inserted thereinto, primarily because the flange as 25 and the retaining devices as L1 extend over opposite marginal portions thereof, and also because the disposition of the other marginal portions of the card in the aforesaid cooperative relation with the combined stop and retaining means as SR and the retention as 34, prevents undesired movement of the card as C in a pocket as P1 and relative to the flange as 25 and the retaining means or devices as L1. Such an arrangement is embodied in each of the novel carriers of the present invention.

A printing plate as P is adapted to be effectively retained in the pocket P2 and to this end retaining devices L2 are provided on the rib R to extend over an adjacent marginal portion of a plate as P when it is disposed in the pocket P2 and a bead LB is provided along the lower edge of the frame which is adapted to cooperate with the opposite marginal edge of the plate. These retaining devices and bead are arranged, in the preferred form of the invention, for cooperation with a special configuration on the parts of the plate adapted for cooperation therewith.

Thus, since it is necessary that printing plates as P be sufficiently rigid to withstand the necessary handling thereof without distortion, it is customary to form the printing plates from comparatively thick sheet material, particularly as contrasted with the thickness of the material of which a frame as F is desirably made. Consequently, and as can be ascertained by reference to Fig. 10, the printing plates as P are thicker than the index cards as C and in order that the retaining devices as L2 and bead as LB will not be caused to extend above the face of a printing plate as P on which type characters as T are embossed when such a plate is disposed in such retaining devices and bead and in the pocket P2, the marginal edges of a plate as P that are adapted to be disposed in such retaining devices and bead are desirably of reduced thickness with re-

spect to the thickness of the plate in the portions thereof whereat the type characters as T may be embossed thereon. In the present instance such portions of reduced thickness are in form of flanges designated at 35 and 36 in the accompanying drawings. Printing plates of the aforesaid character and embodying portions of reduced thickness as aforesaid are described in detail in the copending application filed by me jointly with William J. Hampton, Serial No. 591,738, filed May 3, 1945, and it is to be understood that any of the various plate arrangements described in that application may be utilized with the novel carrier of the present invention.

Another marked advantage which accrues from utilizing printing plates embodying portions of reduced thickness such as the flanges 35 and 36 is that the bottom 40 of the pocket P2 may be formed to lie in the same plane as the bottom 30 of the pocket P1 for so to do materially expedites fabrication of the novel carriers of the present invention and is otherwise advantageous since, for example, this enables the rear faces of the pockets to be disposed in a common plane so that the rear faces of the carriers are free of projections which might interfere with relative sliding of the printing devices when they are improperly stacked one upon the other and portions of the printing devices come into contact with the rear faces of adjacent printing devices.

The bead LB which is adapted for cooperation with a flange as 36 on a printing plate as P is afforded by folding the marginal portion of the lower edge of the frame intermediate the inwardly disposed edges of the inclined parts 21 over onto the frame and desirably this is effected so as to afford a rounded edge 37 along the lower edge of the frame or carrier. The free marginal part of such marginal portion of the frame into which the rounded corner 37 merges is desirably inclined inwardly and is arranged to afford a flange 38 which, throughout the major portion of the extent thereof as best shown in Fig. 10, is inclined inwardly toward the adjacent face of the bottom 40 of the pocket P2. The marginal end portions 39 of the flange 38 are, however, formed to extend substantially parallel but in spaced apart relation with the adjacent face of the bottom 40 of the pocket P2 so as to thereby afford enlarged entrances to facilitate the insertion of a flange as 36 on a plate as P beneath the free edge of the flange 38, the free end of such flange being spaced from the adjacent face of the bottom 40 of the pocket P2 so as to neatly accommodate a flange as 36 therebelow, as best shown in Fig. 10.

The retaining devices L2, like the retaining devices L1, are desirably formed to project in the plane of the panel 29 of the rib R, such lips extending outwardly from the panel 29 to project beyond the wall 28 of the rib R which wall serves as the upper edge of the pocket P2 and with which the free edge of a flange as 35 on a plate as P is adapted to cooperate when the plate is inserted into the pocket P2. Each lip L2 is struck up from the underlying material of the bottom 40 of the pocket P2 and the wall 28. Moreover, as in the case of the lips L1, the marginal portions along the sides of the lips L2 are desirably inclined upwardly so as to thereby afford enlarged entrances which facilitate passage of a flange as 35 beneath the lips L2. Furthermore, each lip as L2, as best shown in Fig. 10, is desirably spaced from the adjacent face of the bottom 40 of the pocket P2 in an amount sufficient to enable a flange as 35 to be

neatly accommodated between the adjacent faces of the bottom 40 and each lip as L2.

When a printing plate as P is mounted in the pocket P2 with the free edges of the flanges as 35 and 36 thereon respectively engaged with adjacent faces of the wall 28 and the rounded corner 37, the plate is retained in the pocket P2 effectively against movement in one angular direction, which is to say, transversely of the frame and by reason of the disposition of the retaining devices as the lips L2 and the flange 38 over marginal portions of the plate as P the same is effectively held in the pocket P2 and onto the face of the bottom 40 thereof.

Moreover, when the plate is so arranged in the pocket P2 the end edges thereof are respectively arranged in juxtaposition to the inner edges of the inclined parts 21, and in many of the uses to which printing devices of the character to which this invention pertains are to be put the cooperation of such ends of the printing plate with inclined parts as 21 will be effective, in cooperation with the other means effective to retain the plate on the frame, to prevent undesired displacement of the plate from the frame. However, and particularly in those instances where printing devices are to be fed in the direction of their longitudinal extent, as is done in the machine described in my copending application, Serial No. 388,998, filed April 17, 1941, it is advantageous to provide additional means for preventing undesired displacement of the printing plate from the frame particularly in the direction of longitudinal extent of the plate and frame.

Inasmuch as it is advantageous to enable a plate to be inserted into a pocket as P2 either from the right-hand or the left-hand side of the frame, as it is viewed in Fig. 1, similar means effective to prevent movement of the plate on the frame in a longitudinal direction are provided for cooperation with the respective ends of the plate. It will be appreciated however that one or the other of such identical means could be omitted and a permanent stop somewhat in the nature of the retention 34 could be afforded for cooperation with one or the other of the ends of the plate.

Since it is desirable that any means which are provided for cooperation with the ends of the plate be of such nature that the means will be effective to insure against longitudinal displacement of the plate, it is desirable to afford stops on such means and to dispose such stops in such positions that the free ends thereof will extend in substantially parallel relation with an adjacent end of the plate for so to do insures an effective edge to edge engagement between the stops and the ends of the plate. However, since it is necessary that the plate be slid into and from the retaining devices L2 and the flange 38, it is necessary that the arrangement be such that stops of the aforesaid character may be moved out of cooperating relation with the adjacent end of the plate so as to thereby permit the plate to be slid into or from the pocket as P2.

Thus in the present instance yieldable depressible portions in the form of spring tongues, which are indicated as ST in the accompanying drawings, are provided on the carrier. Each such spring tongue is defined by a substantially horseshoe-shaped slot 43 formed in the bottom 40 of the pocket P2 and in the inclined parts 21 and also partially in the panels 20, the bights of such substantially horseshoe-shaped slots being disposed in the panels 20. The material that is thus separated from the body of the frame by a slot 43 is formed, in the manner now to be described,

to afford stops S which will be effective to prevent longitudinal displacement of a plate from a pocket as P2. Furthermore, as will be explained in greater detail hereinafter, since it is often desirable to retain a plurality of printing plates in a pocket as P2, it is advantageous to provide a plurality of stops on each spring tongue of the aforesaid character so that when a plurality of plates are disposed in a pocket as P2 at least one of the stops thus afforded on the spring tongues will be disposed to engage at least one of the plurality of printing plates, and desirably the arrangement is such that, in such circumstances, one such stop on a spring tongue as ST cooperates with one of a plurality of plates while another such stop on the tongue cooperates with another of the plurality of plates in the pocket P2.

Moreover, in order that stops S on a spring tongue as ST may be moved out of cooperating relation with the adjacent end of a printing plate so as to permit the same to be slid relative to the retaining devices L2 and the bead LB, a finger portion is provided at the free end of a spring tongue as ST which is so arranged that it may be engaged by a thumb nail or the like so as to thereby enable the spring tongue to be depressed and therefore move the aforesaid stops out of cooperating relation with the adjacent end of the plate.

Thus, transversely across each spring tongue as ST and desirably, as best shown in Fig. 17, slightly inwardly of the adjacent inclined part 21, an inclined part 41 is formed in the spring tongue to extend upwardly from the main body thereof. Each such inclined part 41 terminates in a finger portion 42 at the free end of the tongue, and the arrangement is such that a finger portion 42 so afforded is disposed to lie in the plane of the adjacent panel 20, as shown in Fig. 17.

Furthermore, stops as S of the aforesaid nature are formed on the spring tongue ST by striking up portions of the inclined parts 41, such stops being disposed to extend in the plane of the finger piece 42 and inwardly therefrom, as shown in Fig. 17. Desirably, two stops S are formed in each spring tongue in the aforementioned manner, such stops being disposed on each side of the medial part of the spring tongue and preferably being equidistantly spaced inwardly from the side edges of the tongue. Hence, since the stops S are struck up from the material of the inclined part 41, such inclined part 41, as best shown in Fig. 20, assumes the form of three struts, one of which is located medially in the spring tongue transversely thereof and intermediate the two stops S and the other two struts are arranged along the side edges of the spring tongue and respectively outwardly of the two stops S. Such arrangement of the inclined part 41 and the stops S effectively reinforces the spring tongue ST so as to prevent deformation thereof, and particularly of the finger piece 21, in the course of use of the printing devices. Furthermore, the disposition of the stops as S on the spring tongue ST on opposite sides of the medial part of the spring tongue enables such stops to be disposed in such positions as to enable the stops to respectively cooperate with adjacent ends of a plurality of printing plates, as will be explained in further detail hereinafter.

Inasmuch as the exposed face of each finger piece 42 is adapted to be engaged by a thumb nail or the like in order to enable depression of the spring tongue so as to move the stops S out of cooperating relation with the adjacent end of a

plate as P, such exposed face of each finger piece 40 is desirably transversely knurled, as indicated at 44, whereby a roughened surface is afforded which may be effectively engaged to enable depression of the tongue ST when and as desired.

The spring tongues as ST are innately resilient inasmuch as the material of which the frames as F are made is desirably somewhat innately resilient. It is, however, advantageous to so limit the amount in which such a tongue may be depressed so as to thereby avoid the likelihood that the resiliency thereof will be impaired. Hence, since it is only necessary to depress a spring tongue as ST sufficiently to clear the stops as S from the adjacent end of a printing plate as P, resort is had to the arrangement now to be described which is effective to so limit the amount in which a spring tongue as ST may be depressed.

Each finger piece 42, as described, is at least in part cut out of and is arranged in the plane of the panel 20. Moreover, as has been described hereinabove, each flange as 16 on a spacing flange as SF underlies a panel as 20. Thus in order to limit the amount which a spring tongue as ST may be depressed, that portion of each flange 16, underlying a finger piece 42 on a spring tongue as ST, is depressed to such a degree that the upwardly faced part of the depressed portion, indicated by 45 in the accompanying drawings, will at least substantially lie in the plane of the rear face of the bottom 40 of the pocket P2, such relationship between the depressed part 45 and the bottom 40 being best illustrated in Fig. 17. Moreover, as shown in Fig. 19, each depressed part 45 is arranged to be of an extent slightly greater than the width of the spring tongue ST disposed thereabove and such a depressed part is connected to the remaining portions of the flange 16 by inclined parts 46.

When a printing plate as P is to be initially inserted into a pocket as P2, the leading end thereof is engaged with a finger piece as 42 to thereby cause depression of the spring tongue as ST and thereupon the plate may be slid over this tongue and into the retaining devices L2 and flange 38. However, as soon as the trailing end of a printing plate so inserted into the pocket P2 passes beyond the free ends of the stops S, the spring tongue ST springs back up into the normal position thereof shown in Fig. 17 whereupon the free ends of the stops S move into cooperating relation with the adjacent end of the plate which is thereafter effectively held against displacement from the pocket as P2.

It will be appreciated that the extent to which the finger piece as 42 is arranged above the main body of the spring tongue must be related to the extent to which the part as 45 is depressed, for it is this that enables the stops as S to be cleared from the adjacent end of the plate. Furthermore, this relation is desirably such that the spring tongue can be depressed no more than necessary for this insures against such deformation of the spring tongue as might cause the same to lose its innate resiliency.

It has been explained hereinabove that the portions of the frame which are formed to afford the spacing flanges SF and the grooves G are effective to reinforce a frame as F transversely thereof. Moreover, it has been explained that the provision of a crimped portion as 24 in the upper bead UB serves to strengthen this bead, and that this is effective to reinforce the frame longitudinally thereof. In this respect a certain degree of longitudinal reinforcement will be imparted to the

frame by the formation of a bead as UB, irrespective of whether or not such a bead is crimped as at 24, although in the preferred form of the invention this bead is so crimped. Furthermore, the formation of the flange that is part of the lower bead LB and the formation of such a flange is effective to reinforce the frame longitudinally thereof.

Yet further, the formation of a rib as R, which, in the various forms of printing device frames embodying the present invention illustrated in the accompanying drawings and in kindred arrangements, is arranged to be disposed intermediate the beads UB and LB, is effective to reinforce the frame longitudinally thereof, and in so far as the frame F, Fig. 1, is concerned this rib R is disposed substantially medially between the extent of the beads UB and LB, this and kindred arrangements being particularly effective to reinforce the frame.

The rib R is otherwise important and in this respect it will be noted that the retaining devices L1 and L2 are respectively disposed so that adjacent of these devices project in opposite directions from the rib R and furthermore, as can be ascertained by reference to Fig. 1, such oppositely extending devices are disposed in close relation one with the other. However, by reason of the provision of the rib R, such location of the oppositely extending retaining devices does not impair the rigidity of the frame, as might be the case if the rib R were not afforded. The primary reason for this is that the rib R affords a continuous section across the printing device frame at the place whereat the retaining devices L1 and L2 are struck from the body of the frame.

Moreover, by providing a rib as R and relating the retaining devices as L1, L2 and 33 thereto in the manner explained hereinabove, an arrangement is afforded which may be produced by relatively simple tools particularly designed to form these elements in the manner described hereinabove. Since each of such devices embodies an index card having at least one printing plate arranged in juxtaposition thereto, an arrangement such as that including the rib R, retaining devices L1, L2 and 33 may be standardized so that the tools effective to produce such an arrangement in one style of printing device frame may also be utilized to produce a kindred arrangement in another style of printing device frame, this being described in further detail hereinafter.

A printing device of the character to which this invention pertains is desirably equipped with indexing means and one common arrangement for this purpose is to form sockets in the portion of the frame underlying the index card as C, such sockets being constituted and arranged to receive the stem portions of one arrangement of this character that is suitable for use in frames of the present invention being disclosed in Gollwitzer Patent No. 2,049,436, patented August 4, 1936.

However, there are many instances where an index arrangement of the aforesaid character is not required and this is one of the reasons that the different configurations respectively imparted to the beads UB and LB are advantageous. Thus by referring to Figs. 10 and 22 it will be seen that the portion of the flange 25 immediately adjacent the crimped portion 24 in the bead UB projects slightly above the plane in which the panels 20 and 29 are disposed where, as, as can best be seen by reference to Figs. 10 and 22, the exposed face of the flange 38 is ar-

17

ranged to lie substantially in the plane of the panels 20 and 29. Such difference in the degree of projection above the front face of a frame as F facilitates ascertainment of which is the top and which is the bottom edge of the frame, and this facilitates arranging the frames so that all of the lower portions thereof will be extended in the same direction.

Moreover, the configuration which is imparted to the upper bead UB is rounded and since the degree to which this configuration projects above the front face of a frame as F is relatively limited, this configuration does not impair the sliding of the exposed faces of the rails as 14 on one printing device over the front face of a printing device embodying the present invention for when this is desired, the exposed faces of the rails as 14 ride on the exposed face of the bead UB and the exposed faces of the panels 20 and 29. In this respect it will be understood that the exposed faces of the panels 20 and 29 are disposed in a plane that is desirably at least slightly disposed above the adjacent faces of a plate and card mounted on the carrier. Furthermore, while the combined stop and retaining device SR, the retention 34, and the end portions 31 and 32 of the retaining devices L1 and the corresponding end portions of the retaining devices L2 are inclined upwardly in slight amount of the exposed faces of the panels 20 and 29, the degree of such extent is quite limited and is not such as to impair the free sliding of the exposed faces of rails as 14 on one frame over the panels 20 and 29 and the bead UB on an underlying frame, and in this respect it is to be noted that views as Figs. 2 and 3 are drawn to a very materially enlarged scale, such scale being at least ten-to-one.

Furthermore, not only may printing devices of the character to which this invention pertains be freely slid one over the other but the handling of such devices is otherwise expedited by reason of the configuration which is imparted to the rails as 14 and the complementary configuration of the grooves as G. This arrangement is such that the rails 14 on one printing device carrier may be disposed in the grooves G of an underlying printing device carrier to thereby so interlock the two carriers that in so far as lateral separation thereof is concerned, this can only be effected by sliding the rails as R out of the grooves as G in which they are rested or interfitted. In this respect it will be understood that while I have shown the preferred complementary configuration of the rails 14 and grooves G in the accompanying drawings, resort might well be had to other complementary configurations without departing from the purview of the present invention. Thus, the rails 14 and the grooves G might embody substantially V-shaped or other complementary configurations.

In any event and as best illustrated in Fig. 21, when a plurality of printing devices embodying the present invention are arranged in superimposed relation the rails 14 on one printing device neatly fit into the grooves G on an underlying printing device, and furthermore such interfitted of the rails and grooves is expedited by reason of the fact that the printing devices may be freely slid relative to each other, as has been explained hereinabove. It is to be understood that it is only when the printing devices are carelessly handled that the rails 14 on one printing device are caused to promiscuously slide over the faces of another printing device. Among the

18

reasons for this is that, as can best be ascertained by reference to Fig. 10, the relief faces of the type characters as T embossed on a printing plate as P extend well above the plane in which the exposed face of a panel as 29 is disposed. Hence if the rails 14 on one printing device were promiscuously slid over the face of another printing device, this might result in damage to the relief faces of the type characters. Usually the printing devices are so related one to the other that the interfitted of the rails as 14 and grooves as G may be readily effected, the uppermost printing device shown in Fig. 21 being shown in the position in which printing devices are customarily related one to the other prior to the time the rails 14 pass into grooves as G.

Another important aspect of the present invention is illustrated in Figs. 23 to 26, inclusive, and it is to be understood that the arrangement therein disclosed, which will be described presently, may be embodied in the printing device illustrated in Fig. 1 or in related views or in any other printing device of the character to which this invention pertains and which embodies spacing flanges in the nature of spacing flanges SF. There are instances where the inner edge of a spacing flange on one printing device will catch along a marginal edge, such as that afforded by the rounded edge 10, on another printing device, and oftentimes when this occurs considerable manipulation is required in order to effect separation of the printing devices. It has been observed that this primarily arises by reason of the fact that the angular inclination of the inwardly disposed faces of spacing flanges as SF is usually insufficient to facilitate separation of printing devices when the spacing flange on one printing device catches on the edge of another in the manner just described.

In order that the foregoing condition may be obviated and separation of printing devices may be expeditiously effected in the event two printing devices assume a relationship such as that shown in Fig. 26, I have provided the arrangement illustrated in Figs. 23 to 26, inclusive. With respect to the disclosure in these views, those elements there illustrated which correspond to those described hereinabove are indicated by a similar reference character but a prime exponent is applied thereto. Further in this respect the printing device illustrated in Figs. 23 to 26 is desirably fabricated in a manner described hereinabove, and it is to be expressly understood that the aspect of the invention illustrated in Figs. 23 to 26 may be embodied in any printing device carrier or frame that has spacing flanges provided along the edges thereof.

Thus, in the form of the invention shown in Figs. 23 to 26, guides 47 in the form of inclined embossures are provided on the inwardly disposed face as 15' of a spacing flange as SF'. Desirably these guides 47 are afforded by pressing the material of the face or inclined part as 15' of the spacing flange as SF' inwardly of the frame in such manner that the lower ends of the guides 47 merge into the lower edges of the rails as 14' of the spacing flanges as SF' while the upper ends of such guides 47 merge into the free edges of flanges as 16'. In any event, however, it is desired that a plurality of such guides or embossures 47 be provided along the inwardly disposed face of a spacing flange and that the angular inclination of such guides or embossures, in so far as the inwardly disposed faces thereof are concerned, be such that in the event two printing

devices assume interrelated positions, such as are shown in Fig. 26, the angular inclination of the guides or embossures as 47 will be such as to facilitate separation of the printing devices, which is to say, the inclination will be such that the spacing flange on the superimposed carrier may be readily moved into aligned relation with the part of the face of the underlying printing device carrier that is arranged in alignment with the spacing flange provided thereon.

The provision of guides or embossures as 47 on a printing device is particularly advantageous in a frame embodying the present invention. This is particularly true where related panels as 20 and 29 are afforded on the printing devices for, as explained hereinabove, this enables the rail of a spacing flange on one device to freely slide over the face of an underlying printing device. In such circumstances, even when printing devices are related one to the other in the manner, for example, illustrated in Fig. 26, printing devices embodying the above described arrangements may quickly be brought into the desired arrangement thereof illustrated by the lowermost two printing devices shown in Fig. 21. When a plurality of printing devices are arranged in this manner the resulting stack thereof may be handled without likelihood of lateral separation among the various printing devices in the stack.

Inasmuch as it is oftentimes desirable to accurately locate the impressions that may be made from the relief faces of the type characters T on the sheets or the like adapted to receive such impressions, a notch as N is desirably formed in one of the marginal edges of the printing device carrier, such a notch N in the present instance being formed in the rounded edge 10 along the right-hand side of the printing device carrier as the same is viewed, for example, in Fig. 1. This notch N is accurately related with respect to the retaining means for the printing plate as P and thus by embossing the type characters T at a determined position on the plate as P and thereafter disposing such plate in the retaining means therefor on the frame an accurate interrelation is established between the type characters T and the notches N.

Reference is made hereinabove to the provision of a rib as R as a separating means between pockets as P1 and P2. Among the advantages of such a rib are that it may be located in a variety of positions with respect to the beads as UB and LB provided on a frame as F and that by so doing index cards and printing plates of varied widths may be accommodated on carriers of the character to which this invention pertains. As examples of such varied location of the rib as R reference may be made to printing devices illustrated in Figs. 1, 27, 28 and 29 and in so far as the printing devices illustrated in Figs. 27 and 28 are concerned, these are identical with the printing device illustrated in Fig. 1 except in so far as the location of the rib as R thereon, and the respective widths of the plates and cards retained thereon, are concerned.

In this respect the printing device illustrated in Fig. 1 is of the character adapted to accommodate a plate of the character that is commonly referred to in the art as a four-line plate. If, however, it is desired also to print a salutation such as, for example, "Dear Sir," type characters by which this could be effected would be provided in the place where the fourth line of type characters may be accommodated on a printing plate as P. However, it has been found in the use of printing devices of the character

to which this invention pertains that it is oftentimes advantageous and necessary to afford accommodation for more than four lines of type characters on a particular printing plate.

Thus, for example, to refer to the printing plate shown in Fig. 29, this is of a character that is commonly used by insurance companies who, in addition to printing the name of a policy holder, his address and the like, as may be effected by the utilization of the printing device shown in Figs. 1 and 22, also often print other data, such as the policy number, the date or dates on which premiums are due, the name of the agency through which the policy is handled and the like. By comparing the printing devices disclosed in Figs. 1 and 29 it will be seen that the printing device shown in Fig. 29 has a printing plate Pc mounted thereon that is of such a nature that a relatively large number of rows of type characters may be embossed thereon as compared, for example, with the number of rows of type characters that may be embossed on the plate P shown in Fig. 1. Likewise, the printing plates Pa and Pb, respectively, shown in Figs. 27 and 28, afford accommodation for a greater number of rows of type characters than can be accommodated on the plate P shown in Fig. 1, but such printing devices do not enable as many rows of type characters to be embossed thereon as can be embossed, for example, on the printing plate Pc shown in Fig. 29.

Furthermore, with respect to printing devices of the character to which this invention pertains, it is advantageous to form such printing devices of a standard size for so to do not only facilitates fabrication of the printing devices but this also enables standardization of the machines in which the printing devices are adapted to be used particularly in so far as the means afforded in such machines for advancing the printing devices therethrough may be concerned. Thus in so far as the printing devices shown in Figs. 1, 27, 28 and 29 are concerned, the frames thereof are desirably of a standard size and the difference therebetween, as stated hereinabove, is the size of the printing plate that may be accommodated thereon. However, since the index cards and printing plates are mounted on the frames or carriers of the printing devices in side by side relation, it is manifest that since the size of the printing device carrier remains constant and the size, and particularly the width of the printing plate, increases it is necessary to decrease the width of the index card that may be accommodated thereon.

While an index card as C on a printing device as F, which is of a width substantially equal to the width of the plate as P, is of sufficient size to enable an impression to be made thereon from all of the type characters embossed on the plate as P, those index cards provided on the printing devices illustrated in, for example, Figs. 27, 28 and 29, are of less width than the printing devices respectively provided on the frames of these devices and in such circumstances an impression is made on the index card from but selected of the type characters embossed on the plate or plates of the printing device on which the index card is to be used.

As has been stated heretofore, the printing devices illustrated in Figs. 27, 28 and 29 correspond to the printing device illustrated in Fig. 1, except in so far as the location of the rib as R thereon with respect to the beads as UB and LB is concerned, and moreover since it is the rib as R that

separates the card and plate receiving pockets as P1 and P2 provided on a frame as F one from the other, it is manifest that the index card and printing plate pockets afforded on the frames illustrated in Figs. 27, 28 and 29 are of varied size with respect to each other as these are formed on the respective frames and also with respect to those included in the printing device illustrated in Fig. 1.

However, it is manifest that when a frame or carrier as Fa, Fig. 27, is to be produced, such frame or carrier may be produced by the same tools that are utilized in the production of the frame F, Fig. 1. Since the plate Pa that is to be accommodated on the frame Fa is of greater width than the plate P to be accommodated on the frame F and since the card Ca, Fig. 27, is correspondingly narrower than the card C, Fig. 1, the tools which are utilized to produce the rib R are disposed in one particular position when the frame F is to be produced and in another position when the frame Fa is to be produced. Thus since the plate Pa is wider than the plate P, the tools which are effective to produce the rib R, and therefore the rib Ra on the frame Fa are, when the frame Fa is to be produced, located closer to the tools effective to produce the bead as UBa than are these tools when they are to be effective to produce the rib R. This, however, is the only change that need be made when the tools which are effective to produce the frame F are to be utilized to produce the frame Fa, and thus it is only the location of the tools effective to produce the rib as Ra that need be varied when the tools that are utilized to produce the frame F are to be utilized to produce the frame Fa. Moreover, since the various elements of the printing device illustrated in Fig. 27 fully correspond to the various elements included in the frame F, Fig. 1, the suffix "a" is added to the reference characters when they appear in Fig. 27 and where such reference characters are applied in Fig. 27 to designate an element corresponding to one shown in Fig. 1 and related views.

Furthermore, in so far as Fig. 28 is concerned, the suffix "b" is applied in the foregoing manner where the reference characters appear in Fig. 28 and likewise in Fig. 29 the suffix "c" is added to the reference characters. In this respect, in so far as the frame Fb illustrated in Fig. 28 is concerned, this differs from the frames F and Fa only in the location of the rib Rb is located much closer to the upper bead UBb than is the rib Ra with respect to the bead UBa in Fig. 27 or the rib R with respect to the bead UB in Fig. 1. Hence the frame illustrated in Fig. 28 may be produced by the same tools or the like utilized in the production of the frames F and Fa and the only change that is required to enable the production of the frame Fb is a change in location of the tools that are effective to produce the ribs R, Ra and Rb.

The plates P, Pa and Pb respectively adapted to be retained on the frames F, Fa and Fb are so related in width that the spring tongues as ST, STa and STb respectively provided on the frames F, Fa and Fb are effective to properly retain each of these plates on its particular frame. However, it is preferable that the spring tongues as ST cooperate with the adjacent edge of a printing plate as P substantially medially in the extent of such an edge and, as can be ascertained by comparing Figs. 1, 27 and 29, there is not a sufficient departure from this desideratum, in so far as the frames illustrated in Figs. 27 and 28

are concerned, to warrant changing the location of the spring tongues as ST from the location that is resorted to in the frame F. However, the plate Pc, adapted to be retained on the frame Fc shown in Fig. 29, is so much wider than the plates P, Pa and Pb that a change in the location of the spring tongues from the position thereof shown in Fig. 1 is desirable when the frame Fc is to be produced and the change that is thus made is such that the spring tongues STc will be located on the frame Fc in such position as to cooperate substantially with the medial part of the adjacent edge of a plate as Pc when it is mounted on a frame as Fc.

Hence when a frame as Fc is to be produced, this may be effected by utilizing the same tools as those which are employed to produce the frames F, Fa and Fb but in this instance, in addition to changing the location of the tools effective to produce the ribs as R, Ra, Rb and Rc, the tools which are effective to produce the spring tongues as STc are also varied from the location in which such tools are disposed when frames as F, Fa or Fb are to be produced. Other than this change, however, the same tools may be utilized in the production of the frame Fc as are used in the production of the frame F.

Reference has also been made hereinabove to the fact that it is often desirable to enable a plurality of printing plates to be arranged on a single carrier. Resort is had to such an arrangement of printing plates on carriers of the nature to which this invention pertains in those instances where a portion of the subject matter that may be printed from type characters embossed on the plate may vary from time to time while other portions of the subject matter will remain relatively constant. Thus, for example, in the case of an address, the name will usually remain constant but the street and number may change from time to time and also the city and state may change from time to time. Furthermore, in other instances and particularly where numerical data may be printed from selected of the embossed type characters, such data may change from time to time without there being a change in the other data. In circumstances such as the foregoing, and in other kindred instances, if but a single printing plate is provided on the frame, it might be necessary to change an entire plate in an instance where there was a small change in but a part of the subject matter. However, where a plurality of plates may be accommodated on a single carrier, it is customary to emboss the type characters from which the unchanging portion of the subject matter may be printed on one of the plates while the type characters from which that part of the subject matter that is likely to change are embossed on another of the plates. In such circumstances, when a change occurs, only a relatively small printing plate need be discarded or changed and furthermore but relatively few type characters need be embossed in order that the change may be effected.

It is for reasons such as the foregoing that resort is had to a carrier of such nature that a plurality of printing plates may be accommodated thereon. Heretofore, however, it has been customary to provide a particular carrier for each different plate arrangement and also it has been necessary to provide a relatively large number of plate arrangements for a plate which may be accommodated on one particular carrier is usual-

ly not suitable for accommodation on another carrier.

However, as has been stated, among the objects of the present invention are to enable a number of different plate arrangements to be incorporated on a carrier arranged in one particular way and also to enable a particular plate arrangement to be utilized in a number of different carriers. Examples of arrangements of this character are illustrated in the accompanying drawings in Figs. 30 to 41, inclusive. The frames or carriers illustrated in these views, as in the case of the carriers illustrated in Figs. 27, 28 and 29, desirably embody the hereinabove novel features incorporated in the printing device shown in Fig. 1 and related views. Thus each of the carriers illustrated in Figs. 27 to 41, inclusive, embody spacing flanges as SF that are desirably equipped with rails as 14 and these printing devices are also desirably provided with grooves as G in which such rails on the spacing flanges may be fitted. Moreover, as has been explained with reference to Figs. 27, 28 and 29, each of the carriers illustrated in Figs. 30 to 41, inclusive, also embody a rib as R and depressible portions such as the spring tongues ST, the frame shown in Fig. 41, for example, embodying two sets of such spring tongues for a purpose explained more fully hereinafter. Moreover, each of the various frames illustrated in the accompanying drawings include rounded edges as 10, 22 and 37, panels as 20, combined stop and retaining means as SR, retentions as 34, and beads as UB and LB and guides or embossures as 47 may be incorporated in the spacing flanges of these carriers in the manner described hereinabove.

However, since the printing device carriers illustrated, for example, in Figs. 30, 36, 40 and 41 are to accommodate a plurality of printing plates, it is necessary to provide additional retaining means thereon, since these frames are adapted to receive a plurality of printing plates and such plates cannot be effectively retained only by beads as LB and ribs as R as may be the plates P, Pa, Pb and Pc. Furthermore, it is the disposition of such additional retaining means as well as the disposition of ribs in the nature of the rib R, Fig. 1, and in many instances the location of the spring tongues as ST that enables a variety of plate arrangements to be accommodated on a particular frame or carrier, this being described more fully presently.

Moreover, since it is desirable to avoid making impressions from whatever retaining means are provided on a carrier when impressions are made from the relief faces of type characters embossed on the plates retained on the carrier, those carriers embodying the present invention desirably have the retaining means, adapted for cooperation with the plates to be retained thereon, so constituted and arranged as to be adapted for cooperation with portions of reduced thickness, along the marginal edges of the plate as, for example, flanges in the nature of the flanges 35 and 36 provided on the plate P, Figs. 14 and 15, and in accordance with the present invention the carriers are desirably arranged to include retaining means that are adapted for cooperation with printing plates of the character to which the co-pending application filed by myself and William J. Hampton, Serial No. 450,318, filed July 9, 1942, pertains. Moreover, and a yet further object and advantage of the present invention, particularly in those instances where a plurality of plates are to be retained on a single carrier, is to enable

utilization of printing plates embodying marginal edges which lie in straight lines and which are free of projecting elements.

As an illustration of the manner in which a number of different plate arrangements may be incorporated on a single carrier, attention is first directed to Figs. 30 to 34, inclusive. The frame Fd there illustrated includes a rib Rd which is desirably located with reference to the bead UBd in the manner shown in Fig. 30 so as to thereby afford a card receiving pocket Pld between this rib and bead in which a card as Cd may be accommodated. Furthermore, the rib as Rd is located with respect to the bead LBd as to afford a plate receiving pocket, indicated by P2d, which includes a bottom wall 40d, Fig. 35. Furthermore, since a plurality of plates are to be accommodated in the plate receiving pocket that is thus afforded, in addition to the retaining means as L2d afforded on the rib Rd and the bead LBd, additional plate retaining means as 48, 49, 50 and 51 are struck up from the bottom 40d of the pocket as P2d as, for example, in the manner illustrated in Fig. 35. Each such additional retaining means embodies a part that is so related to the adjacent face of the bottom 40d of the pocket P2d as to enable accommodation therebelow of a flange as 35d or 36d in, for example, the manner illustrated in Fig. 35.

The frame Fd, in addition to being shown in Fig. 30, is also fragmentally illustrated in Figs. 31 to 34, inclusive, the portion of the frame that is adapted to accommodate the card as Cd having been eliminated from these views inasmuch as this arrangement of the frame Fd corresponds to that illustrated in Fig. 30. However, by comparing Figs. 30 to 34, it will be seen that a wide variety of plate arrangements may be accommodated on the frame Fd, and this may be realized by reason of the relation that is established among the retaining devices as L2d and LBd and the additional retaining devices 48, 49, 50 and 51.

Thus, the retaining devices 48 and 49 are located on the bottom wall 40d of the pocket P2 of the frame Fd in side by side but spaced apart relation and, as best shown in Fig. 35, the free edges of these retaining devices are directed toward the retaining devices L2d so that a channel is afforded therebetween into which a plate as Pd, Fig. 30, or plates as Pg, and Ph, Fig. 31, or a plate as Pi, Fig. 32, or a plate as Pj, Figs. 33 and 34, may be accommodated therein. Likewise, the free edges of the retaining devices 50 and 51 are directed toward the retaining device LBd to thereby afford a channel in which a printing plate as Pe, Fig. 30, Pi, Figs. 31 and 32, or Pj, Figs. 33 and 34, may be accommodated therein.

Furthermore, each of the retaining devices 48 and 49 are so located with respect to the side edges of the pocket P2d and the retaining devices L2d afforded on the rib Rd that a plate as Pi, Fig. 32, of a width corresponding to that of the pocket P2d may be accommodated therein or, for example, so that two plates as Pg and Ph of a combined length equal to the length of the plate Pi may be accommodated therein. Furthermore, the location of the retaining devices 48 and 49 is also such that plates as Pd or Pj which are of a length less than the width of the pocket P2d may be accommodated therein. However, when such a relatively short plate as Pg or Pj is to be accommodated on the carrier, resort is also had to a plate as Pf or Pk which is of such a width as to

extend between a retaining device as *L2d* and a bead as *LBd*. However, in order that a plate as *Pf* or *Pk* may be accommodated on a frame as *Fd*, it is necessary to locate the retaining devices as *48* and *49* in such relation with the side edges of the pocket as *P2d* that, for example, a plate as *Pf* may be accommodated between one end of the retaining device *49* and the adjacent side edge of the pocket *P2d*. In this respect a retaining device as *49* will be located in such relation with such side edge of the pocket that the widest plate of the character of the plate *Pf* that is to be accommodated on the carrier may be arranged thereon. This, therefore, will enable accommodation of a plate as *Pk* on the carrier even though such plate *Pk* be of less width than the widest plate as *Pf* that is to be accommodated on the carrier. Moreover, the end of a retaining device as *48* is similarly located with respect to the edge of the pocket *P2d* adjacent thereto so as to accommodate a plate as *Pk* adapted to extend between a retaining device as *L2d* and a bead as *LBd* between such retaining device and such adjacent edge of the pocket *P2d*. It will be understood that retaining devices as *50* and *51* are also located on the frame in such positions as to insure that plates as *Pf* and *Pk* may be accommodated on the carrier and yet to also insure that a full length plate as *Pi* or shorter plates as *Pd* or *Pj* may be accommodated thereon.

In so far as the frame *Fd* is concerned, the plate receiving channel that is afforded between the retaining devices *48* and *49* and the retaining devices *L2d* is desirably of a width similar to the width of the channel afforded between the retaining devices as *50* and *51* and the bead as *LB*. Resort is had to such formation of the channels in order that the same plate may be accommodated in either of the channels where this plate is of a length equal to the width of the pocket as *P2d*, this being shown in Fig. 32 where two identical plates *Pi* are respectively accommodated in the two channels that are thus afforded on the frame *Fd*.

When, however, the plates that are to be accommodated on a frame as *Fd* are of a length less than the width of a pocket as *P2d*, then it is necessary that the plates that are arranged on the carrier be of such nature that when engaged edge to edge the combined length thereof will be equal to the width of the pocket as *P2d*. This may be accomplished by providing two plates as *Pg* and *Ph* of such width as to enable accommodation thereof in one or the other of the aforesaid channels of equal width, and in such circumstances the combined lengths of two such plates will be equal to the width of the pocket as *P2d*. However, when a plate as *Pf* or *Pk* is to be accommodated on the carrier, then the lengths of the plates as *Pd* and *Pj* will be such that when a plate as *Pf* or *Pk* is disposed on the carrier to extend between retaining devices as *L2d* and *LBd*, corresponding ends of plates as *Pd* or *Pj* may be engaged with a side edge of the pocket as *P2d* and an edge on the plate as *Pf* or *Pk* that extends between the edges of such plate received in the retaining devices as *L2d* and *LBd*. Thus when a relatively wide plate as *Pf* is to be accommodated, then relatively short plates as *Pd* are employed whereas when a narrower plate as *Pk* is to be employed comparatively long plates as *Pj* are employed. Yet further, when the relation between the plates *Pf* and *Pk* is such as is illustrated in Figs. 33 and 34, then the plate as *Pk* may be disposed along either

side edge of the pocket as *P2d*, as is illustrated in Figs. 33 and 34.

It has been explained hereinabove that at least two stops as *S* are provided on each spring tongue as *ST* in order that such stops may respectively cooperate with adjacent ends of a plurality of printing plates when accommodation is afforded therefor on a particular frame or carrier. In order that this may be accomplished, spring tongues as *STd* are so located on the carrier that the medial part thereof is aligned with the portions of retaining devices as *48* and *50* which extend upwardly from a bottom as *40d* of a pocket as *P2d*. In this respect it will be understood that it is preferable to relate oppositely extending retaining devices as *48* and *50* in the manner illustrated in Fig. 35, which is to say, so that oppositely faced faces of the portions of such devices that extend upwardly from the bottom of the pocket from which they are formed are disposed to lie in substantially a common plane for so to do affords proper spacing between the channels of which such retaining devices respectively are a part and facilitates insertion of printing plates into such channels. Furthermore, such disposition of such upstanding portions of retaining devices as *48* and *50* facilitates aligning the medial part of spring tongues as *STd* with such portions of the retaining devices. In this respect it is desirable that medial parts of the spring tongues be aligned with the aforesaid portions of the retaining devices as *48* and *49* and also that the spring tongues as *STd* be of sufficient width that the stops as *Sd* formed thereon will be respectively aligned with the channels of which the retaining devices as *48* and *50* respectively are a part. Such arrangement and location of the spring tongues as *STd* disposes a stop as *Sd* thereon in position to cooperate with adjacent ends of printing plates as *Pd* or *Pi* when such plates are accommodated in the channels of which the retaining devices *48* and *50* respectively are a part, this arrangement also insuring against displacement of printing plates as *Pj* from the carrier. Yet further, such disposition of the spring tongues as *STd* and the stops as *Sd* thereon enables the desired cooperation between such stops and the medial part of an adjacent edge of a printing plate as *Pf* or *Pk* to be established.

A yet further advantageous aspect of the foregoing arrangement on a printing device carrier is that the opposite edges of each of the plates as *Pd*, *Pf*, *Pg*, *Ph*, *Pi*, *Pj* and *Pk*, may be arranged to extend in parallel relation with each other whereby each of such opposite edges of the plates are free of elements projecting beyond such an edge. This is particularly advantageous since it enables the novel plates of the present invention to be produced by a mere shear operation, in contradistinction to producing such plates by a blanking operation entailing the use of blanking dies of configuration complementary to the desired outline of the plates. Heretofore, however, where accommodation has been afforded for a plurality of plates on a particular carrier, it has been necessary to provide projecting elements on one or more of the plates that were adapted to be retained on the carrier in order that the proper interrelation among the plates could be established and to insure that each of the plates would be effectively retained on the carrier or frame. However, by providing channels such as are afforded, for example, between the retaining devices *L2d* and *48* and *49* into which plates

such as *Pd* or *Pi*, for example, may be slid, and by relating the retaining devices adapted for co-operation with such plates in the manner explained hereinabove, plates free of such projecting elements may be utilized and, as stated, the opposite edges of each of the various plates may be arranged to extend in substantially parallel relation one with the other throughout the extent thereof.

The frame *Fd* illustrated in Fig. 30 is of such nature that the two plate accommodating channels afforded thereon are of equal width. However, resort may not always be had to such an arrangement of the channels for in many instances it is necessary that accommodation for a greater number of rows of type characters be afforded on one plate than may be accommodated on another plate when two or more such plates are adapted to be retained on the same carrier. In such circumstances resort may be had to an arrangement of the channels such as that illustrated in Fig. 36.

The frame *Fe* illustrated in Fig. 36, like the frames that have been described hereinabove, is arranged to embody the various novel and advantageous features of the present invention and moreover in the main this frame is quite like the frame illustrated in Fig. 30. However, the card pocket *P1e* of the frame *36e* is narrower than the card pocket *P1d*, Fig. 30, in that the rib *Re* is disposed closer to the upper bead *UBe* than is the rib *Rd* to the upper bead *UBd*. Moreover, by reason of such disposition of the rib *Re* the plate receiving pocket *P2e* of the frame *F2e* is of greater extent transversely of the carrier than is the pocket *P2d* of the frame *Fd*.

Another distinction between the frames *Fd* and *Fe* is that the additional retaining devices *48e* and *49e* formed on the frame *Fe* are spaced from the rib *Re*, and consequently the retaining devices *L2e*, in an amount greater than the spacing of the retaining devices *48* and *49* from the retaining devices *L2d*. Hence the channel that is afforded between the retaining devices *48e* and *49e* and the retaining devices *L2e* and rib *Re* is wider than the channel afforded between the retaining devices *48* and *49* and the rib *Rd*. Therefore, a relatively wide plate *Pm* may be accommodated between the rib *Re* and the retaining devices *48e* and *49e*. Furthermore, as in the case of the plates *Pg* and *Ph*, the plate *Pm* may be divided somewhat near the medial part thereof so that two plates may be arranged between the rib *Re* and the retaining devices *48e* and *49e*.

The frame *Fe* also has retaining devices *50e* and *51e* thereon which are related to the retaining devices *48e* and *49e* in much the same manner as that in which the retaining devices *50* and *51* are related to the retaining devices *48* and *49*. These retaining devices *50e* and *51e* cooperate with the lower bead *LBe* to define a channel into which a printing plate as *Pn* may be inserted, the plate *Pn* being materially narrower than the plate *Pm* and also being narrower than the plate as *Pi*, Fig. 31.

Moreover, since the retaining devices as, for example, *48e* and *50e* are related to each other in the manner in which the retaining devices *48* and *50* are shown to be related to each other in Fig. 35, the medial parts of spring tongues as *STe* may be aligned with the upwardly extending parts of the retaining devices *48e* and *50e* and *49e* and *51e*, as explained hereinabove with reference to the retaining devices *48* and *50* and the spring tongues *STd*. The stops *Se* afforded

on the spring tongues as *STe* respectively cooperate with the adjacent ends of the plates as *Pm* and *Pn* to thereby retain these plates in position on the frame as *Fe*.

The plate *Pn*, if desired, may also be divided substantially medially in the extent thereof to afford two plates somewhat like the plates *Pg* and *Ph*, Fig. 31, which it will be understood, if desired, could be accommodated in the channel afforded between the retaining devices *49* and *51* and the bead *LBd*. In this respect where printing plates are to be divided to thereby enable two plates *Pg* and *Ph* to be accommodated in a particular channel, the division is desirably made substantially medially in the longitudinal extent of such plates. The reason for this is the manner in which the retaining devices as *L2d* or *L2e* are related one to the other, two of such devices desirably being arranged near the ends of the channels in part defined thereby and the other of such retaining devices desirably being located substantially medially along the extent of such channel. This arrangement of these retaining devices insures proper retention of divided plates in the channels into which they are inserted. This end is also realized by reason of the relative disposition of retaining devices as *48* and *49*, such retaining devices desirably being respectively located substantially midway between the ends of a channel in part defined thereby and the medial part of such channel. Yet further, the disposition of the retaining devices as *50* and *51* is also somewhat similar to the disposition of the retaining devices as *48* and *49*. Therefore, since the retaining devices as *48* and *49* and as *50* and *51* are located along the channels of which they are a part in positions spaced from both the ends and the medial parts of such channels, it is possible to retain the printing plates as *Pg* and *Ph* in the channel where the division between such plates is substantially medially in the combined extent thereof.

A further example of the advantages that accrue from locating the retaining devices as *48e* and *49e*, which of course are located somewhat similarly along the extent of the channel formed thereby to the location of the retaining devices *48* and *49*, is that a substantially L-shaped plate as *Po*, Fig. 37, may be retained in the channel in part defined by retaining devices as *48e* and *49e*. In this respect it will be understood that the frame *Fe* illustrated in Fig. 37, as in the instance of the similar frames illustrated in Figs. 38 and 39, is like the frame *Fe*, the disclosures of Figs. 36 to 39 illustrating the manner in which different plate arrangements may be accommodated on the frame *Fe* illustrated in these views.

The plate *Po*, Fig. 37, is, as stated, substantially L-shaped and one of the marginal edges of the stem part of this substantially L-shaped plate embodies a flange as *36e* and also the marginal edge of the base portion of such L-shaped plate has a flange as *35e* formed thereon. The base portion of the substantially L-shaped plate *Po* is of sufficient extent to extend across the channel defined between the retaining devices *L2e* and *48e* and *49e*. Yet further, when resort is had to an L-shaped plate such as *Po*, the stem portion thereof is desirably of such extent as to extend into at least two of the retaining devices provided along the edge of the channel adapted to receive a marginal edge of the plate. This is clearly illustrated in Figs. 37 and 39 where the plate *Po* is mounted in identical manner in the frames *Fe* there illustrated. Furthermore, in Fig.

29

38 the upper plate Po is also retained in position on the frame Fe there illustrated, but in this instance instead of having the flanged marginal portion of the stem portion thereof disposed in retaining devices 48e and 49e, the flanged part of the stem portion of the plate is disposed to extend into three of the retaining devices L2e.

Yet further, as shown in Figs. 38 and 39, two substantially L-shaped plates as Po may be accommodated on the frame as Fe, such plates being so interfitted that the relatively straight and unflanged marginal edges of the stem portions thereof interfit in abutting relation. Furthermore, the free ends of such stem portions so interfit with the upper edge of the base portion of the substantially L-shaped configuration thereof that a cooperation much like that established between the plate Pd and the plate Pf, Fig. 30, or between the plates Pg and Ph, Fig. 31, or between the plates Pj and Pk, Figs. 33 and 34, is established, which is to say, the two plates Po so retained on the frame Fe cooperate with each other in such a manner as to prevent undesired movement of the plates in the channel defined between the retaining devices L2e and 48e and 49e, particularly when the ends of such plates are engaged with stops as Se on spring tongues as STe.

In some instances a part of the area of printing devices whereat type characters may be embossed on a printing plate retained thereon is left blank. Such arrangement is utilized by mounting a printing plate in the machine in which the printing devices so arranged are to be used. The plate in the machine is so that when the printing devices come to rest at the position in the machine whereat impressions are to be made therefrom, the plate in the machine overlies the portion of the underlying printing device, from which a portion of the plate has been omitted. Resort is had to an arrangement of this character when desired to put a date or other data which may change from time to time, but which will not change from printing device to printing device, such data in such arrangement being printed as an incident to the making of an impression from an underlying printing device.

The foregoing may be realized in accordance with the present invention by resorting to an arrangement such as that shown in Fig. 37 where the frame Fe has a printing plate Po mounted thereon as well as a printing plate Pr. The printing plate Pr, like the plate Po, is substantially L-shaped in configuration, but the plate Pr includes a relatively short stem portion in contradistinction to the relatively long stem portion of the plate Po. Thus when the stem portions of plates as Po and Pr are related one to the other in the manner shown in Fig. 37, the plates are effectively held in the channel adapted to accommodate the same but an area indicated by 53 is afforded on the printing device whereat no printing plate is afforded. With respect to the arrangement of the plate shown in Fig. 37, the area 53 is located adjacent the rib F2 but it will be understood that by reversing the positions of the plate Po and Pr, the area 53 could be located adjacent to the retaining devices 48e and 49e.

Thus, as shown in Figs. 36 to 39, inclusive, a plurality of plate arrangements may be accommodated on the frame Fe and, as disclosed, either two printing plates as Pm and Pn may be accommodated thereon to thereby completely cover the area in which a plate as Pm is adapted to be received. However, a portion of this area may be left free, as indicated at 53, by arranging two

30

plates as Po and Pr on the frame in the manner shown, for example, in Fig. 37. Furthermore, a single plate as Pn or two plates divided medially and of a combined length equal to the plate Pn may be accommodated on the frame Fe.

A yet further example of the manner in which a printing device frame may be arranged to accommodate a plurality of plates of different widths is shown in Fig. 40 where the frame Ff is illustrated. This frame includes a relatively narrow pocket Pf in which a card as Cf may be accommodated and in this instance the rib Rf is located relatively close to the upper bead UBf. The retaining devices 48f and 49f are located relative to the rib Rf and the retaining devices L2f so as to accommodate a plate as Pt which, as can be ascertained by comparing Figs. 36 and 40, is much wider than the plate Pm that may be accommodated on the frame Fe. This accommodation for a plate of greater width is realized by disposing the rib Rf closer to the bead UBf than the rib Re is disposed with respect to the bead UBe. Resort is desirably had to such an arrangement of the rib as Rf because this enables the retaining devices as 50f and 51f to be located on the frame Ff in a manner identical to that in which these devices are arranged on the frame Fe and hence the plate as Pn may be accommodated either on a frame as Fe or a frame as Ff.

It has been explained hereinabove that it is desirable that the stops as S, that are provided on a spring tongue as ST, are desirably arranged to cooperate with substantially the medial part of the adjacent edge of a printing plate. However, in those instances where a plurality of plates are to be accommodated on a particular frame, it is often necessary to depart from this desideratum and in such instances, as can be ascertained, for example, by reference to Figs. 30, 36 and 40, the stops S respectively cooperate with a corner of one of two of the plurality of printing plates that are adapted to be retained on a particular frame. In frames of the character to which this invention pertains, however, such cooperation between the printing plates and the stops as S is satisfactory for the reason that the channels afforded between, for example, retaining devices as 48 and 49 and the rib as Rd2 and the retaining devices L2d are of such nature that the printing plate is prevented from canting therein. Moreover, by reason of the provision of portions of reduced thickness along opposite marginal portions of the printing plate, the retaining devices afforded on the frame and adapted for cooperation with such portions of reduced thickness may be caused to overlie the same, and it is this in cooperation with the formation of the channels that insures against undesirable canting of the printing plates. This enables the stops as S to be effective to firmly retain the printing plates on the carrier on which they are mounted. In some instances, however, it will be desirable to retain three or more printing plates on a particular frame and in such instances in order to retain the plates against longitudinal displacement from the carriers, a plurality of sets of spring tongues as ST are desirably provided on each such carrier.

Thus, for example to refer to Fig. 41, the frame or carrier Fg there illustrated is adapted to have three plates as Pi, Pe and Pv retained thereon, and therefore two sets of spring tongues are provided on this frame. It will be understood that the spring tongues as ST are desirably provided in sets so as to enable the plates to be retained

thereby to be removed from either end of the channels at the ends of which the spring tongues are respectively disposed. However, as in the case of the spring tongues as ST, Fig. 1, one or the other of such tongues at the ends of a channel could be omitted and replaced with a permanent retention somewhat in the nature of the retention 34, Fig. 1.

In order that a plurality of plates may be retained on a frame as Fg, a plurality of channels are formed therein. To this end the rib Rg is located with respect to the upper bead UBg so as to afford a pocket P1g on the frame Fg, and in the present instance the spacing between the rib Rg from the bead UBg is such that the pocket P1g is afforded which is so sized that a card Cf may be fitted therein wherefore such a card may be used on either the frame Ff or the frame Fg.

Furthermore, the retaining devices 48g and 49g are desirably spaced from the rib Rg and the retaining devices L2g thereon similarly to the spacing of the retaining devices 48 and 49 from the rib Rd on the frame Fd, Fig. 30, for so to do affords a channel of a width such that a plate as Pi may be accommodated therein. Hence, the plate Pi, as is the plate Pn, is an example of the manner in which a single plate arrangement may be utilized on different frames. Furthermore, the retaining devices 50g and 51g are located relative to the retaining devices 48g and 49g similarly to the relation among these devices that is afforded in the frame Fd, Fig. 30, and in this respect, as in the case of the rib Rb, it will be understood that retaining devices as 48g and 50g are desirably formed by the same tools in the course of fabrication of various styles of frames, the tools which are effective to form such retaining devices being disposed in proper relation with the other tools effective to fabricate the devices, as explained hereinabove with reference to, for example, the formation of the rib Ra, Fig. 27, and the rib Rb, Fig. 28. The foregoing also applies with respect to retaining devices as 49 and 51 and 49g and 51g.

Now in so far as the retaining devices 50g and 51g on the frame Fg are concerned, these are located relative to retaining devices 48gg and 49gg so that a channel is afforded by the retaining devices 50g and 51g and 48gg and 49gg into which a plate as Pe may be fitted. Likewise, the retaining devices 50gg and 51gg are located relative to the lower bead as LBg so that a plate as Pv may be accommodated in the channel thus afforded. Furthermore, as can be ascertained by reference to Fig. 41, the relation between retaining devices as 49gg and 50gg is similar to that between the retaining devices 49g and 50g and also similar to that afforded for the retaining devices 48 and 49, Fig. 30, this also being true with respect to the retaining devices 49gg and 51gg.

The spring tongues ST1g provided at the ends of the channel into which a plate as Pi is adapted to be fitted are located in such positions as to cooperate with substantially the medial parts of the adjacent end portions of the plate. On the other hand, the spring tongues ST2g are located in the manner in which the spring tongues STd, Fig. 30, which is to say, these tongues are located so as to cooperate with the corners at adjacent ends of plates as Pe and Pv, the medial parts of spring tongues ST2g therefore being located relative to the retaining devices as 48gg and 50gg in the manner in which, for example, the medial part of a spring tongue as STd is located relative to the retaining devices 48 and 50.

It will be understood that two plates as Pg and Ph, Fig. 31, could be substituted for the plate Pi on the frame Fg and it will also be appreciated that, if desired, the plates Pe and Pv could be divided substantially medially, as is explained hereinabove.

It will also be understood that the various frames shown, for example, in Figs. 30, 36, 40 and 41 are illustrative of a wide variety of frames that may be provided to accommodate different plate arrangements but, as has been explained hereinabove, in the provision of such additional frames the arrangements embodied thereon will be such that as far as possible the plates that may be accommodated thereon are arranged to be interchangeable, which is to say, so that a plate as Pi may be employed on a frame as Fd, Fig. 31, or a frame as Fg, Fig. 41, or so that a plate as Pn may be accommodated on a frame as Fe, Fig. 36 or on a frame as Ff, Fig. 40. Likewise, as illustrated best in Figs. 30 to 34, inclusive, and Figs. 36 to 39, inclusive, each such frame arrangement is preferably of such nature that a plurality of different plate arrangements may be accommodated thereon.

From the foregoing it will be manifest that the printing device embodying the features hereinabove described will enable the hereinabove set forth objects of this invention to be realized.

Thus, as has been explained, the faces of printing devices embodying the present invention and on which printing plates and index cards are adapted to be retained are comparatively smooth in that these faces are free of projecting portions on which one printing device might catch in event it was slid over an underlying printing device. This advantage particularly accrues by reason of the provision of the panels as 20 and 29 and the arrangement of the beads UB and LB in the manner described hereinabove. Furthermore, the formation of the various devices effective to retain the plates and cards on the faces of the printing device carriers or frames is such that it is not necessary to form these devices in such a manner that they will so project above the faces of the carriers as to impair relative sliding between adjacent printing devices. This advantage particularly accrues in so far as the printing plates are concerned by so arranging the retaining means that are adapted to overlies marginal portions of such printing plates that such marginal portions cooperate with parts that are of reduced thickness relative to the parts of the printing plates whereat type characters may be embossed thereon. In this respect it will be understood that such portions of reduced thickness are confined to the marginal portions of the printing plates at which portions type characters are not embossed.

Moreover, as has been explained hereinabove, the frames or carriers of the present invention may be made from relatively light material inasmuch as these frames are effectively reenforced. Furthermore, the installation of printing devices on the frames or carriers affords further reenforcement for the frames or carriers.

Many other and further objects of the present invention will be apparent to those skilled in the art and thus while I have illustrated and described preferred embodiments of my invention it is to be understood that these are capable of variation and modification and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and

alterations as fall within the purview of the following claims:

I claim:

1. A printing device of the character described embodying a carrier having spacing means projected from one face thereof that have rails at the free edges thereof, and plate locating elements formed to extend above the other face of the carrier, the exposed faces of such locating elements being disposed substantially in a common plane and including substantially continuous parts and being of such configuration that projecting spacing means on another similar carrier may be freely slid thereover, the widths of said rails being greater than any spaces between said elements.

2. A printing device of the character described embodying a carrier having portions projected from one face thereof that have rails at the free edges thereof, said carrier being adapted to mount at least one member on the other face thereof, and parts formed on the carrier and extended above said other face thereof to be effective to retain such a member in a predetermined position on said other face, said parts being disposed to lie substantially in a common plane and presenting substantially continuous elements in said plane so that projecting portions on another similar carrier may be freely slid thereover, the widths of said rails being greater than any spaces between said elements.

3. A printing device of the character described embodying a carrier having portions projected from one face thereof that have rails at the free edges thereof, said carrier being adapted to mount at least one printing plate and at least one index card on the other face thereof, and parts formed on the carrier to be effective to retain such a plate and card in predetermined relation on said other face of the carrier, said parts being disposed to lie substantially in a common plane and presenting substantially continuous elements in said plane so that projecting portions on another similar carrier may be freely slid thereover, the widths of said rails being greater than any spaces between said elements.

4. A printing device carrier formed from sheet material and having a main body portion and raised panel portions formed thereon along and substantially across opposite marginal portions thereof, the panel portions being spaced one from the other to enable at least one printing plate to be disposed therebetween, said panel portions comprising upstanding elements and comprising upper faces disposed in a substantially common plane raised from the main body of the carrier in an amount at least equal to the thickness of a printing plate adapted to be disposed between the upstanding elements of the panel portions, means forming part of said upstanding portions adapted to retain a printing plate against displacement in one direction and other means on the carrier effective in cooperation with said retaining means to prevent displacement of a printing plate in another direction.

5. A printing device carrier having projecting portions formed on one face thereof, substantially parallel and spaced apart raised end panels on the other face of said carrier, a depressed panel intermediate said panels adapted to receive a printing plate, the exposed faces of said raised panels being so spaced from the plane of said depressed panel of the carrier that a similar carrier may freely slide thereover and past the exposed face of a printing plate adapted to be received in said depressed panel, another panel raised above

said depressed panel and disposed to extend substantially continuously between the spaced apart panels and along the portion of the carrier along which an edge of at least one printing plate is adapted to be disposed, said panel having the exposed face thereof raised from said other face of the carrier to substantially the same extent as said spaced apart panels, and retaining means on said panels effective in cooperation with said panels to prevent displacement of a printing plate from said carrier.

6. A printing device carrier having spaced apart and substantially parallel panels formed on one face thereof and each extending substantially continuously across a marginal portion, the exposed faces of said panels being substantially equidistantly spaced from the adjacent face of the carrier to thereby be disposed in a substantially common plane, at least a part of the body of the carrier intermediate said panels having a substantially flat face that is disposed in a plane spaced below that in which the exposed faces of said panels are disposed and on which flat face at least one printing plate is adapted to be rested, another panel disposed to extend between the spaced apart panels and along the portion of the carrier along which an edge of at least one printing plate is adapted to be disposed, said last named panel having the exposed face thereof disposed to lie substantially flush with the exposed faces of said spaced apart panels, and retaining means forming a part of said panels and effective in cooperation with said panels to prevent displacement of a printing plate from said carrier.

7. A printing device carrier formed from sheet material and having raised panels disposed substantially continuously along opposite marginal portions thereof and having the part thereof intermediate such panels disposed below the exposed faces of said panels, formed portions along the free marginal edges of the part of said carrier intermediate said raised panels, a raised panel on said part and extended substantially continuously between the first named panels, the raised panels and said formed portions providing pockets in which at least one index card and at least one printing plate may be respectively disposed, and means for retaining such a card and plate on the carrier and respectively in such pockets.

8. A printing device carrier formed from sheet material and having raised panels disposed substantially continuously along opposite marginal portions thereof and having the part thereof intermediate said panels disposed below the exposed faces of said panels, formed portions along the free marginal edges of the part of said carrier intermediate said raised panels, a substantially continuously raised element on said part and extended between said panels, the raised panels and said formed portions being so related one to the other that said part of said carrier is divided into a card receiving pocket and a printing plate receiving pocket, and retaining means effective to retain at least one card and at least one printing plate respectively in said pockets.

9. A printing device carrier formed from sheet material and having raised panels disposed substantially continuously along opposite marginal portions thereof and having the part thereof intermediate said panels disposed below the exposed faces of said panels, formed portions along the free marginal edges of the part of said carrier intermediate said raised panels, a substantially continuously raised locating means on said

part and extended between said panels, the raised panels and said formed portions being so related one to the other that said part of said carrier is divided into a card receiving pocket and a printing plate receiving pocket, said formed portions being formed to include parts adapted to overlie marginal portions of a card and plate respectively disposed in said pockets, and retaining means on said locating means adapted for cooperation with the formed portions to be effective to retain a card and plate in said card and plate receiving pockets.

10. A printing device carrier formed from sheet material and having raised panels disposed along and substantially across opposite marginal portions thereof and having the part thereof intermediate such panels disposed below the exposed faces of said panels, formed portions along the free marginal edges of the part of said carrier intermediate said raised panels, a substantially continuous element raised on said part and extended between said panels and in substantially parallel relation with said formed portions, the raised panels, said element and said formed portions being so related one to the other that said part of said carrier is divided into a card receiving pocket and a printing plate receiving pocket, said formed portions and said element having parts formed thereon and projected toward each other and respectively adapted, in cooperation with such formed portions and element, to define channels along opposite edges of said pockets and into which at least one index card and at least one printing plate may be passed to thereby be retained respectively in the pockets, and yieldable means on said carrier formed adjacent to at least one of said raised panels and adapted for cooperation with an adjacent edge of a printing plate disposed in a printing plate receiving pocket to prevent undesired movement of said printing plate thereby.

11. A printing device carrier adapted to have an index card and a printing plate retained thereon in side by side relation, a substantially continuous element raised on said carrier and positioned to be disposed between an index card and a printing plate mounted in side by side relation forming part of said carrier, and retaining means on said raised element and projected in opposite directions therefrom and adapted to overlie adjacent marginal portions of a printing plate and index card mounted on the carrier in side by side relation on opposite sides of said raised element.

12. A printing device carrier adapted to have an index card and a printing plate retained thereon in side by side relation, a raised rib on said carrier and positioned to be disposed between an index card and a printing plate mounted in side by side relation on said carrier, and lips formed to project from said rib alternately in opposite directions to thereby be disposed to overlie adjacent marginal portions of an index card and printing plate mounted on said carrier in side by side relation, at least selected of said lips having at least one of the side edges thereof inclined upwardly to thereby afford an enlarged entrance into the space therebelow.

13. A printing device carrier formed from sheet material and having raised panels disposed along opposite marginal portions thereof and having the part intermediate such panels disposed below the exposed faces of said panels, raised means on said part and extended substantially continuously between said panels and related to

said panels and said part to form a flat member receiving pocket on said carrier, and a web portion at one corner of said pocket and extended from the exposed face of one of said panels to said raised means and including a part adapted to overlie a corner of said pocket to thereby afford a stop and retaining means for a flat member inserted into said pocket.

14. A printing device carrier formed from sheet material and having raised panels disposed along substantially across opposite marginal portions thereof and having the part intermediate such panels disposed below the exposed faces of said panels, raised means on said part and extended substantially continuously between said panels and related to said panels and said part to form a flat member receiving pocket on said carrier, means on said carrier adapted to overlie opposite marginal edges of a flat member disposed in said pocket, and means struck from one of said panels and projected to overlie a marginal edge of a flat member extended between said first-named marginal edges, the free end of said means being inclined upwardly to facilitate insertion of the marginal edge of a flat member therebelow.

15. A printing device carrier formed from sheet material and having raised panels disposed along and substantially across opposite marginal portions thereof and having the part intermediate such panels disposed below the exposed faces of said panels, raised means on said part and extended substantially continuously between said panels and related to said panels and said part to form a flat member receiving pocket on said carrier, means on said carrier adapted to overlie opposite marginal edges of a flat member disposed in said pocket, means struck from one of said panels and projected to overlie a marginal edge of a flat member extended between said first-named marginal edges, the free end of said means being inclined upwardly to facilitate insertion of the marginal edge of a flat member therebelow, and means struck from the other of said panels and adapted to overlie a corner of a flat member inserted into said pocket and affording a stop and retaining means for said flat member.

16. A printing device of the character described, comprising a plate carrier frame having a plate-retaining spring tongue formed integrally therewith at an end thereof, said plate-retaining spring tongue having a depressible stepped end portion and said depressible stepped end portion of said spring tongue having a plurality of raised and spaced plate-stopping projections formed integrally therewith, said plate-carrying frame having a transversely extending spacing flange formed thereon at an end thereof and said spacing flange including an upper wall having a cut-out portion for the reception of the depressible stepped end portion of said spring tongue and said cut-out portion being coextensive with and lying substantially in the same plane with the upper surface of said depressible stepped end portion of said spring tongue.

17. A printing device as defined in claim 16 in which the transversely extending spacing flange of said plate carrier frame includes a lower wall having a depressed portion providing a pocket for the reception of the stepped end portion of said spring tongue.

18. A printing device as defined in claim 16 in which the transversely extending spacing flange on said plate carrier frame includes a lower wall

37

having a depressed portion providing a pocket for the reception of the stepped end portion of said spring tongue and in which said pocket is somewhat wider than the width of the depressible stepped end portion of said spring tongue.

19. A printing device as defined in claim 16 in which said frame transversely extending spacing flange includes a lower wall having a depressed portion providing a pocket for the reception of the stepped end portion of said spring tongue, and in which the upper surface or wall of said pocket, which is formed by the depressed portion of the lower wall of said spacing flange, lies substantially in a common plane with the lower wall or bottom surface of the body of said plate carrier frame.

20. In a printing device carrier, raised portions including retaining devices formed on the carrier, selected of said retaining devices being aligned one with the other across said carrier and other of said retaining devices also being aligned one with the other and being disposed in spaced relation with the first-named aligned devices whereby a depressed channel is defined between such respectively aligned devices into which at least one printing plate may be inserted, raised portions on said carrier on the ends of such channel to define ends of said channel, and yieldable means adapted for cooperation with said retaining devices and raised portions to be effective to retain a printing plate or plates disposed in said channel against displacement from said carrier.

21. In a printing device carrier, raised portions including retaining devices formed on the carrier, selected of said retaining devices being aligned one with the other across said carrier and other of said retaining devices also being aligned one with the other and being disposed in spaced relation with the first-named aligned devices whereby a depressed channel is defined between such respectively aligned devices into which at least one printing plate may be inserted, yet further retaining devices on said carrier of which selected of said retaining devices are aligned one with the other and of which others are aligned one with the other and which respectively aligned retaining devices are spaced apart to afford yet another depressed channel on said carrier into which at least one printing plate may be inserted, and resilient means having elements adapted for cooperation with adjacent ends of printing plates respectively inserted into said channels and effective in cooperation with the retaining devices to prevent displacement of the printing plates disposed in said channels from said carrier.

22. In a printing device carrier, raised portions including retaining devices formed on the carrier, selected of said retaining devices being aligned one with the other across said carrier and other of said retaining devices also being aligned one with the other and being disposed in spaced relation with the first-named aligned devices whereby a depressed channel is defined between such respectively aligned devices into which at least one printing plate may be inserted, yet further retaining devices on said carrier of which selected of said retaining devices are aligned one with the other and of which others are aligned one with the other and with respectively aligned retaining devices are spaced apart to afford yet another depressed channel on said carrier into which at least one printing plate may be inserted, and at least one spring tongue formed on said carrier having plural stops formed thereon, the

38

stops on said spring tongue being respectively disposed to cooperate with adjacent ends of printing plates respectively disposed in said channels, such stops in cooperation with the retaining means being effective to prevent displacement of the printing plates from said channels.

23. In a printing device carrier adapted to receive a printing plate, raised portions including retaining devices for a printing plate formed on the carrier, selected of said retaining devices being aligned one with the other across said carrier and other of said retaining devices also being aligned one with the other and being disposed in spaced relation with the first-named aligned devices whereby a channel is defined between such respectively aligned devices into which at least one printing plate may be inserted, raised portions defining said carrier on the ends of such channel, and yieldable means adapted for cooperation with said retaining devices and raised portions to be effective to retain a printing plate or plates disposed in said channel against displacement from said carrier, at least selected of the retaining devices being formed to cooperate with a portion of reduced thickness along the marginal portion of a printing plate adapted to be inserted into the channel that is in part defined by such retaining devices.

24. A printing device carrier formed from sheet material and having raised substantially parallel panels formed along opposite marginal portions thereof and between which panels at least one printing plate is adapted to be disposed in engagement with the adjacent face of the carrier, the exposed faces of said panels being disposed in a substantially common plane spaced from the adjacent face of the carrier in an amount at least substantially equal to the thickness of the printing plate adapted to be disposed between the panels, means on the carrier for securing a printing plate on the carrier and in engagement with said adjacent face of the carrier, and means for preventing movement of the plate in the means for securing the plate on the carrier and including at least one spring tongue in part cut out of the body of the carrier and in part cut out of one of said panels, said spring tongue having the part thereof cut out of the body of the carrier normally disposed to have opposite faces thereof aligned with opposite faces of the body of the carrier and having the part thereof cut out of the panel offset from the part thereof cut from the body of the carrier, the part of said tongue that is so offset and which is cut from the panel normally being disposed to have the exposed face thereof disposed in the common plane in which the exposed faces of the panels are disposed.

25. A printing device carrier formed from sheet material having depressed end panels and an intermediate main panel and having at least one raised portion between one of said end panels and the adjacent end of said main panel along a marginal edge of said main panel joined to said main panel of the carrier by an inclined portion, and a retaining device for a member to be mounted on said main panel of said carrier extended inwardly from said raised portion in spaced relation with the main body and having the free marginal end thereof disposed inwardly of the junction of said inclined portion with said main body.

26. A substantially rectangular printing device carrier formed of sheet material affording a substantially flat body, said body being bent to provide projecting spacing flanges at each of the

shorter ends thereof, said flanges including rails at the free edges thereof, said body having depressed portions formed therein above and aligned with said rails and affording grooves for the reception of overlying rails in a similar carrier to enable a plurality of such carriers to be stacked in nested relation, retaining beads along each of the longer edges of said frame terminating in spaced relation with said depressed portions to permit unrestricted entry of said rails into said grooves, and retaining means on said frame intermediate said beads and effective to cooperate with at least one of said beads to retain a substantially flat member on said carrier.

27. A substantially rectangular printing device carrier formed of sheet material bent to provide projecting spacing flanges at each of the shorter ends thereof, each of said flanges including a rail at the free edge thereof and an inner wall having a plurality of spaced inclined guide portions formed thereon, said carrier including depressed portions above and aligned with said rails and affording grooves for the reception of overlying rails in a similar carrier to enable a plurality of such carriers to be stacked in nested relation and retaining means for a substantially flat member, said retaining means being formed intermediate said depressed portions and terminating in spaced relation therewith.

CARL J. HUEBER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,073,628	Ellis	Mar. 16, 1937

Number

856,452
959,725
982,076
5 1,015,757
1,096,495
1,116,032
1,115,501
1,550,259
10 1,799,417
1,799,418
1,900,297
1,929,472
1,979,261
15 2,030,865
562,417
1,817,587
1,872,173
2,175,260
20 1,438,578
530,371
146,454
835,795
1,063,027
25 1,944,827
1,026,251
2,157,788
2,248,726
2,258,624
30 1,801,078
1,682,519
692,994

Name	Date
Duncan	June 11, 1907
Duncan	May 31, 1910
Lee	Jan. 17, 1911
Duncan	Jan. 23, 1912
Duncan	May 12, 1914
De Minico	Nov. 3, 1912
Tomlinson	Aug. 24, 1915
Jackson	Aug. 18, 1925
Gollwitzer	Apr. 7, 1931
Gollwitzer	Apr. 7, 1931
Mohler	Mar. 7, 1933
Berthelsen	Oct. 10, 1933
Gollwitzer	Nov. 6, 1934
Gollwitzer	Feb. 18, 1936
Rafter	June 23, 1896
Schmutz	Aug. 4, 1931
Paschali	Aug. 16, 1932
Gollwitzer	Oct. 10, 1939
Chisholm	Dec. 12, 1922
Wade	Dec. 4, 1894
Hughes	Jan. 13, 1874
Laycock	Nov. 13, 1906
Hancock	May 27, 1913
D Sherman	Jan. 23, 1934
Duncan	May 14, 1912
Howell	May 9, 1939
Stoll	July 8, 1941
Richter	Oct. 14, 1941
Griffin	Apr. 14, 1931
Hubbard	Aug. 28, 1928
Duncan	Feb. 11, 1902

FOREIGN PATENTS

Country	Date
Great Britain	Apr. 8, 1920
Great Britain	June 12, 1930

35 Number
139,468
330,432