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2,629,383

PRINTING DEVICE

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Fig. 1.

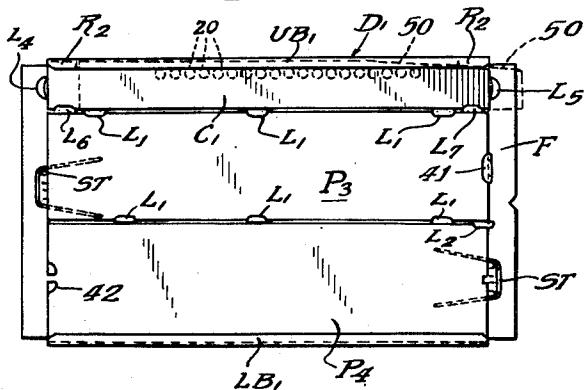


Fig. 2.



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UNITED STATES PATENT OFFICE

2,629,383

PRINTING DEVICE

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673,670. Divided and this application April 29,
1950, Serial No. 159,081

3 Claims. (Cl. 129—16.8)

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This application is a division of my copending application, Serial No. 673,670, filed May 31, 1946, now Patent No. 2,535,733.

This invention relates to printing devices of the kind comprising a frame on which a printing plate and an index card are detachably retained. The invention pertains more particularly to an improvement in index cards used in connection with frames and plates of the aforesaid character, and it pertains also to improvements in means by which the association of such index cards with retaining elements on frame members may be facilitated.

In printing devices of the aforesaid character, it has been customary in the past to form a frame member, for example, of sheet metal with upstanding lugs, clips, spring tongues and beads which overlie or abut against the edges of printing plates and index cards to retain them in proper association with the frame. Printing devices of the aforesaid character may include one or more separate printing plates and one or more index cards. Examples are the printing devices disclosed in the patents to Mohler, No. 1,812,894, patented July 7, 1931; Berthelsen, No. 1,929,472, patented October 10, 1933, and prior patents issued to the present inventor such as Patents No. 2,030,865, patented February 18, 1936; No. 2,080,417, patented May 18, 1937; No. 2,115,444, patented April 26, 1938, and No. 2,132,412, patented October 11, 1938.

In the aforesaid patents, cards and plates of various widths and in various combinations are detachably retained on frames of the aforesaid character by means of overhanging clips, spring tongues, and inturned beads formed from material of the frame, which beads overlie a margin of a plate and a margin of an index card.

In devices of the aforesaid character, it is frequently necessary to change plates and to change index cards to correspond with changes made in the plates. Inasmuch as these devices are used in large numbers, a great deal of time is consumed in making the necessary changes and in inserting new plates and cards into frames.

It is, therefore, an object of the present invention to improve the design of index cards and to relate such design to the location and form of card retaining devices on frames of the aforesaid character so as to make it easier to assemble cards with retaining devices on such frames.

A further object of my invention is to design retaining elements on a frame and cooperating elements on the index card so as to provide for the efficient assembly and retention of cards by such retaining devices.

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Another object of my invention is to design an index card in such a manner that it may be distorted for application to a frame without causing injury to the card or without substantially reducing the degree of security with which the card is retained on the frame.

A still further object of my invention is to facilitate the assembly of very narrow cards with retaining devices or frames of the aforesaid character by so modifying such cards as to provide for their rapid assembly with frames with only minor and temporary distortion 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 illustration, show a preferred embodiment 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 a plan view of a printing device embodying my invention; and

Fig. 2 is a plan view of an index card used in connection with the printing device shown in Fig. 1.

Referring first to Fig. 1, there is disclosed a printing device of the general character shown in the aforesaid patents to Mohler, Berthelsen, and my prior Patents Nos. 2,030,865 and 2,080,417. In general, the printing device D1 shown in Fig. 1 embodies a frame of sheet material, preferably sheet metal, having an inturned bead along what may be termed the lower edge thereof, shown at LB1, and an inturned upper bead UB1 along what may be called the upper edge of the frame. In addition to these beads, the frame shown in Fig. 1 has a plurality of lugs L1, L2, L6 and L7 struck upwardly from the body thereof and bent to form overhanging retaining devices respectively for printing plates P3 and P4 and an index card C1.

To prevent movement of the printing plates P3 and P4 lengthwise between the retaining lugs which hold them against the frame, depressible spring tongues ST are provided adjacent the respective ends of the frame, as is well understood in the art and described in detail in the aforesaid prior patents. The plates P3 and P4 are preferably of sheet metal having embossed printing characters thereon which are not shown herein but are also well known in the art.

The lower plate **P4** is retained on the frame by the cooperation of the lower bead **LB** and the clips or lugs **L2** which overhang the upper edge of such plate. The upper plate **P3** is retained by clips or lugs **L1** and, as previously noted and well understood in the art, the retaining devices **ST** which are spring tongues struck from the body of the frame are arranged in this instance to permit insertion of a plate from one end of the frame only, and serving normally, however, to restrict the plates against longitudinal movement, but being readily compressible to permit removal of a plate and insertion of a new one whenever a change becomes necessary. Rigid retaining devices **41** and **42**, struck from the material of the frame, are arranged to engage the opposite ends of the printing plates **P3** and **P4** to cooperate with the retaining devices **ST** in holding the plates in position. Although I have shown an arrangement wherein two plates are associated with a frame, it will be understood that only one plate may be used, or three or more plates may be used if desired, the retaining devices being suitably arranged. This is well known in the art and forms no part of the present invention. As shown in Fig. 1, the printing plates **P3** and **P4** require most of the area of the frame leaving only a very narrow area for the card **C1**.

In order that the card **C1** may bear data corresponding to the printing plates, it is necessary, as well understood in the art, that the card be changed whenever a plate to which it is related is changed, that is, if any alteration in subject matter is required on the card. As shown in Fig. 1, and also as shown in the prior patents mentioned above, index cards, such as **C1**, are retained in assembled position with the frame and in spaced relation with respect to the printing plate or plates by the overhanging upper bead **UB1** and the clips or lugs **L6** and **L7**. More than one index card might be used. A card, for example, might be placed in the general area occupied by plate **P3**, the necessary retaining means being suitably modified. However, the present form of my invention is particularly concerned with the card **C1** which is retained at least in part by the upper bead **UB1**.

Inasmuch as index cards, such as **C1**, are normally made of paper and are easily torn, as when printing devices of this character are slid one over another, it is desirable that the card be retained closely against the surface of the frame so as to be less likely to be caught and damaged by projecting elements, as on other printing devices **D1**. For this reason, the bead **UB1** and the lugs or clips **L6** and **L7** usually closely overlie the card, and assembly of such card with the frame involves sliding it along under these retaining devices. As indicated in the upper right-hand corner of Fig. 1, the upper bead preferably has a part **R2** which is flared or raised slightly higher than the remainder of the bead to facilitate insertion of a card thereunder so that the card can be slid along into position against a retaining clip or lug **L4** at the left end of the frame, as seen in this figure. Another retaining clip or lug **L5** is provided at the right end, as viewed in Fig. 1, of the area to be occupied by the card **C1**, and this lug is preferably spaced from the lug **L4** a distance very slightly greater than the length of a card **C1**, to allow for expansion only, so that when the card is assembled with the frame it will be closely retained against endwise movement. The frame **F** of printing device **D** is preferably perforated as described in a copending applica-

tion by Carl J. Hueber, Serial No. 583,050, filed March 16, 1945 now Patent No. 2,456,943. These perforations are indicated at **20**, Fig. 1, and the card may be perforated opposite any one of said perforations to perform a control function. Hence, it is desirable that the card **C1** be accurately located on the frame.

With cards of the type used in prior art, the assembly of a card with a frame involved considerable difficulty, inasmuch as the closely overlying bead **UB1** and the cooperating lugs **L6** and **L7** made it difficult to compress the card sufficiently to insert the card under the overhanging retaining lugs. Hence, in attempting to insert cards of the aforesaid character into frames provided with retaining devices, as just described, many cards have been damaged and considerable difficulty in assembly has been experienced with consequent added expense and loss of time.

It will be noted that the card **C1** is retained to the frame by overhanging lugs or clips **L6** and **L7** which cooperate with the bead **UB1** to hold the card in place, lugs **L4** and **L5** preventing endwise movement. Since the lugs **L4** and **L5** are raised an appreciable distance from the surface of the frame, it is very difficult to thread so narrow a card over such a lug while it is under other retaining devices **L6**, **L7** and the bead **UB1**. These elements combine to offer considerable frictional resistance to longitudinal sliding movement of a card as **C1** into assembled position. Because of its narrow width, the card does not have sufficient rigidity that it can be pushed lengthwise of the retaining devices against the considerable friction of the end retaining element, for example, **L5** over which it passes as just noted. As the lugs **L4** and **L5** project appreciably from the face of the frame and the card has its margins held down by the bead **UB1** and the lugs or clips as **L6**, **L7**, insertion by sliding the full length of the area to be occupied by the card becomes difficult and in some instances is impossible.

Accordingly, the card **C1** is formed, as shown in Fig. 2, from the normal rectangular form thereof by cutting away a marginal side portion at one end thereof to provide a slight bevel or taper **50**. With this construction, the card **C1** may be assembled with the frame without the necessity of sliding it the full length of the bead **UB1** by placing the card approximately in its assembled position but just far enough out of such position longitudinally as to clear one of the lower retaining devices, such as **L6** or **L7**. For example, the card may be placed slightly to the right, as seen in Fig. 1, so that the left end thereof just clears the retaining device **L6** at the left side of the frame, as shown in dotted lines in Fig. 1. The upper edge of the card is then slid under the bead **UB1** until the advance or left end thereof, as seen in Fig. 1, clears the retaining lug **L6**. At this time, the trailing or right end of the card, as shown in Fig. 1, overlies the retaining devices **L5** and **L7** near the right end of the frame. The card is slid from the position indicated by the dotted lines in Fig. 1 to the full line position against the left end retaining lug **L4**. With this movement the card has been fully assembled with the frame except that the right end thereof still overlies the retaining lug **L7**. By reason of the tapered or beveled upper corner, which is indicated at **50**, the right end of the card may now be distorted slightly and pushed upwardly, as shown in Fig. 1, so that its lower edge will clear and snap under the retaining lug **L7**. This is accomplished by pushing the beveled

edge portion of the card upwardly or further under the bead UB_1 to thus clear the lug L_7 . This manipulation causes the card C_1 to buckle slightly, but it does not crush or mutilate the edge portion thereof opposite to the lug L_7 as would be required if the upper edge were not cut away. Upon release, the buckled card straightens to snap under the overhanging portion of the lug L_7 , and when this has been accomplished, the card lies snugly against the frame in retained position. 10

The beveled portion 50 therefore not only facilitates assembly of the card C_1 with the frame, but also prevents damage thereto during the process of assembly. Because of its slender character, the card C_1 is more easily damaged than larger cards, and this novel construction, therefore, is of importance in preventing injury to such card. 15

The precise length and transverse extent of the bevel will vary depending upon the width and stiffness of the card and the extent to which the retaining lug or clip as L_7 overhangs the lower edge of the card when the card is in place. The part cut away should be just sufficient to permit the card to be snapped past the lug as L_7 without permanent deformation in the card and without undue difficulty in manipulation. 20

It will be appreciated that the beveled portion might be formed at the left end of the card C_1 , as shown in Figs. 1 and 2, rather than at the right end. In this case, obviously, the card would be assembled with the frame by first placing it to the left of lug L_7 , sliding it under the bead UB_1 , then sliding it to the right, as seen in Fig. 1, against the lug L_5 , and finally pushing the trailing left (beveled) end toward the bead and snapping it past the lug L_6 to be retained thereby. 30

Hence, while I have illustrated and described the preferred embodiment of my invention, it is to be understood that this is 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. 35

I claim:

1. In a printing device, a rectangular frame made from sheet metal and embodying means for securing a printing plate thereon and also including card-mounting means defining a rectangular card receiving area and comprising a reversely bent retaining bead extended along one edge of said frame to afford a continuous overhanging card retaining member along one side of said area, upstanding retaining clips at opposite ends of said area, and a plurality of other overhanging retaining clips disposed along the opposite side of said area with one such clip disposed adjacent to each of said upstanding re- 50

taining clips, and an index card of flexible and resilient sheet material of a form corresponding substantially with said area and affording first and second side edges adapted to be positioned respectively beneath said retaining bead and said other clips and with the end edges engaged with said upstanding retaining clips, said card having a portion of said first side edge adjacent one end of the card cut at a slight angle to said first side edge so as to enable said one end of card to be urged edgewise into said bead so as to be buckled momentarily into said bead and thereby reduce the effective width of the card at said one end and enable said second side edge of said card near said one end to be inserted under the overhanging clip at that end of said area. 15

2. In a printing device that has a rectangular frame made from sheet metal and embodies means for securing a printing plate thereon and also includes card-retaining means defining a rectangular card receiving area and comprises a reversely bent retaining bead extended along one edge of said frame to afford a continuous overhanging card retaining member along one side of said area, upstanding retaining clips at opposite ends of said area, and a plurality of other overhanging retaining clips disposed along the opposite side of said area with one such overhanging clip disposed adjacent to each of said upstanding clips, the combination of an index card being made from flexible and resilient sheet material of a form corresponding substantially with such area and affording first and second side edges adapted to be positioned respectively beneath such retaining bead and such overhanging clips and having end edges adapted to be positioned against said upstanding clips, said card having a portion of said first side edge cut away at an angle adjacent one end of said card so that the card is progressively narrower towards said one end so as to enable said card to be buckled momentarily at said one end and into said bead to thereby reduce the effective width of the card at that end and enable said second side edge of the card adjacent to said one end to be inserted under the overhanging clip at that end of such area. 35

WALTER T. GOLLWITZER.

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