Sept. 7, 1937. W. T. GOLLWITZER 2,091,976

PRINTING DEVICE

Filed Aug. 27, 1934

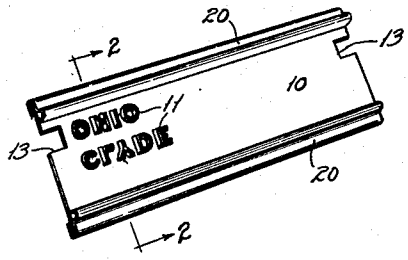


FIG. 1

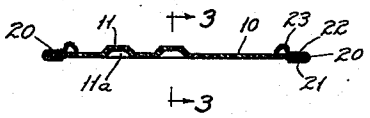


FIG. 2

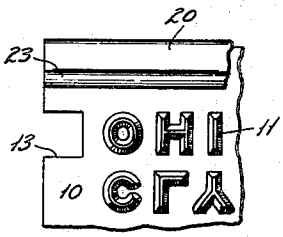


FIG. 4



FIG. 3

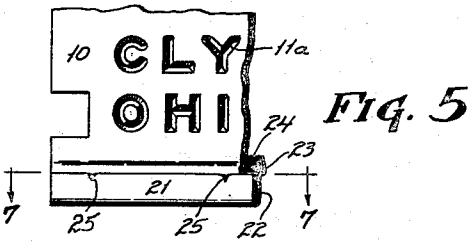


FIG. 5

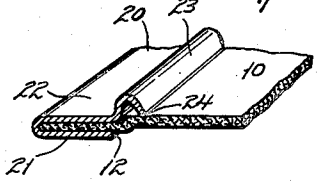


FIG. 6

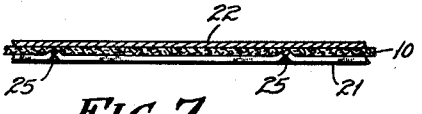


FIG. 7

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UNITED STATES PATENT OFFICE

2,091,976

PRINTING DEVICE

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Application August 27, 1934, Serial No. 741,596

5 Claims. (Cl. 101—369)

This invention relates to a printing device in the form of an address plate, adapted to be embossed with printing characters and utilizable in regular address printing machines. An object of the invention is to provide such a printing device which shall be much cheaper, and much lighter in handling, and cause less wear and tear on the embossing machine, than the standard metal plates now in use.

To accomplish the results above outlined, I have provided, by this invention, a composite printing plate, comprising a sheet of fibrous material, reinforced along its longitudinal edges with metal binding. Besides its cheapness and lightness and ready embossability, such an address plate has a number of further advantages over the metal plate. For instance, it is less liable to accidental distortion, as the fibrous material is more pliable and does not so easily take a permanent set; the embossed characters are more easily read on the back of the plate; the fibrous material is less likely to become soiled from the inking ribbon used in the addressing machine.

While the fibrous body of the plate may be heavy paper, card board, celluloid, or other dense, comparatively stiff and yet pliable, material, I have produced the most satisfactory results from long-grain compressed and indurated fiber, having a comparatively smooth surface. As to the metal binder, I prefer to employ thin sheet steel, doubled on itself, upon the longitudinal edges of the fiber, which is compressed between the metal portions.

Without limiting myself to any particular dimensions, it may be said that fiber of about .02 of an inch in thickness, and metal of about .01 of an inch has been found very satisfactory. The sheet fiber is cut to the proper size and the metal forcibly bent on to the longitudinal edges thereof.

My composite plate is illustrated in the drawing hereof in a form adapted for use in the so-called "Speedaumat" addressing machine, and may be used in conjunction with the regular metal "Speedaumat" plates, such as shown in Patent No. 1,151,501, granted August 24th, 1915, to Joseph Tomlinson.

In the drawing, Fig. 1 is a perspective view, illustrating my composite address plate. Fig. 2 is a cross-section thereof, as indicated by the line 2—2 on Fig. 1, but on a larger scale. Fig. 3 is a section of the fibrous portion of the plate through an embossed character, as indicated by the line 3—3 of Fig. 2. Fig. 4 is a fragmentary view of a portion of the embossed plate, adjacent one corner, showing the printing face. Fig. 5 is a similar view, showing the rear, or reading face of the plate. Fig. 6 is a fragmentary cross-section through the composite plate adjacent one edge. Fig. 7 is a longitudinal section of the composite plate at the margin, as indicated by the line 7—7 of Fig. 5.

Briefly, my plate comprises a fibrous sheet, 10, and the metal reinforcing edge strips 20. The fibrous plate is of such structure that it may be readily embossed to present raised characters, indicated at 11, but will maintain such characters effective for printing a very large number of impressions. By using hard, dense, compressed fiber, I have produced embossed plates, which show no change in the accuracy of their imprint after many thousands of impressions.

The metal binding, 20, made of a comparatively thin sheet steel, has one marginal flat portion 21, engaging the underside, or non-printing face, of the fibrous sheet, and another parallel portion 22, formed by doubling the strip on itself to engage the printing face. These two portions are firmly pressed onto the fibrous sheet, which is compressed between them.

When the plate is to be used in the "Speedaumat" machine, it is provided with upstanding longitudinal ribs, adjacent the edges of the printing face. These ribs are made by arching over the edge portion of the metal binding, as shown at 23. The raised ribs keep the plates in the stack from engaging the embossed characters of the plates immediately below them, and they also form abutments for engagement of the feeding dogs, which progress the plates in the addressing machine. In making the plates match with the usual "Speedaumat" plates, I find it desirable to offset downwardly the margin of the fibrous plate where it is compressed by the metal, as illustrated at 12 in Fig. 6.

To insure the retention of the metal binding on the plate, I prefer to embed portions of such binding into the fibrous material. I accomplish this by making the extreme edge of the downturned portion of the ridge 23 somewhat sharp or rough, as indicated at 24 in Fig. 6. Likewise, I may indent the edges of the metal layer 21, as indicated at 25 in Figs. 5 and 7.

In the manufacture of my plate, the fiber may be supported on a suitable anvil and retained thereon by a pressure plate on top of it, leaving projecting marginal portions. Then the metal reinforcing members may be applied to these projecting marginal portions and tightly pressed thereon. Such projection portions of the fiber are the parts designated 12 in Fig. 6, where they

are slightly offset downwardly, the angle at the junction of such offset portion with the main body of the plate corresponding with the edge of the supporting anvil.

In the embodiment shown in the drawing, my composite plate has practically the same relative over all dimensions and contours as the all-metal plate, shown in the patent to Tomlinson, heretofore mentioned. As in that patent, my plate, as shown, has notches 13 formed in the body of the plate, which are as useful in retaining the plates in their drawers as in the case of all-metal plates.

The embossing of my composite plate is effected in the usual manner with cooperating male and female dies. While the fiber is sufficiently hard to retain the embossed characters in effective condition indefinitely, it is much more readily embossed than the metal and there is much less strain and wear on the embossing machine.

The fiber sheet has a dull or mat surface, and when the characters are embossed therein, the action of the male dies in producing the recesses, indicated at 11a in Figs. 2 and 5, is to smooth or iron the material, rendering it glossy in this region so that it reflects the light and produces a very legible reading character. Preferably, the fiber or other material employed is of dark color, as I find this produces the most legible character. The black sheet fiber which is on the market for insulating purposes, is very satisfactory, both as to texture and appearance.

Occasionally, in handling metal printing plates, they are sometimes bent or warped, and, by reason of the lack of elasticity of the metal, do not return to proper shape, and they thus become useless; but with my composite plates, considerable warping or bending may be allowed without injuring the plate, as it will immediately assume its natural position.

The margins of Speedaumat plates are sometimes marked with indicating indentations to cause the selection of certain groups of addresses, determined by the location of the indentation. For example, all of the grocers might have indentations adjacent one end of the plate; all of the dry goods merchants indentations near the center, etc. My metal binding provides for such selective indentations, as it may be indented in the same manner as the edges of the metal plates.

I claim:

1. A composite printing plate, consisting of a sheet of smooth, dense, compacted fiber, and metal binding strips bent on themselves, and embracing the longitudinal margins only of the fiber sheet, such fiber margins being compressed between the two portions of the bent metal strip sufficiently to retain the strip thereon.

2. A composite printing plate, consisting of a flat fibrous body portion, and reinforcing strips, doubled on themselves, and embracing the longitudinal edges only of the body portion, each strip being bent adjacent its inner edge to present an upstanding rib.

3. A composite printing plate comprising a sheet of fibrous material adapted to be embossed, and metal binding embracing the opposite longitudinal edges of the sheet, the inner edges of the binding material on one face being formed into an upstanding rib, the extreme edge of the rib being sharpened to embed itself into the fibrous sheet.

4. A composite printing plate, consisting of a comparatively hard, dense flat sheet of fiber of dark color and reinforcing members embracing the longitudinal edges only of the fiber sheet and bowed upwardly to provide longitudinal ribs.

5. A composite printing plate, consisting of a comparatively thin sheet of light weight fibrous material suitable for embossing and two metal reinforcing strips, bent on themselves and extending across the front and back faces and over the outer edges of the opposite margins of the fibrous material, one of the metal layers being bent upwardly adjacent the inner edge to provide a longitudinal rib, the ends of said fibrous material being exposed.

WALTER T. GOLLWITZER.