

March 3, 1953

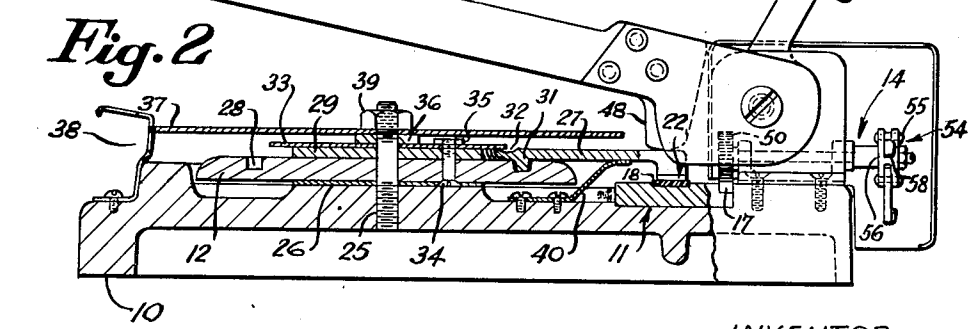
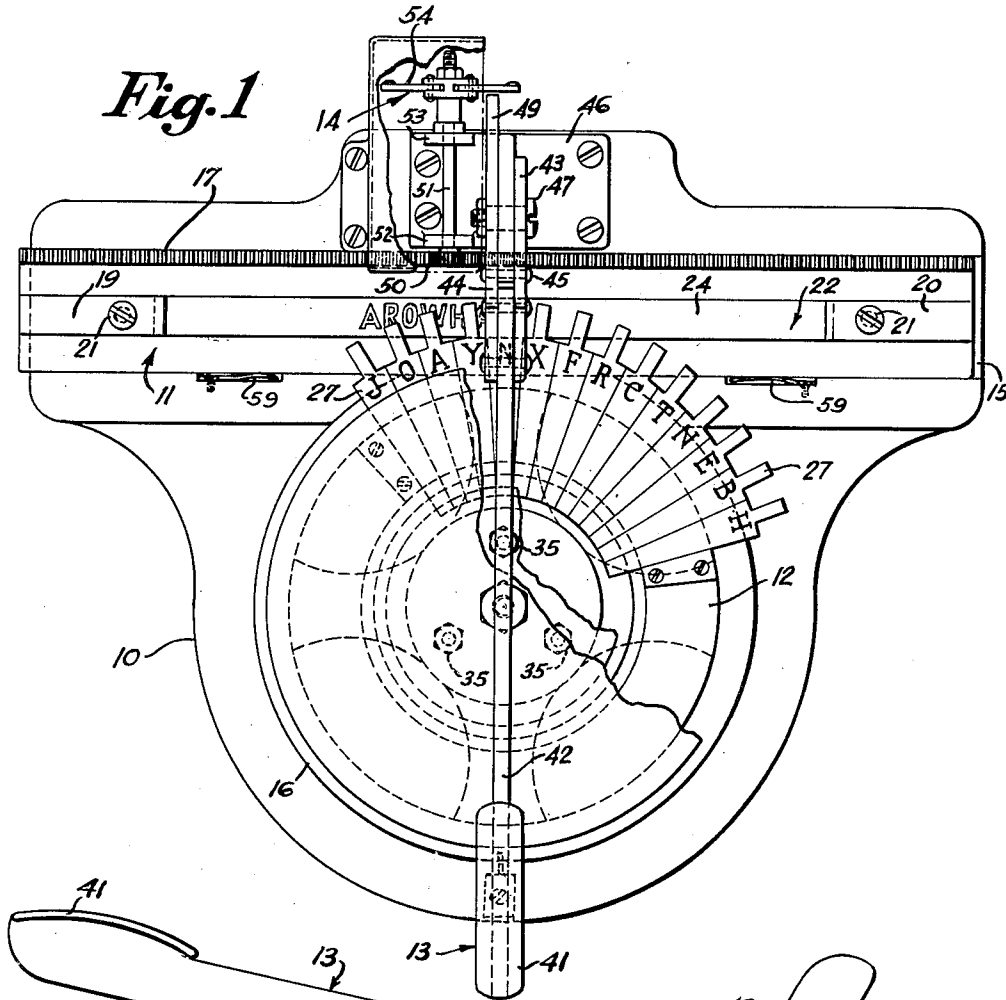
E. J. ROWAN

2,630,201

EMBOSSING DEVICE

Filed April 27, 1950

2 SHEETS—SHEET 1



INVENTOR
EUGENE J. ROWAN
BY
Richard J. Guier
ATTORNEYS

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2 SHEETS—SHEET 2

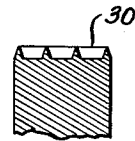
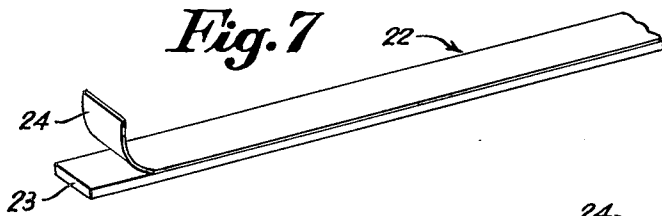
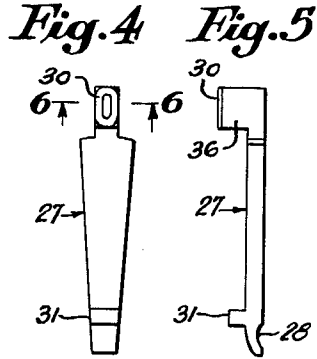
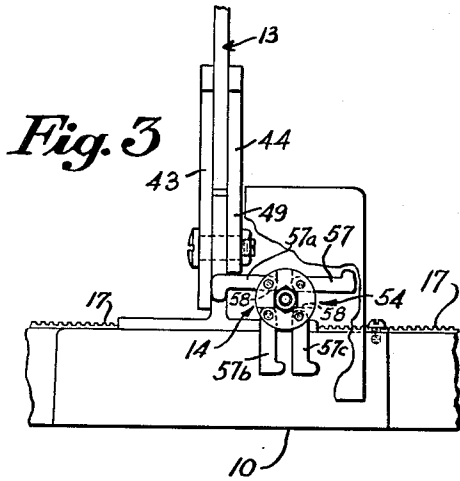


Fig. 6

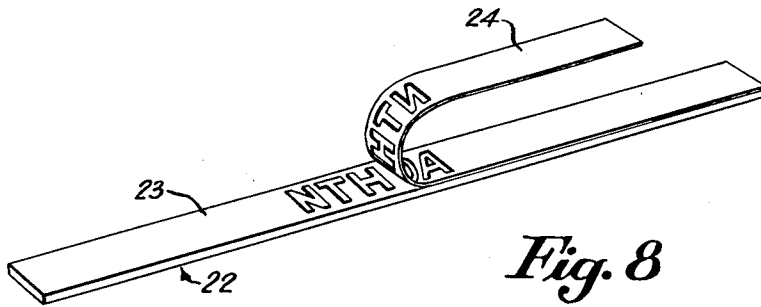


Fig. 8

INVENTOR
EUGENE J. ROWAN
BY

Richard J. Gies
ATTORNEYS

UNITED STATES PATENT OFFICE

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EMBOSSING DEVICE

Eugene J. Rowan, Rockville, N. Y., assignor to
The Listolator Corporation, New York, N. Y.,
a corporation of New York

Application April 27, 1950, Serial No. 158,467

3 Claims. (Cl. 197-6.7)

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This invention relates to a printing device and more particularly to a device for embossing characters on an impression surface from type.

It is an object of the instant invention to provide a device designed to facilitate the preparation of display and advertising matter for the shop keeper and the like.

Another object is the provision of a device which can be conveniently utilized for the making of printed strips for bulletin boards, directory boards and the like.

A further object is to provide a device capable of turning out limited amounts of display matter neatly and at a substantial saving over known methods.

Still another object is the creation of a device whereby display matter subject to change can be readily kept up-to-date at low cost.

It is also an object of this invention to create a rugged and simple device which can be assembled, disassembled and operated by the most inexperienced.

Other objects of the instant invention will become apparent in the course of the following specification.

In the accomplishment of these objectives, the embossing device is constituted of a platen in a horizontal plane carrying a strip of material on which raised characters are formed from type, each piece of which is carried by a radially directed arm. The type arms are rotatably carried in a horizontal plane and each arm of the group is pivotally mounted in a vertical plane. The selected type character is rotated to a printing position over the impression strip and forced thereagainst by an embossing lever on the forward stroke to raise the character in relief while on the back stroke an indexing mechanism is operated to properly position the strip for the addition of the next character. Upon the completion of one strip, it is replaced by a blank which is embossed in the same manner as the first until a sufficient number of strips have been prepared for the display. The strips have been especially designed for embossing by using a heavy fiber base of one color over which a strip of paper of another color is fastened by rubber cement. The type cuts the characters out of the paper and raises them while the rubber cement permits the unused portion of the paper to be peeled off.

The invention will appear more clearly when taken in connection with the accompanying drawings showing by way of example a preferred embodiment of the inventive idea.

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In the drawings:

Figure 1 is a top view of the embossing device constructed in accordance with the principles of this invention with a part of the surface broken away the more clearly to show the internal construction;

Figure 2 is an end elevational view, partially in section, of the device shown in Figure 1;

Figure 3 is a fragmentary rear view of the embossing device shown in Figure 1 with the handle in the indexing position;

Figure 4 is a front view of one of the type arms;

Figure 5 is a side view of the type arm shown in Figure 4;

Figure 6 is a sectional view along 6-6 of Figure 4, but on an enlarged scale;

Figure 7 is a view in perspective of the strip to be embossed; and

Figure 8 is a view in perspective of the partially embossed strip shown in Figure 7.

Referring now in greater detail to the drawings, where like reference numerals indicate like parts, reference numeral 10 indicates the base of the device, 11 the platen, 12 the type holder, 13 the embossing lever, and 14 the indexing mechanism.

The base 10 is made from any suitable material, substantially in the shape shown in Figure 1 where a longitudinal slideway 15 is formed at the back for the slidable insertion of the platen 11 while an annular member 16 is raised at the front for the rotatable insertion of the type holder 12. The rim of the annular member has an opening adjacent the slideway and in the opening is a spring member 40 (Fig. 2) the bottom of which is attached to the base 10 in a known manner while the free end extends upwardly above the top of the annular member.

The platen 11 is constituted of a rectangular body designed to be slidably inserted in the slideway 15 and has along the back edge a rack 17 which is attached thereto in any known manner. On either side of the longitudinal center line of the platen is a recess 18 (Fig. 2). At the ends of the recess are the left and right-hand brackets 19 and 20 (Fig. 1) held in place by the similar screws 21. The inwardly directed end of the bracket 19 may be formed to extend slightly over one end of the following described strip 22 and to provide a stop therefor while the bracket 20 may be rotatable in a horizontal plane over the strip and platen. A detent spring 59 is attached in a recess formed along one edge of the platen 11 to prevent undesirable slippage.

The impression strip 22 (Figs. 1, 7 and 8) may

have a base 23 made from a substantially rigid black fibrous material over the top surface of which is attached with rubber cement or the like a strip of white paper 24. Of course, any color combination can be used, the purpose being to obtain a raised character on a background of contrasting color.

The type holder 12 is a disc designed for rotatable insertion in the annular member 16 in which it is supported by the stud 25 threaded into a tap in the base as shown in Figure 2. To facilitate rotation, the type holder 12 may be spaced from the base 10 by a washer 26 first inserted over the stud. At the periphery, the top surface of the disc is curved outwardly and downwardly (Fig. 2) in order to provide a surface on which the later described type arms 27 may be pivoted or rocked when the type face of the arm is forced against the strip 22. Adjacent the top of the downwardly curved surface is a circumferential groove 28 further coacting with the type arms. The height of the washer 26 together with the height of the disc 12 is sufficient to raise the plane of the top of the disc above the plane of the top of the annular member 16.

Radially supported by the disc 12 is a group of similar type arms 27 having elongated tapered bodies as most clearly shown in Figures 1, 4, and 5. On the bottom surface of each arm at the front or wide end is a downwardly directed integrally or otherwise formed type carrying protuberance 36. On the bottom surface of the protuberance is a type character 30 (Figs. 4, 5, and 6) formed in such a manner that the double outlines of the character will cut the character from the white paper 24 as well as raise it when forced thereagainst. At the opposite or narrow end of each arm is another downwardly directed member 31 suitably positioned and shaped to fit loosely in the groove 28 which aids in holding the arms in position when assembled as shown in Figure 1 but provides sufficient play to permit the previously mentioned rocking or pivoting motion in a vertical plane when printing. Any suitable means may be used to fasten the member 31 to the arm or it may be integrally formed therewith. Also at the narrow end of each arm but on the top surface is a circumferential depression 32 (Fig. 2) which permits the perimeter of a spring washer 33, inserted over the stud 25 and the washer 29, to be extended over the extreme inner ends of the arms 27, adjacent the inner edge of the depression 32, to maintain the arms 27 automatically in a horizontal plane. The assembled washer 26, disc 12, washer 29, and spring washer 33 may be held together by the countersunk screws 34 passed therethrough at suitable positions and fastened on the top surface of the spring washer 33 by the nuts 35. Above the spring washer and over the stud 25 is a spacer 36 for the support of a cover 37 the circular rim of which is inside the free ends of the radially directed type arms 27 which permits the insignia of the type character to be exposed (Fig. 1) to facilitate the selection of the character when operating the device. A slot (not shown) is provided in the cover to allow the later described embossing handle 13 to be brought in contact with the top of the type arm at the embossing position or the point where the center lines of the arm and the platen are perpendicular. The cover 37 is held stationary by any suitable positioning member 38 coacting with the base 10. A nut is threaded on the stud 25 to rotatably hold the assembly. Obviously, the cover 37 could be made

to rotate with the type arms and the type insignia placed on the cover over the arms and in a manner adapted to facilitate rotation, especially where the device is substantially enclosed.

The embossing lever 13 is constituted of a handle portion 41 attached at one end of a bar 42 or integrally formed therewith, the opposite end of the bar being held between the spaced parallel saddle members 43 and 44 by any suitable fasteners 45. The bottom of the lever is then pivotally attached to the upright portion of a bracket 46 by any known pivot pin 47. On the bottom surface of the bar 42, near the bracket 46 and between the saddle members, is an integrally formed downwardly directed member 48 (Fig. 2) designed to be brought into operable engagement with the free ends of one of the type arms on the forward stroke. On the back stroke, a rearwardly directed protrusion 49, integrally formed with the saddle member 44, coacts with the following described indexing mechanism 14 to move the platen 11 a predetermined distance for the creation of the next raised character.

The indexing mechanism 14 is constituted of a pinion 50 in operable engagement with the previously mentioned rack 17 and keyed to one end of a shaft 51 rotatably held by the ears 52 and 53, the ears being integrally formed on the bracket 46. At the opposite end of the shaft 51 is a wheel 54 rotating therewith and formed with spaced rims 55 and 56 between which are pivotally mounted four radially directed members 57, 57a, 57b, 57c of L-shape. Between each of the radially directed members are stops 58 which permit one of the members, 57a in Figure 3, to be rotated by gravity under the rearwardly extended protrusion 49 of the embossing lever when in the forward position but to be moved downwardly on the rearward movement of the lever with the wheel. As soon as the next radial member, 57 in Figure 3, is rotated beyond the vertical, it will fall by gravity into the path of the protrusion 49 but on the forward stroke will be pivoted out of the way without rotating the wheel 54 only again to fall by gravity, as soon as the protrusion 49 has passed, to the position shown by the radial member 57a in Figure 3. Each radial member is similar in both construction and operation.

In operation, the impression strip 22 with white paper surface 24 uppermost is inserted in the recess 18 of the platen 11 with the ends secured by the left and right-hand brackets 19 and 20 (Fig. 1). With the impression lever 13 in the rearward position or even in a vertical position relative to the base 10, the operator selects, for example, the type arm 27 having the indicia "N" and rotates the arm on the carrier 12 until it is positioned over the spring member 40 when it will also be aligned with the member 48 of the embossing lever 13. The lever is then pulled forwardly over the carrier 12 when the member 48 will force the type carrying end of the arm 27 against the strip 22 which both severs the paper along the lines of the character "N" (Fig. 3) and forms a raised character. The bases of the saddle members 43 and 44 between which the member 48 is downwardly extended coact with the type arms in the exact positioning of the type characters relative to the platen. Pivoting the lever 13 rearwardly, the protrusion 49 will come in contact with the radial member 57a (Fig. 3) and as the rearward movement continues rotate the wheel 54 through 90° which, through the shaft 51 and pinion 50 and rack 17,

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moves the platen to the left (Fig. 1) to receive the next character impression in the same manner. Only a limited number of type arms have been illustrated but it is to be understood that the carrier 12 can be filled to capacity and that any type face can be used. If the display matter requires more than one line, a second, a third, and other lines are prepared in the same manner and finally the prepared lines assembled to carry the completed story as shown by raised white letters on a black background or the like.

It will be understood that the invention is not limited to the exact disclosure herein described but may lend itself to a variety of expressions within the scope of the appended claims. For example, the same machine can be utilized for embossing letters or characters of different sizes.

What is claimed is:

1. In a device for transferring a character from type to an impression surface on a platen; a flat tapered type arm for each character, the arm having a protuberance on the bottom surface at the wide end, the end of the protuberance carrying the type character, and a second protuberance on the bottom surface of the arm adjacent the narrow end; a disc for the support of the type arms, the rim of the disc being curved upwardly and inwardly, the disc further having a circumferential groove in the top surface and adapted to coact with the second protuberance on the arm with the first protuberance extended downwardly over the curved rim of the disc, means for rotatably supporting the disc so that the character of each arm may be rotated to a position over the impression surface wherein the longitudinal center line of the arm is perpendicular to the longitudinal center line of the platen, means for maintaining the arms under upwardly directed tension in a horizontal plane, and means for transferring the type character to the impression surface.

2. An embossing device comprising a base, the base having a longitudinal slideway, a platen slidable in the slideway; the base further having an annular member adjacent and extending above the slideway, the annular member having an opening through the rim on either side of the radius thereof perpendicular to the center line of the slideway, a spring member for the opening, means securing one end of the spring member in the opening with the free end turned outwardly and above the annular member, a stud disposed in the base at the center of the annular member, a type holder rotatably supported by the stud, the top surface of the holder being above the annular member and at the rim curving outwardly and downwardly to the bot-

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tom surface, the holder further having a circumferential groove adjacent the inner edge of the curved surface, type arms for the holder coacting with the groove and the curved rim thereof and each having a circumferential depression in the top surface adjacent the inner end thereof, the opposite end of each arm extending beyond the annular member and having a downwardly directed type carrying protuberance thereon, said protuberance being adapted to be positioned along the longitudinal center line of the platen when the center lines of the arms and platen are perpendicular, a spring washer disposed over the stud and extending over the inner ends of the arms adjacent the inner edge of the circumferential depressions, means for securing the spring washer to the holder; the device further comprising a lever pivotally disposed at the back of the slideway, the lever having a protrusion at the back and a downwardly directed member at the front, the downwardly directed member coacting with the free ends of the type arms in the position of the opening in the annular member, and indexing means for the platen coacting with the protrusion at the back of the lever.

3. An embossing device according to claim 2 in which the indexing means for the platen comprises a rack disposed along the rear longitudinal edge of the platen, a pinion in operable engagement with the rack, a shaft for the pinion, means for keying the pinion to one end of the shaft, bearing supports for the shaft, a wheel keyed to the free end of the shaft, the wheel comprising spaced parallel rims, four equally spaced radial members pivotally disposed between the rims, and a stop disposed between the rims in advance of each radial member and adapted in a predetermined angular position of the wheel to maintain the radial member in operable engagement with the wheel and in the path of the protrusion of the lever.

EUGENE J. ROWAN.

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