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PRINTING APPLIANCE  
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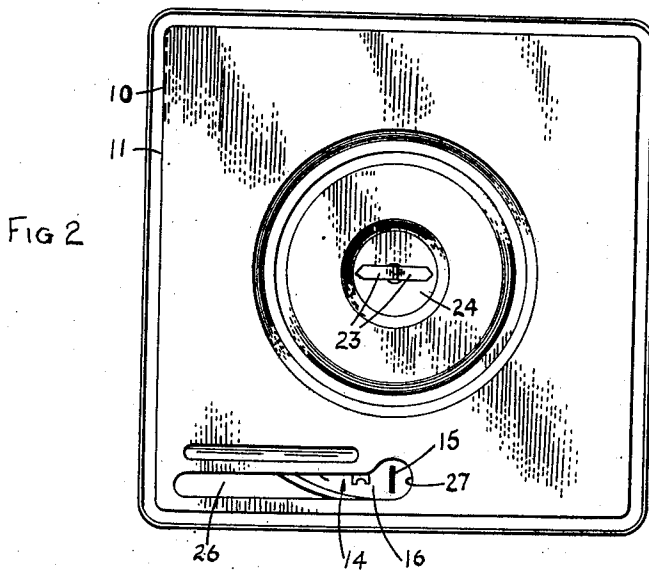
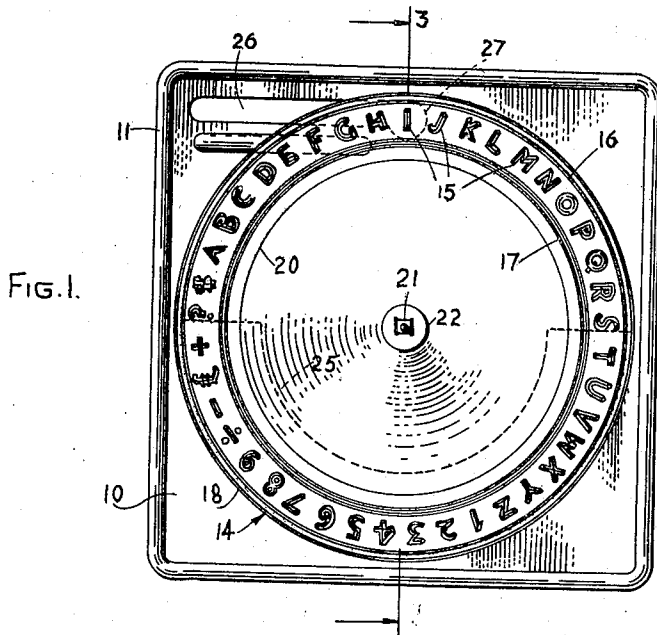
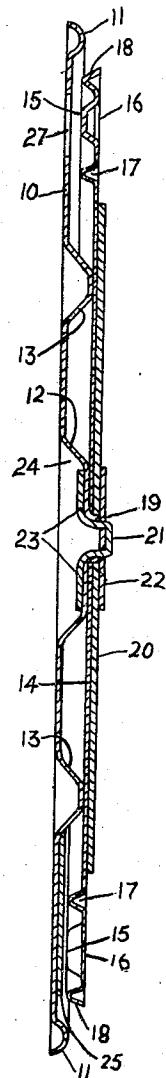


FIG. 3.



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# UNITED STATES PATENT OFFICE

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## PRINTING APPLIANCE

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3 Claims. (Cl. 101—3)

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This invention provides an improved hand printing appliance which is of simple and inexpensive construction and suitable for miscellaneous printing purposes such as those for which the well-known hand printing sets have been used hitherto. The appliance of this invention is especially suitable for production as a toy, although the invention is not to be regarded as limited in this respect.

A hand printing appliance in accordance with the invention comprises a baseplate having a printing aperture therein and adapted to rest on a paper or surface to be printed upon, the baseplate having fitted thereon an annular inking pad and a transparent flexible type disc which is rotatably and detachably mounted on the baseplate and consists of a transparent thermoplastic material which bears printing characters formed by moulding or embossing the material of the type disc and arranged in an annular row near the periphery of the disc so that the row of characters overlies the printing aperture and the annular inking pad, the upper side of the type disc having the printing characters exhibited as positive intaglio imprints, while the underside of the type disc which constitutes the printing side exhibits the characters in negative relief for printing, the type disc being capable, by reason of its flexibility, of being locally flexed by finger pressure on a portion thereof bearing a selected character so as to depress such portion with respect to the characters on the remainder of the body of the type disc, and thereby cause the character on such depressed portion to enter the aperture in the baseplate for printing on to the surface underlying the baseplate, the flexibility of the type disc causing such depressed portion to rise and lift the selected character off the printing surface and out of the printing aperture upon the pressure on such portion being released. If desired, the material of the type disc between adjacent characters may be slit so as to form the disc periphery into flexible tongues each carrying one of the printing characters.

The transparency of the type disc readily enables a character selected for printing, to be brought by suitable rotation of the type disc into registry with the printing aperture in readiness for printing by finger pressure thereon as above described. The visibility of the printing aperture through the type disc facilitates such registration.

The characters on the type disc are preferably normally out of contact with the inking pad, but owing again to the flexibility of the disc, the characters may be readily inked by resiliently deflect-

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ing the type disc to press the characters thereon into contact with the pad as required.

By providing such a flexible type disc, the necessity for spring means to return the printing characters to normal position after printing is obviated, thus contributing to the simplicity and economical production of the appliance.

In printing a line of characters, such as a word, by means of the appliance, it is laid on the paper or other surface to be printed upon, and the first character in the line printed in the manner described. The appliance is then moved along the paper or other surface, a distance of one character space, and the next character printed, and so on. In order to facilitate visibility and aligning of the characters as printed, a portion of the baseplate embracing the printing aperture may be made of transparent material or provided with a transparent mask having the printing aperture therein, so that characters already printed on the underlying surface may be seen through the window formed by such transparent portion or mask of the baseplate. Such transparent part may be separately made and fixed to the main body of the baseplate which may be made of opaque material, such as metal. The whole of the baseplate could, however, be made of a suitable transparent material. In a preferred form, the baseplate is made of opaque material such as metal in which a slot is provided, forming a window through which the printed characters can be seen and aligned, one end of the slot serving as or merging into the printing aperture.

To moisten or re-ink the inking pad, the type disc is detached from the baseplate so that access may be had to the pad, the type disc afterwards being refitted. A convenient and inexpensive form of detachable fixing for the type disc comprises a bifurcated headed fastener having flexible prongs which are inserted through registering holes in the disc and baseplate and are bent to secure the type disc in position, and may be straightened to permit the fastener to be withdrawn when it is desired to detach the type disc from the baseplate.

In order that the invention may be more fully understood and readily carried into practice, a preferred embodiment thereof is illustrated in the accompanying drawings, in which

Fig. 1 is a plan view of the appliance.

Fig. 2 is an underneath view, and

Fig. 3 is a sectional view, on an enlarged scale, taken along the line 3—3 of Fig. 1.

The illustrated appliance comprises a base-

plate 10 made of any relatively stout material, for example, pressed sheet metal as shown, which may be formed with a peripheral reinforcing bead 11, as shown. The baseplate is formed with an upstanding central boss 12 and a concentric annular rib 13 on which a rotatable type disc 14 rests so as to be spaced above the flat surface of the baseplate. The type disc carries printing characters 15 and is made of an embossable flexible transparent thermoplastic sheet material, such as cellulose acetate, Celluloid or like cellulosic plastic, in which the printing characters 15 are formed by moulding or embossing the material of the disc 14 directly from an original die or the like, so that on one side the disc 14 bears the negative characters projecting therefrom in relief (this side being used for printing), while the other side bears positive intaglio imprints of the characters, this side being placed uppermost in the appliance thus making it easy and convenient for the user to see and select the desired characters for printing.

The characters 15 so formed are shown arranged in an annular row on a peripheral margin 16 of the type disc 14, defined by an annular groove 17 within the row of characters 15, but outside the rib 13, the groove 17 being formed also by moulding or embossing the material of the disc 14. The latter is also shown as having a similarly formed peripheral reinforcing bead 18. The spacing earlier referred to between the underside of the type disc 14 and the surface of the baseplate 10 allows for the projection of the moulded or embossed characters 15 below the underside surface of the type disc 14, as may be more clearly seen in Fig. 3.

At its centre, the boss 12 is pierced and formed into a spigot 19 (Fig. 3) which fits into a center hole in the type disc 14, locating the latter. Resting on the type disc 14 is a retaining disc 20 of smaller diameter than the groove 17 but of sufficient diameter to retain the type disc on the rib 13. The disc 20 also has a centre hole into which the spigot 19 extends to locate that disc. The disc 20 leaves visible the character-bearing peripheral margin 16 of the type disc 14, and does not interfere with the flexibility of that margin. The discs 14 and 20 are detachably fixed to the baseplate 10 by means of a detachable fastener which is shown as a bifurcated metal pin 21 having a head 22 which rests on the disc 20, and pliable prongs 23 which are passed through the spigot 19, as more clearly seen in Fig. 3, and the ends of the prongs 23 are bent over against the underside of the boss 12, being accommodated in the recess 24 formed by the boss.

On the baseplate 10 is provided an annular inking pad 25 concentric with the type disc 14 and disposed under the peripheral margin 16 thereof so that the printing characters 15 may be inked by holding the type disc 14 stationary and running a finger along the portion of the margin 16 which is over the pad 25 so as to press the characters on that portion down into contact with the inking pad. By suitably turning the type disc 14, the remainder of the characters 15 may be similarly inked. The pad 25 may consist of a thin piece of compressed cork or any other suitable porous ink-retaining material. Preferably the boss 12 and rib 13 support the type disc 14 so that the characters 15 are normally out of contact with the pad 25 (as shown in Fig. 3), since otherwise they would continually wipe over the pad as the type disc 14 is rotated and this would tend to cause the charac-

ters to gather up an excess of ink or to collect it in their recesses which would eventually foul the characters and render frequent cleaning necessary. The inking pad 25 is preferably permanently secured to the baseplate 10, for instance by sticking the pad to the baseplate, although the pad may be removably fixed, if desired.

The baseplate 10 is further provided with a slot forming a window 26, one end of which is enlarged to form a printing aperture 27 beneath the margin 16 of the type disc, as shown.

The operation of the appliance is as follows, assuming, for example, that a line of characters, e. g., a word, is to be printed.

The appliance is held down with one hand, with its baseplate 10 resting on the paper or other surface to be printed upon, and after inking the characters in the manner above described, the type disc 14 is rotated to bring the character selected for printing into position over the aperture 27, and the character is pressed firmly down with a finger. This causes the margin 16 to flex locally in the neighbourhood of the selected character, the groove 17 serving as a hinge assisting such local deflection, whereby the projecting negative relief underside of the character is pressed through the aperture 27 into contact with the paper or other surface beneath, thereby printing the character thereon. When the finger pressure is released, the deflected portion of the margin 16 rises by the natural resiliency of the type disc material, to lift the character away from the underlying paper or other printing surface. The appliance is then slid sideways one character space to the right along the printing surface and the described procedure is repeated for the next character, and so on. The window 26 enables the printed characters on the paper or other printing surface to be kept in view and aligned as the printing proceeds. The transparency of the type disc 14 enables the printing aperture 27 and the adjacent part of the window 26 which are covered by the margin 16 of the type disc to be seen through the type disc, thus facilitating registration of a selected printing character over the aperture 27 and also enabling a character or characters already printed and appearing in the aforesaid part of the window 26 covered by the type disc to be kept in view while printing the next character.

The embodiment described is given by way of example only, since it will be apparent that many modifications of detail may be made. For instance, instead of forming a window by a slot such as 26 in a baseplate of opaque material, that part of the baseplate may be made of transparent material (or the whole baseplate made transparent) so that the printed characters can be seen therethrough, and provided with an opening therein to form the printing aperture. Although it is preferred to construct the appliance with metal parts (other than the type disc), it will be evident that other materials may be used where suitable, such as wood, cardboard, plastics, to mention a few.

The terms "printing characters" and "characters" are used herein for convenience to denote the printing matter carried by the appliance, and accordingly are to be interpreted in a general sense, as including not only letters, numerals, punctuation and other ordinary letterpress type characters but also inscriptions, pictures and any other kind of printing matter.

I claim:

1. A hand printing appliance comprising a

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baseplate having a printing aperture formed therein of size sufficient to receive at a time only a single one of the hereinafter mentioned printing characters and having a portion forming a window extending from said aperture to permit characters printed one after another in a line through said aperture on to a surface underlying said baseplate to be viewed through said window, an embossable printing disc rotatably and detachably mounted at its centre on said baseplate and having a peripheral marginal portion overlying said printing aperture and an adjacent part of said window, at least said marginal portion of said disc being transparent to render said part of said window visible through said disc, said marginal portion bearing an annular row of embossed printing characters which overlies said printing aperture and said characters of which appear in negative relief on the under face of said disc adjacent said baseplate and in positive intaglio in the upper face of said disc, an inking pad on said baseplate beneath said row of printing characters, said disc being supported on said baseplate with said row of characters normally out of contact with the underlying surface of said baseplate, and at least said marginal portion of said disc possessing sufficient inherent resiliency to permit depression of a selected printing character thereon through said printing aperture into position for printing and to automatically return said character to normal inoperative position after depression.

printing and to automatically return said character to normal inoperative position after depression.

3. A hand printing appliance comprising a baseplate having a substantially flat surface, a boss and an annular rib concentric with said boss upstanding from said surface with said rib located between said boss and the marginal end portions of the baseplate, a printing aperture formed in said surface located between said boss and a marginal edge portion of the baseplate and of size sufficient to receive at a time only a single one of the hereinafter mentioned printing characters, and a portion without said rib forming a window extending from said aperture to permit characters printed one after another in a line through said aperture on to a surface underlying said baseplate to be viewed through said window, an embossable transparent flexible printing disc rotatably and detachably mounted at its centre on said boss and resting on said rib, said disc being embossed with an annular concentric groove in its upper face of larger diameter than said rib and defining a peripheral marginal portion between said groove and the disc periphery overlying said printing aperture and an adjacent part of said window, the transparency of said marginal portion rendering said part of said window visible therethrough, a retaining disc attached at its centre to said boss and resting upon said printing disc and being of diameter smaller than that of said groove but at least as large as that of said rib to retain said printing disc on said rib, said marginal portion of said printing disc bearing an annular row of embossed printing characters which overlies said printing aperture and said characters of which appear in negative relief on the under face of said disc and in positive intaglio in the upper face of said disc, an inking pad on said surface of said baseplate and located beneath said row of printing characters, said boss and said rib supporting said disc with said row of characters normally out of contact with said surface of said baseplate, said marginal portion of said printing disc possessing sufficient inherent resiliency to permit depression of a selected character thereof through said printing aperture into position for printing and to automatically return said character to normal inoperative position after depression.

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2. A hand printing appliance comprising a baseplate having a substantially flat surface, a boss and an annular rib concentric with said boss upstanding from said surface with said rib located between said boss and the marginal end portions of the baseplate, a printing aperture formed in said surface located between said boss and a marginal edge portion of the baseplate and of size sufficient to receive at a time only a single one of the hereinafter mentioned printing characters, and a slot forming a window extending from said aperture substantially parallel with a marginal edge of said baseplate to form a guide for printing a number of characters in a line and to permit characters printed one after another in a line through said aperture on to a surface underlying said baseplate to be viewed through said window, an embossable printing disc rotatably and detachably mounted at its centre on said boss and resting on said rib with a peripheral marginal portion of said disc between said rib and the disc periphery overlying said printing aperture and an adjacent part of said window, at least said marginal portion of said disc being transparent to render said part of said window visible through said disc, said marginal portion bearing an annular row of embossed printing characters which overlies said printing aperture and said characters of which appear in negative relief on the under face of said disc and in positive intaglio in the upper face of said disc, an inking pad on said surface of said baseplate and located beneath said row of printing characters, said boss and said rib supporting said disc with said row of characters normally out of contact with said surface of said baseplate and with said inking pad, and at least said marginal portion of said disc possessing sufficient inherent resiliency to permit depression of a selected character thereon through said printing aperture into position for