

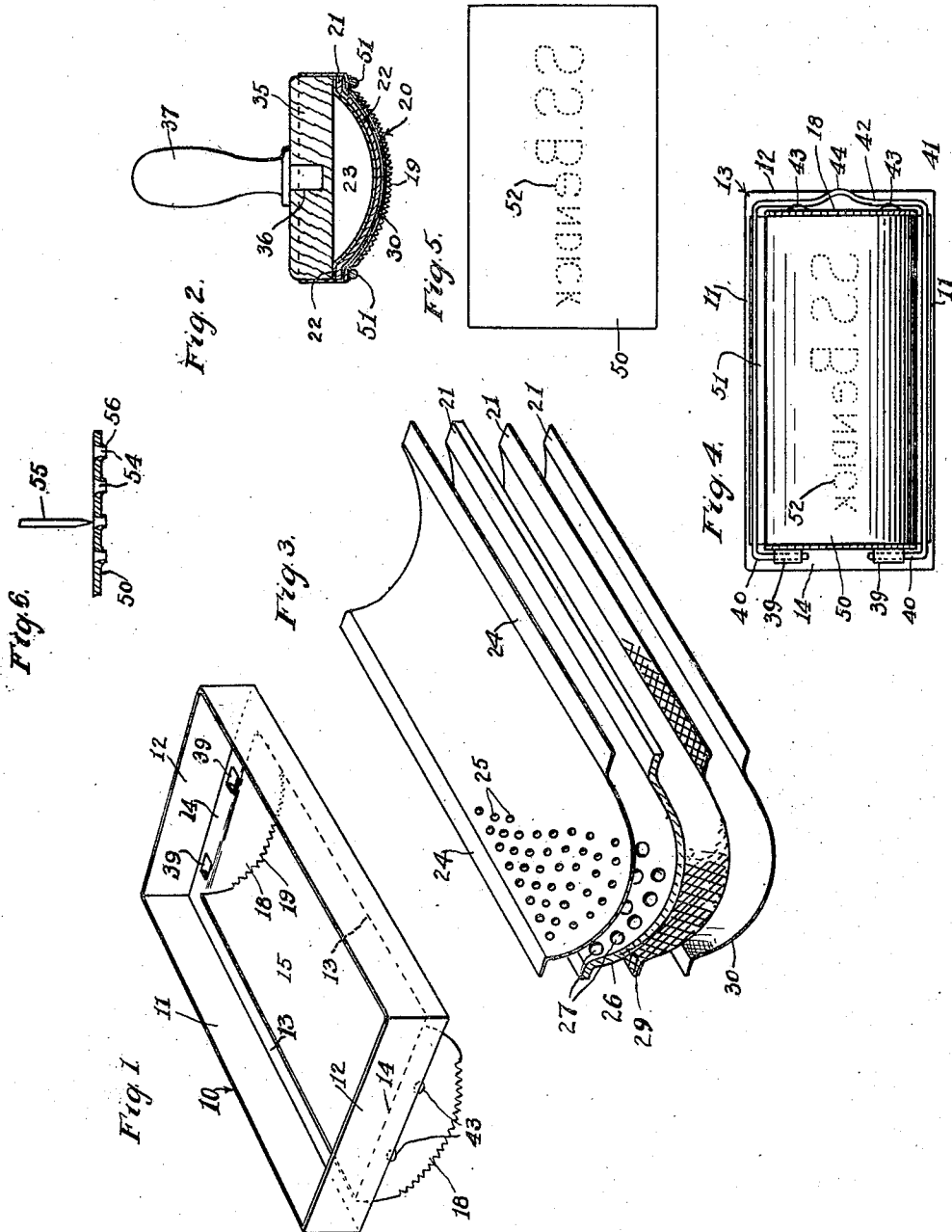
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PRINTING STENCIL AND METHOD OF MAKING SAME

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PRINTING STENCIL AND METHOD OF MAKING SAME.

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This invention relates to devices for printing characters and the like, and more particularly to self-inking stencils and the method of making the stencil sheet, though it is noted that the invention is not limited to stencils, nor in some respects even to devices for printing characters.

One object of the invention is to provide an improved stencil sheet having means whereby the ink may be evenly introduced upon or into the material to be printed without smearing and with precision.

Another object of the invention is to provide a device of this kind with which the ink of the stencil may be applied with pressure somewhat as with type.

Another object of the invention is to provide a stencil or other printing device which may be applied with a rolling motion without danger of smearing.

One of the important objects of my present device relates to the manner whereby the component parts may be readily assembled, thereby to increase the economy of manufacture.

Another object is to provide for ease in distributing the ink within the device so as to obtain legible printing throughout the full stencil face.

Another object has to do with the manner in which the stencil is readily affixed or removed, for replacement or cleaning.

Another object relates to the structure of the stencil backing whereby it provides for a semi-resilient ink-holding structure of suitable permeability and stiffness to support stenciling pressure.

A further object is the provision of means on the stencil whereby to limit excess pressure upon the stencil and to prevent the stencil side slipping when in use, thereby obviating smudging.

An added feature of improvement is obtained by the use, as a stenciling plate or sheet, of a thin metallic sheet, flexible non-absorbent and practically abuse-proof, and it will be hereinafter noted that this metallic stencil sheet and its manner of making provide for a printing face which confines the ink in cups to the desired outline, as well as supplies ink thereto, and also furnishes a printing face, from which the printed or stamped impression is taken. Other objects of the invention are to improve generally the simplicity and efficiency of such devices and methods of making the stencil sheet and to

provide a device or apparatus of this kind which is economical to manufacture and which is economical, durable, convenient and reliable in operation.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described and claimed, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

The inventive features for the accomplishment of these and other objects are shown herein in connection with an improved printing stencil which, briefly stated, includes a box having a removable back and inturned lower flanges carrying a downwardly curved yieldable absorbent printing bed having margins resting on said flanges against which is disposed a flexible stencil sheet having characters pierced thereon by a needle entering the sheet from the inner face, to provide perforations each surrounded by projected upset edges. Serrated rockers at the ends form gauges to hold the box spaced from the material to be marked and the serrated lower edges prevent the slipping of the stencil on the material in operation.

In the accompanying drawing, showing by way of example, one of many possible embodiments of the invention,

Fig. 1 is a perspective view of the box or casing;

Fig. 2 is a transverse sectional view showing details of the device;

Fig. 3 is a perspective view of the stencil printing bed, the layers being separated, to show the construction and relation of parts;

Fig. 4 is a bottom view of the device;

Fig. 5 shows a bottom view of a stencil sheet; and

Fig. 6 is an enlarged fragmentary sectional view illustrating the method of piercing the stencil.

The various parts of my improved printing stencil are mounted in or on a rectangular casing or box 10 having upstanding side and end walls 11 and 12, inturned side and end flanges 13 and 14 at the lower edge of the walls leaving an intramarginal opening 15. Downwardly disposed segmental rockers or end pieces 18 formed on the end flanges 14 form gauges to hold the box properly spaced from the material to be marked and are provided with serrated

lower edges 19 to prevent the slipping of the stencil when it is rocked or rolled over the material in operation.

A yieldable printing bed 20 (Fig. 2) carried by said frame is formed with flat marginal portions 21 resting on said side flanges 13. The intramarginal portion 22 of the bed is downwardly curved to form an ink reservoir 23 and to have its lower face lie slightly below the curved plane defined by said lower serrated edges 19. Said bed 20 comprising a top foundation layer 24 (Fig. 3) of sheet metal having large distributing perforations 25, a yieldable layer 26 of absorbent felt adjacent to the foundation layer and having perforations 27 larger than the perforations 25, a screen layer 29 of wire mesh against the yieldable layer 26, and a lower layer 30 of absorbent flannel adjacent to the screen layer. Said bed is sprung into said box to form a reliable friction fit for holding said layers clamped together.

A block or back 35 is removably disposed in said box with a friction fit forming a cover for the ink reservoir and is provided with a bore 36 in the middle of its outer face for the reception of a handle 37 for manipulating the stencil during the printing operation and for removing the back for introducing the ink.

One of the end flanges 14 is slitted and provided with downwardly pressed portions 39 between the slits forming aligned fixed hinge members receiving the intumed ends 40 (Fig. 4) of a rectangular one piece wire frame 41 disposable beneath the lower face of said flanges and having an opposite end portion 42 adapted to snap past projections 43 on one of the rockers 18 to engage the flange, and an outwardly bent mid portion 44 forming a handle.

A flexible stencil sheet 50 of copper, brass, paper or other suitable stencilable material is held against said lower layer 30 by having its side edges caught under the side members 51 of said frame. Said sheet is provided with characters 52 formed by perforations 54 (Fig. 6) pierced by a reciprocating needle 55 inserted at the inner face of the stencil sheet and projected through the outer face to form the perforations 54 each in such manner that it is surrounded by an annular projected upset edge 56 forming a cup-like or tube-like passage for introducing a large quantity of ink into or against the material to be printed upon, thereby to make the printing more indelible. Said edge 56 also serves to confine the introduced ink at the point of introduction, thus preventing smearing and spreading and also to form an annular printing or type-face offset from the sheet for pressing into or upon the material the ink fed through said passage, thereby to increase the permanence of the printing.

The operation of the device is very simple, and is obvious from the foregoing. The stencil sheet is perforated on a perforating machine, the needle following the letters, characters or other design on the stencil sheet as desired. The handle 44 (Fig. 4) is manipulated to release the end member 42 of the frame to permit the margins of the stencil sheet to be caught under the side members 51, whereupon the frame is forced back into place clamping the stencil sheet on the bottom of the flanges 13, 14.

The back 35 (Fig. 2) is removed to permit pouring ink into the reservoir 23, where it may be spread with a brush evenly upon the perforated top layer 22 to permit the ink to pass through the perforations 25 and 27 and the screen 29 into the felt layer 30, and thence into the tube-like passages formed by the upset edge 56.

The serrated edges 19 are then rocked upon the paper, fabric or other material to be printed upon, the serration preventing slipping of the stencil on the material. The rockers or gauges 18 permit the stencil to be pressed upon the material with an even pressure, and as the sheet is rocked over the material, ink in said passages adheres to and is deposited upon the material, and the ink on said edges 56 is pressed into and upon the material.

The perforations 25 and 27 and the openings in the screen layer serve as conduits to conduct the ink from the reservoir 23 to the absorbent layer 30, and thence to the stencil. The perforations 27 also serve as a sort of resturge reservoir to receive ink pressed back out of the absorbent layer during the printing process.

I claim as my invention:

1. In combination, a pad inker; and a stencil sheet cooperating with the pad inker and having cup-like perforations.

2. In combination, a pad inker; and a stencil sheet cooperating with the pad inker and having perforations each provided with a projected upset edge portion.

3. In combination, an absorbent printing bed; and a stencil sheet held against the lower face of the bed and provided with characters formed by perforations each surrounded by a projected upset edge forming a tube-like passage for introducing the ink to the material to be stenciled.

4. In combination, a downwardly curved absorbent printing bed; and a flexible stencil sheet held against the lower face of the bed and provided with perforations forming a passage for introducing the ink to the material to be stenciled, each surrounded by a printing face offset from the sheet.

5. In combination, an absorbent printing bed; and a flexible sheet metal stencil held against the lower face of the bed and provided with characters formed by perfora-

tions each surrounded by projected upset edges forming a cup-like or tube-like passage for introducing the ink into or against the material to be stenciled, said edge serving to confine the introduced ink at the point of introduction, and also to form an annular type or printing face offset from the sheet for pressing upon the material ink fed through said passage.

6. In combination, a stencil bed; a stencil sheet cooperating with said bed; and means for preventing during printing operation movement on the surface to be printed of said bed and stencil sheet in the longitudinal line of said bed.

7. In combination, a stencil bed; a stencil sheet cooperating with said bed; and means appurtenant to the ends of the stencil bed engaging the surface to be stenciled for preventing during stenciling operation movement of said bed and stencil sheet on said surface in the longitudinal line of said bed.

8. In combination, a support; spaced downwardly disposed gauges beneath the support; and a yieldable printing bed between the gauges.

9. In combination, a box; a yieldable printing bed secured beneath the box; a stencil sheet held against said bed; and downwardly disposed gauges provided with serrated lower edges at the opposite edges of said bed.

10. In combination, a box having downwardly disposed rockers; a yieldable absorbent printing bed having a downwardly curved intramarginal portion approximately coaxial with the rockers; and a flexible stencil sheet held against said bed.

11. In combination, a box having downwardly disposed rockers provided with serrated lower edges; and a yieldable printing bed between the rockers having a downwardly curved intramarginal portion.

12. In combination, a box having walls, inturned flanges at the lower edge of the walls, and downwardly disposed rockers provided with serrated lower edges to prevent the slipping of the stencil on the material in operation; a yieldable printing bed carried by said box and formed with flat marginal portions resting on said flanges, the intramarginal portion of the bed being downwardly curved to form an ink reservoir and to have its lower face lie slightly below the curved plane defined by said lower edges; and a stencil sheet held against the lower face of the bed.

13. In combination, a box having walls, inturned flanges at the lower edge of the walls; a yieldable printing bed carried by said box and having flat marginal portions resting on said flanges, an intramarginal portion of the bed being downwardly curved; said bed comprising a top layer of perforated spring metal, an intermediate layer of absorbent

material having larger perforations than said top layer, a layer of wire mesh and a lower layer of flannel; said bed being sprung into said box to form a yieldable friction fit for holding said layers clamped together; and a flexible stencil sheet held against said lower layer by said frame.

14. A stencil bed comprising a top layer of perforated sheet metal, a layer of absorbent felt having perforations therein, a layer of wire mesh and a lower layer of flannel.

15. In combination, a layer of yieldable perforate non-absorbent material constituting an ink distributing reservoir; and a layer of yieldable perforate absorbent material, a layer of yieldable reticulated non-absorbent material, and a layer of yieldable imperforate absorbent material cooperating with each other for receiving and distributing ink from the first mentioned layer and forming therewith a stencil bed.

16. In combination, a layer of yieldable material constituting an ink distributing reservoir; a plurality of layers of yieldable material cooperating with each other for receiving and distributing ink from the first mentioned layer and forming therewith a yieldable stencil bed; and a stencil sheet cooperating with said bed; said bed when under the pressure of printing operation providing a sponge-like distribution of ink from said reservoir layer to the stencil sheet.

17. In combination, a downwardly curved absorbent printing bed; and a flexible stencil sheet held against the lower face of the bed; said bed comprising a top foundation layer of sheet metal having large distributing perforations, a yieldable layer of absorbent felt adjacent to the foundation layer and having larger perforations than said foundation layer, a screen layer of wire mesh against the yieldable layer and a lower layer of absorbent flannel adjacent to the screen layer.

18. In combination, a box having inturned lower flanges; a yieldable printing bed having margins on said flanges and a downwardly curved intramarginal portion; a frame releasably disposed under the lower face of said flanges; and a flexible stencil sheet held against said bed by said frame.

19. In combination, a rectangular casing or frame having upstanding side and end walls, inturned side and end flanges at the lower edge of the walls leaving an intramarginal opening, and downwardly disposed end pieces on the inner edges of the end flanges forming gauges to hold the frame spaced from the material to be marked; a yieldable printing bed having margins on said side flanges and a downwardly curved intramarginal portion; one of said flanges being provided with pairs of slits and downwardly pressed portions between

the slits forming alined fixed hinge members the guage at the opposite end having out-pressed projections near the adjacent flange; a frame disposable under the lower face of
5 said flanges and having inturned ends received in said hinge members and having an opposite end portion adapted to snap past said projections against the flange, and
10 an outwardly bent midportion forming a handle; and a flexible stencil sheet held against the lower face of said bed with its side edges caught under the side members of said frame.

15 20. In combination, a box; a yieldable absorbent printing bed secured beneath the box and having a downwardly curved intramarginal portion; a stencil sheet held against said bed; and a block forming a

back frictionally received in the upper part of the box.

21. In combination, a box; a yieldable absorbent printing bed secured to the lower
20 part of the box and providing an ink reservoir; a stencil sheet held against said bed; a block or back forming a cover for the
25 ink reservoir and removably disposed in said box with a friction fit and provided with a bore; and a handle in said bore for manipulating the device during the printing operation and for removing the back from the
30 box for introducing ink into the reservoir.

Signed at New York in the county of New York and State of New York this 17th day of September, A. D. 1925.

SIDNEY S. BENDICK.