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MEANS FOR CONSTRUCTING PRINTING PLATES

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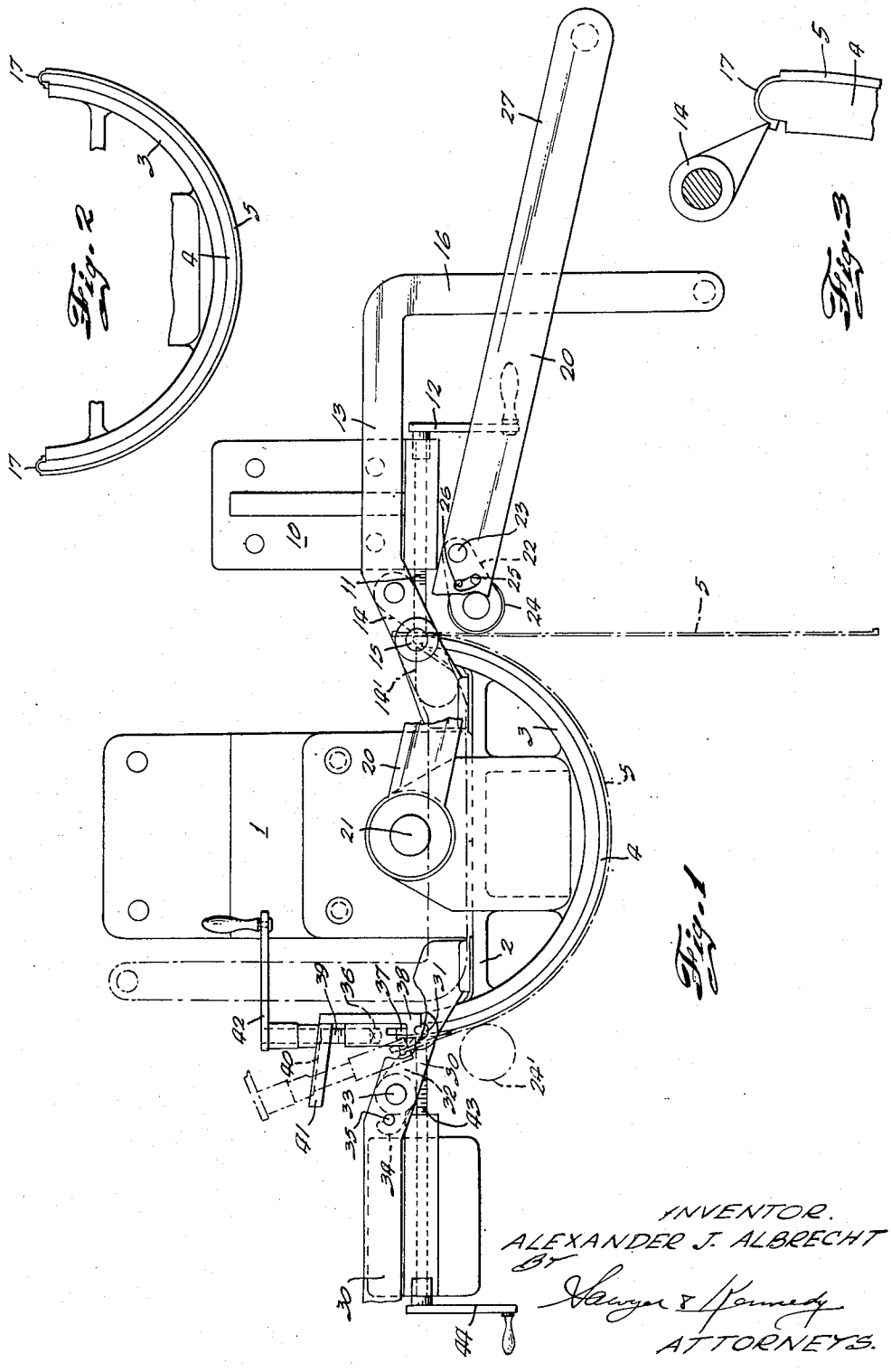


Fig. 1

Fig. 2

Fig. 3

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MEANS FOR CONSTRUCTING PRINTING PLATES

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3 Claims. (Cl. 153—46)

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This invention relates to improvements in printing plates. More particularly, the invention is concerned with providing printing plates of improved characteristics as to clearness of impression and durability and with reducing the likelihood of loosening or deformation of the plate during printing.

It is an object of the invention to arrange a thin magnesium alloy printing plate so that it may be readily secured to a printing cylinder designed to receive stereotype printing plates.

Another object of the invention is to provide such a plate together with a dummy or supporting plate of rigid and durable construction facilitating attachment to a printing cylinder.

Still another object of the invention is to provide improved apparatus for constructing a composite plate comprising a dummy and thin plate mounted thereon.

With the foregoing objects and still other objects which will appear in the following full description in mind, the invention consists in the combinations and arrangements of parts and details of construction, which will now first be described with reference to the accompanying drawing and then be more particularly pointed out in the appended claims.

In the drawing:

Figure 1 is a plan view showing the plate dummy and mechanism for placing the plate on the dummy;

Figure 2 is a similar view showing the plate applied to the dummy; and

Figure 3 is a detail view, on an enlarged scale, showing an edge of the plate being applied to a dummy.

The invention contemplates forming a thin magnesium alloy printing plate for relief printing by casting in any suitable manner, the plate being useable as a substitute for the relatively heavy and soft stereotypes now in use. While the plate may be fastened directly to a cylinder, it is contemplated according to the present invention that it will be applied first to a dummy of steel, Duralumin or similar rigid and durable material so as to form a composite plate, which may then be attached to a cylinder by any suitable clamping means. Accordingly, a bending mechanism is utilized for wrapping the plate about the dummy and tensioning it thereon, and for bending the edges of the plate around the dummy so as to hold it thereon.

A suitable brake mechanism is shown by way of example in Figure 1 of the drawing. As there shown, a frame work or pedestal 1 supports by

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means of webbing 2 a semi-cylindrical form or saddle 3 against which a dummy plate 4 may be placed in preparation for attaching the printing plate 5 thereto. The flat magnesium alloy printing plate 5, prior to bending onto the dummy 4, is shown in phantom in the figure and the plate 5 is also shown in phantom position just prior to completion of its application to the dummy.

A pedestal 10 supports a screw rod 11 operable by means of a crank 12 for clamping one end of the plate 5 against the dummy preliminary to wrapping it thereon. A frame work 13 carrying a generally wedge shaped wipe bar 14 is pivoted about an axis 15 concentric with the rounded edge of the dummy 4 and the frame work may be rotated counterclockwise about this axis by means of lever or handle 16 through an angle of substantially 180°, so as to bring the wiping member 14 into the position indicated in phantom at 14'. During this operation, the member 14 engages in a groove 17 formed in the plate 5 adjacent its edge (Figure 3). The inside of the edge of the dummy 4 is formed with a rabbet as indicated in Figure 3 to provide clearance space into which the edge of the plate is bent.

A frame work 20 is pivoted for movement around an axis 21 concentric with the saddle 3 and carries by means of arms 22 on pivots 23 a roller 24. The angle of movement of the roller supporting arms 22 with reference to the frame work 20 is limited by means of a pin and slot connection 25 and 26. This frame is moved by means of a handle or lever 27 and is swung around the saddle until roller 24 is in the position indicated in phantom at 24'.

A frame work 30 is mounted for pivoting movement about an axis 31 concentric with the arc of the rounded end of the dummy 4 and operates in a manner generally similar to the frame work 13 previously referred to. However, the wiping bar 32 carried by this frame is pivoted therein as at 33, pivotal movement in the clockwise direction being prevented by means of a hook 34 and pin 35. The wiping bar 32 may, however, be swung around in a counterclockwise direction so as to be cleared out of the way, permitting passage of the end of the plate 5 as it is wrapped around the dummy.

With the plate wrapped around the dummy, a clamp 36 is attached to its edge as by inserting the end of the plate in a slot at the end of the clamp 36 and temporarily fastening it therein by means of a wedge 37. The clamp 36 is carried in a frame 38 which fits against the end

of the dummy as indicated, by means of a screw rod **39** passing through a slot **40** in an angularly disposed member **41** integral with the frame **38**. The plate may be fixed in the clamp **36** when the latter is in the phantom position of Figure 1. Thereafter, screw **39** is turned by means of crank **42**, retracting the clamp **36** and thus applying tension to the plate and causing the screw to slide down the member **41** into the full line position of the figure. As soon as the plate has been thus stretched around the dummy, it is clamped thereagainst by means of a screw rod **43** and crank **44** at which point the clamp **36** and its frame **38** are removed. Thereafter, the wiping bar **32** is swung back into the position of the figure, and the frame **30** is turned clockwise so as to wrap the edge of the plate around the rounded edge of the dummy. Screw rods **11** and **43** may now be backed off and the frames **14**, **20** and **30** swung back to the position of the figure, at which point the complete composite plate including the dummy **4** and plate **5** wrapped thereon (Figure 2) can be removed and inserted in a printing machine.

What is claimed is:

1. Apparatus for forming a composite printing plate including a dummy of steel or the like rigid material and a thin magnesium printing plate carried thereon, comprising a semi-cylindrical saddle for receiving a dummy, clamping mechanism at each side of the saddle for holding an edge of the plate against a dummy held against the saddle, means on each side of the saddle for wiping the edge of the plate around the edge of the dummy to attach it thereto and comprising a member mounted for frictionally slidable engagement with the outer surface of the plate and means for moving the said member so as to follow the contour of the edge of the dummy for pressing the plate against and wrapping it around the same, a roller operable to wrap a plate held by one of the said clamping means around the dummy preliminary to clamping its other edge to the dummy, means rotatively supporting the roller, and means pivotally mounting the last said means on the saddle for rotative movement about the saddle axis.

2. Apparatus according to claim 1, in which the wiping means at one edge of the plate is swingable to clear it out of the way and permit passage of the edge of a plate being wrapped on the dummy.

3. Apparatus according to claim 2, comprising also a tensioning device including a frame adapted to seat against the edge of the saddle, a clamp adapted to grasp the free end of the plate and means mounting the clamp in the frame for movement to tension the plate on the dummy preliminary to wiping the free edge around the edge of the dummy.

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