

April 5, 1966

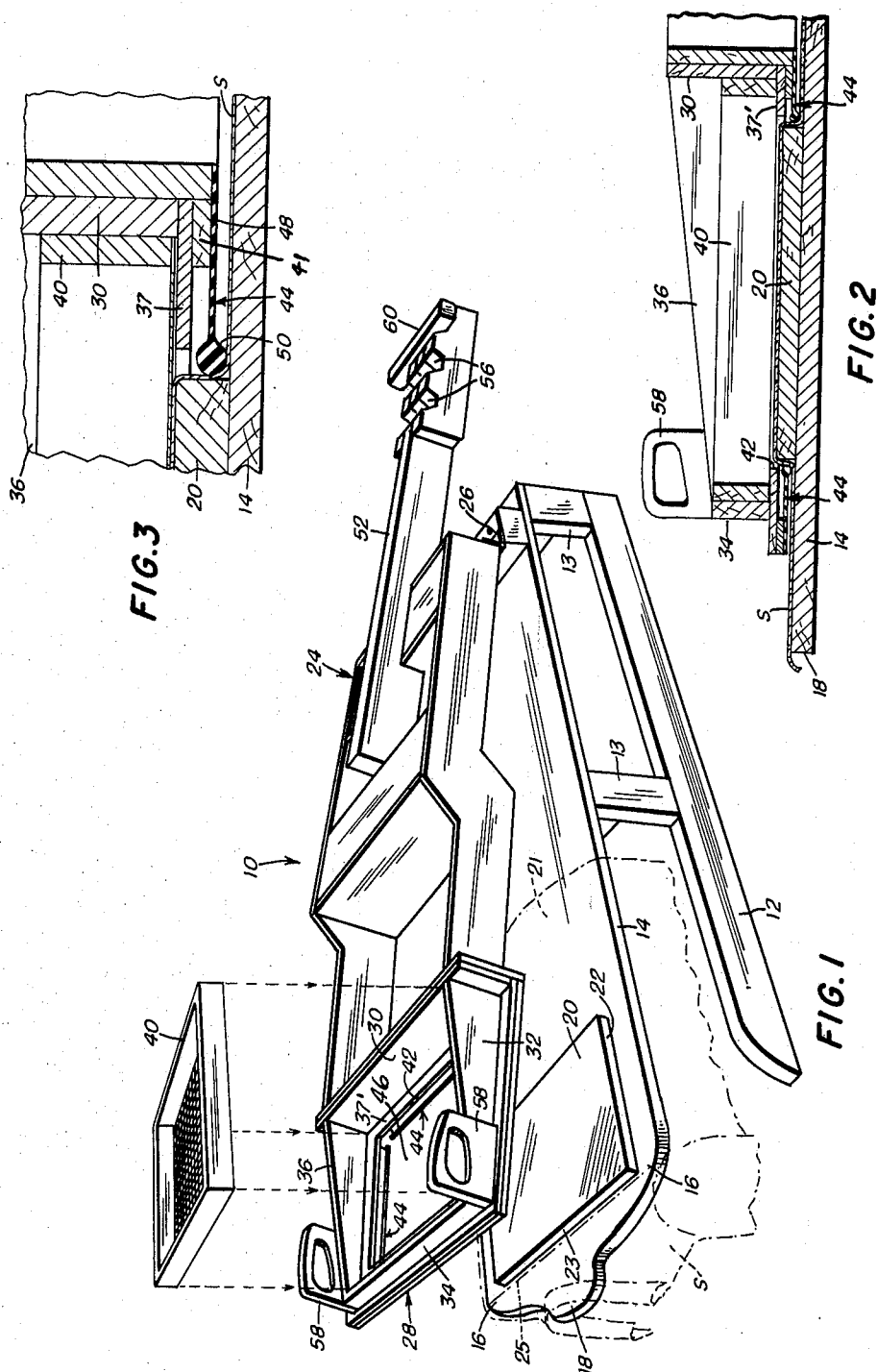
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TEXTILE SUPPORTING MEANS IN STENCIL PRINTING MACHINES

Filed Nov. 16, 1964

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

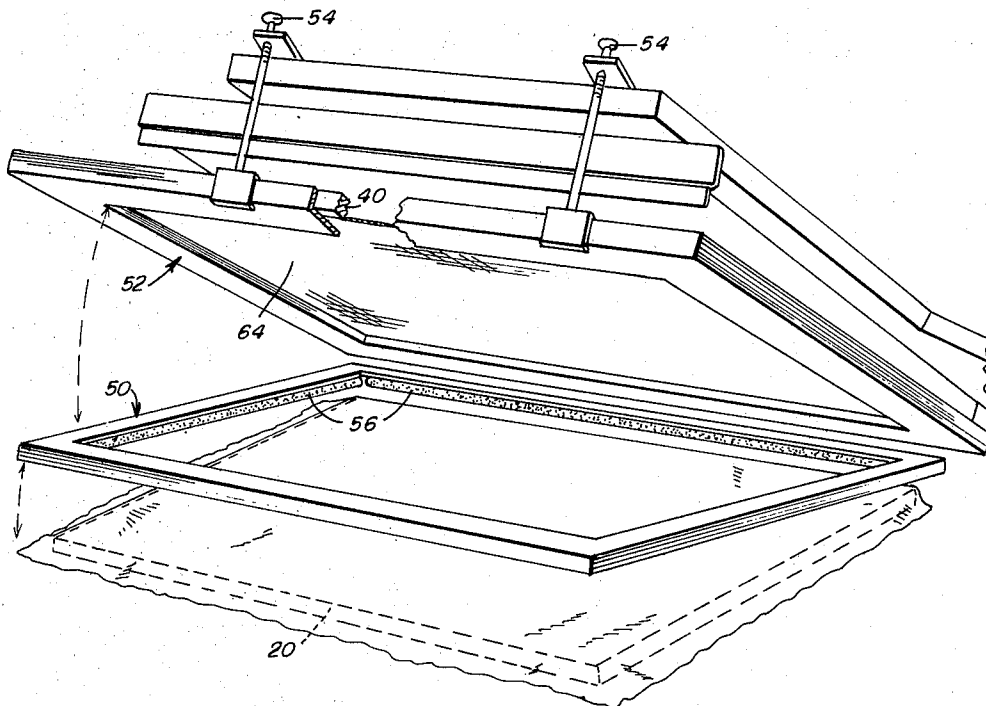


FIG. 4

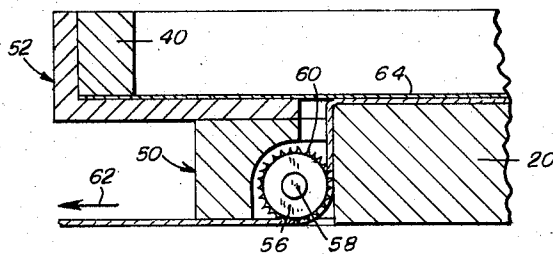


FIG. 5

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TEXTILE SUPPORTING MEANS IN STENCIL PRINTING MACHINES

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9 Claims. (Cl. 101-126)

This is a continuation-in-part of application Serial No. 309,049, filed September 16, 1963, now forfeited.

This invention relates to a textile printing machine, and specifically relates to a textile printing machine in which lettering and/or artwork are applied to cloth shirts and other flexible materials by a silk screen process.

A principal objective of this invention is to provide an improved framing assembly to accomplish such printing in a quick and easy manner.

Another objective of the invention is to provide a framing structure which insures sharp, trouble-free impressions on a textile panel by automatically rendering the panel taut and locked into a printing position.

Another important objective of the invention is to provide means for automatically rendering a panel of cloth to a stretched position for accuracy and sharpness of impression and to insure a maximum of paint penetration. The tautness with which the panel is stretched eliminates a prior ironing of the cloth. The apparatus is also provided with a printing platen supported from a remote point in order to enable tubular items such as buttoned shirts to be inserted thereon without separation or unbuttoning. The apparatus also provides a plurality of registration points for fast and accurate registration of the fabric with respect to the printing apparatus.

Another important objective of the invention is to provide an apparatus of increased durability and economical fabrication which is most desirable in the particular art involved.

Another important objective provided by this invention is the elimination of locks and clamps which permits quick screen change-over.

These and other important objectives and advantages of the invention will be more fully understood upon a reading of the following specification, taken in view of the attached drawings, wherein:

FIGURE 1 represents a perspective view of the assembly of this invention;

FIGURE 2 is a partial cross-sectional view through a portion of the assembly;

FIGURE 3 is an enlargement of a portion of FIG. 2;

FIGURE 4 is a perspective view of a further embodiment of this invention; and

FIGURE 5 is a cross-sectional view showing a portion of the FIG. 4 embodiment in greater detail.

Referring now to the drawings, wherein like numerals indicate like parts, the numeral 10 indicates the printing assembly of this invention. The assembly is supported by a base 12 which in turn supports a baseboard 14 in a generally horizontal position via uprights 13. The outer end of baseboard 14 extends beyond the forward end of base 12 and is shaped at 16 and 18 to conform with the shoulder sections and neck section of a shirt S.

Affixed to the upper surface of the baseboard and near its outer end is a printing platen 20 defined by a vertical side wall periphery 22. The configuration of the baseboard readily facilitates the positioning of shirt S with the shirt back panel 21 overlying the printing platen 20 and the shoulder and neck portions generally overlying the elements 16 and 18. The forward portion 23 of the periphery 22 provides a convenient line to which the yoke seam 25 may be oriented in parallel relationship. Other panels of flexible sheet material may be oriented in other convenient ways depending on their make-up and design.

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A framework 24 is hingedly secured to the rear portion of the baseboard via hinges 26. The free or forward end of the framing assembly carries a stretcher assembly 28. The stretcher assembly is generally formed of vertical side walls 30, 32, 34 and 36, which at their lower ends are affixed to a floor 37. The upper surfaces 37' of the floor provides a support for the silk screen frame 40. Silk screen processes of printing are well known and the particular method used forms no part of this invention.

The floor 37 defines an opening 42, the periphery of which is slightly greater than the periphery 22 of the printing platen 20. Secured to the under surface of floor 37 are a plurality of spacer strips 41. Secured below the spacer strips and extending toward the opening are a plurality of flexible rubber-like gripping strips 44 which define a second opening 46 having a geometrical configuration similar to but slightly less than that of periphery 22 and for close engagement therewith. The gripping strips 44 are formed with a flange portion 48 and an inner enlarged portion 50.

A balance bar 52 having a plurality of transverse grooves 56 formed therein is adapted to rest on the upper surface of framework 24 to facilitate the pivotal movements transmitted to framework 24 via the operator handles 58. A bar 60 is moved toward or away from handles 58 to reduce the force necessary to pivot framework 24.

In operation the shirt S is slipped over the baseboard 14 with the shirt back panel overlying and draped over the platen 20, as seen in FIG. 1. The operator grips handles 58 and presses the framework 24 toward the baseboard 14 until opening 42 circumscribes the platen 20. As the framework 24 approaches the baseboard 14, the gripper flex strips 44 engage the fabric between themselves and side walls 23 to stretch the shirt taut in four directions. As the bottom of the stretcher assembly engages the upper surface of baseboard 14, the upper surface of platen 20 is approximately coplanar with the upper surface 37' of the floor 37. The screen 40 is removed from between side walls 30, 32, 34 and 36 after the required impressions are made. As those skilled in the art will readily understand, the screen need only be removed after all fabric of a particular design have been printed.

The assembly taught in FIG. 4 functions, in general, in the same manner as the embodiment taught in FIGS. 1, 2 and 3. In FIG. 4, the apparatus is divided into two principal elements; namely, the stretch frame 50 and the screen supporting frame 52. Although not shown in FIG. 4, the screen supporting frame 52 is pivotally mounted to its base as is member 24 in FIG. 1. The FIG. 4 embodiment is primarily used for large surfaces and can utilize a clamping means 54 to secure the screen frame 40 to the supporting frame 52.

The stretch frame 50 has a third interior opening and has mounted therealong a plurality of material stretch elements or friction rollers 56. The friction rollers are mounted via stub shafts 58 to the frame 50 and the rollers are formed with a roughened friction peripheral surface 60 for grasping or pinching the fabric between the rollers and the printing platen as the frame is moved to a position about the platen. The rollers will pull the fabric taut across the upper surface of the printing platen in the same manner previously described for the flex strips 44. If the rollers leave portions of the fabric in a loose condition, a slight pulling in the direction of arrow 62 in FIG. 5 will cause the fabric to assume the proper degree of tautness. Roller friction will maintain the fabric in the taut condition.

It can be seen in FIG. 5 that the depth of frame 50 places the silk screen stencil 64 immediately above the

printing surface of platen 20 when the frame 52 has been lowered to a position over frame 50.

In a general manner, while there has been disclosed an effective and efficient embodiment of the invention, it should be well understood that the invention is not limited to such an embodiment, as there might be changes made in the arrangement, disposition, and form of the parts without departing from the principle of the present invention, as comprehended within the scope of the accompanying claims.

I claim:

1. An apparatus for placing insignia on a flexible sheet material comprising, a material receiving base, a printing platen secured to said base and extending upwardly therefrom, a silk screen supporting frame, means mounting said frame to said base for movement toward and away from said base, said frame having a floor defining opening for receiving said platen, a resilient flex strip means extending about the periphery of said opening and defining a second opening slightly less than the outer periphery of said platen whereby a panel of said material overlying said platen will be stretched taut when said frame approaches engagement with said base.

2. An apparatus for placing insignia on a fabric comprising a generally horizontal baseboard, a printing platen having one planar surface secured to said board, generally vertical side walls defining the periphery of said platen and further defining an upper printing surface parallel to said board, a silk screen frame having an opening therein generally of the same peripheral configuration as that of said side walls, means to move said frame to a first position away from said board to a second position in engagement with said board and said opening receiving said platen, a flex strip means secured about said opening defining an opening slightly less than the dimensions of the periphery of said printing platen whereby as said frame approaches its second position said gripper strips will stretch the portions of said fabric overlying said platen by engaging said portions with said side walls.

3. An apparatus for placing insignia on a shirt comprising, a shirt receiving base, a printing platen secured to said base and extending upwardly therefrom, a silk screen supporting frame having a rear end pivotally mounted to said base and a forward end having a movement toward and away from said base, said forward end having a floor portion defining an opening for receiving said platen, a resilient flex strip means extending about the periphery of said opening and defining a second opening geometrically similar to the outer periphery of said platen whereby a panel of said shirt overlying said platen will be stretched taut as said frame is moved in circumscribing relationship to said platen.

4. The apparatus described in claim 3 wherein a member extends rearwardly of said rear end, said member having a plurality of transverse slots spaced at varying distances from said forward end, and a movable weight manually movable from one of said slots to any other of said slots.

5. An apparatus for placing insignia on a fabric comprising a generally horizontal baseboard, a printing platen having one planar surface secured to said board, generally vertical side walls defining the periphery of said platen and further defining an upper printing surface, a frame having an opening therein generally of the same and slightly larger than the peripheral configuration defined by said side walls, means to move said frame to a first position away from said board to a second position in engagement with said board and said opening receiving said platen, a ledge molding secured to said frame and defining said opening, said molding having an upper surface to receive a silk screen printing device, a flex strip secured to the lower surface of said molding and defining an opening slightly less than the dimensions of said printing platen whereby as said frame approaches its second position said gripper strips will stretch the portions of said fabric overlying said platen by engaging said portions with said side walls.

6. The apparatus defined in claim 5 wherein said flex strip includes a shank portion secured to said molding and an enlarged portion at its free end for engaging said fabric.

7. An apparatus for placing insignia on a flexible sheet material comprising, a material receiving base, a printing platen secured to said base and extending upwardly therefrom, a silk screen supporting frame having a floor defining a first opening to closely receive said platen therein, means mounting said frame to said base for movement toward and away from said base, material stretch means interposed between the silk screen supporting frame and said platen and defining a second opening coincident with but slightly smaller than the first opening to tightly embrace said platen and a material draped thereover to thus hold said material taut.

8. The apparatus described in claim 7 wherein said stretch means comprises a stretch frame having sides defining a third opening approximating the dimensions of the periphery of said platen, and material stretch elements extending about the periphery of said third opening.

9. The apparatus described in claim 8 wherein said elements comprise friction rollers.

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