Dec. 23, 1941. A. MEGIBOW ET AL 2,267,247

MULTICOLOR TEXTILE PRINTING MACHINE

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Fig. 1.

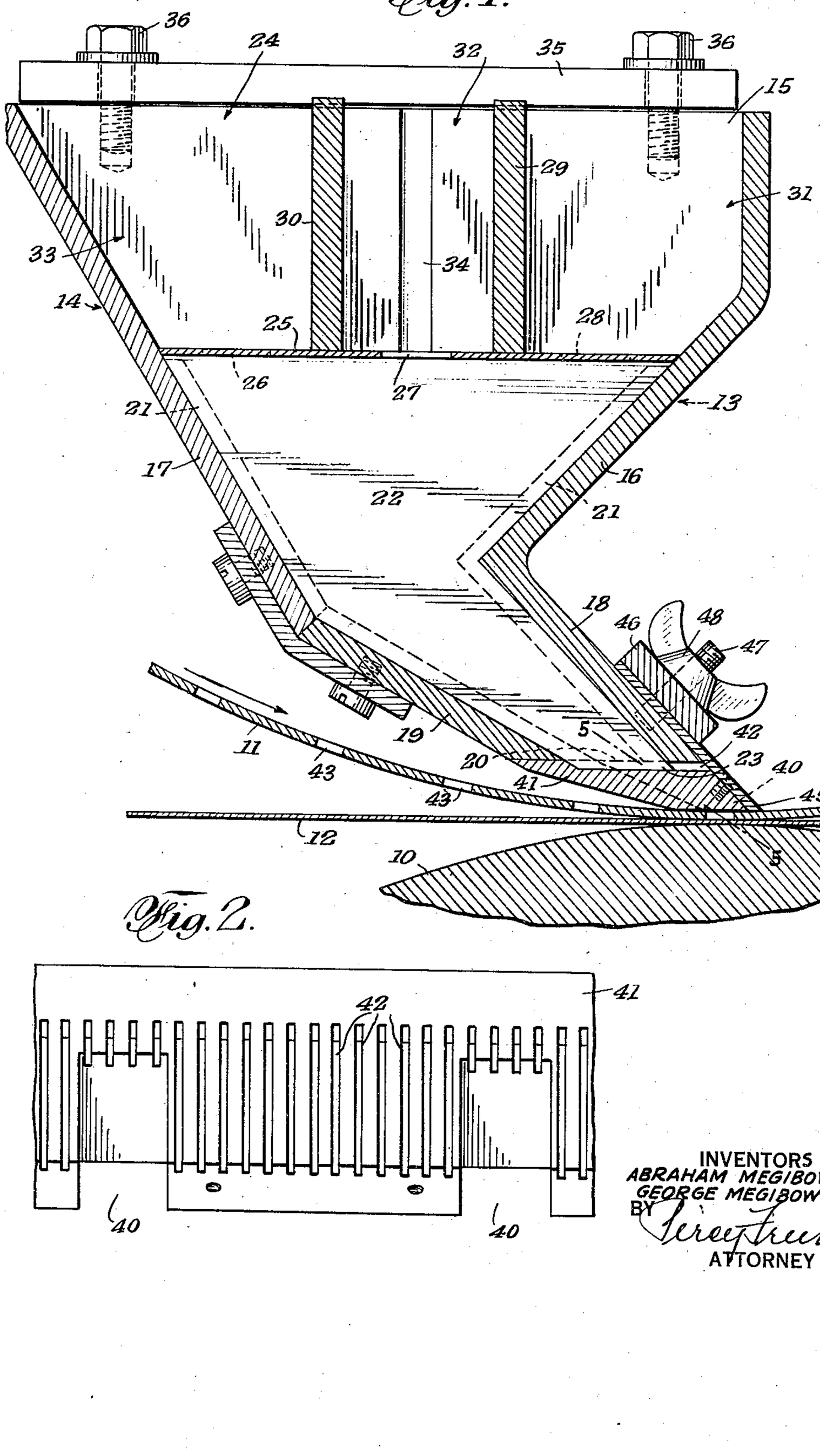

Fig. 2.

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Fig. 3.

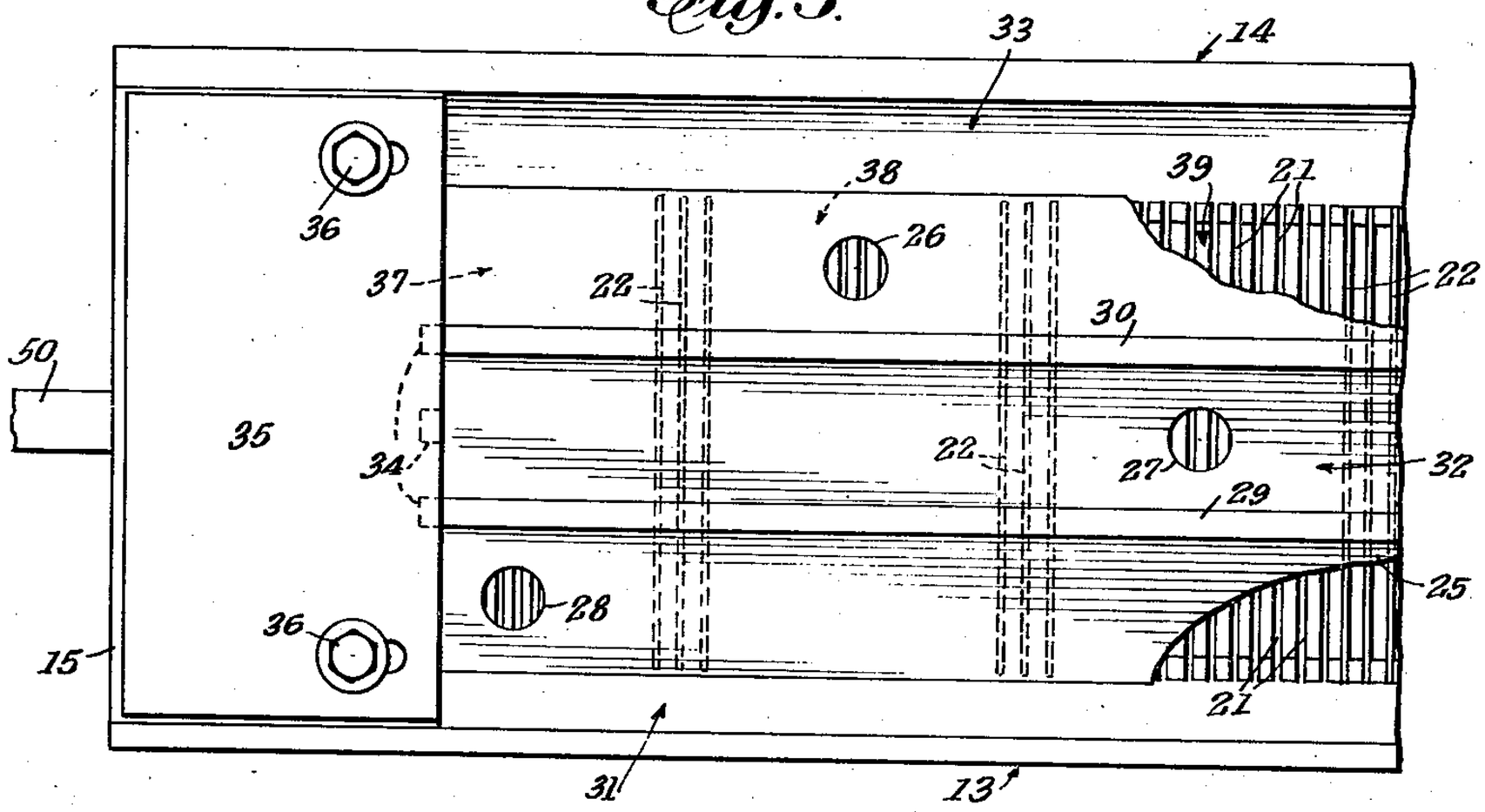


Fig. 4.

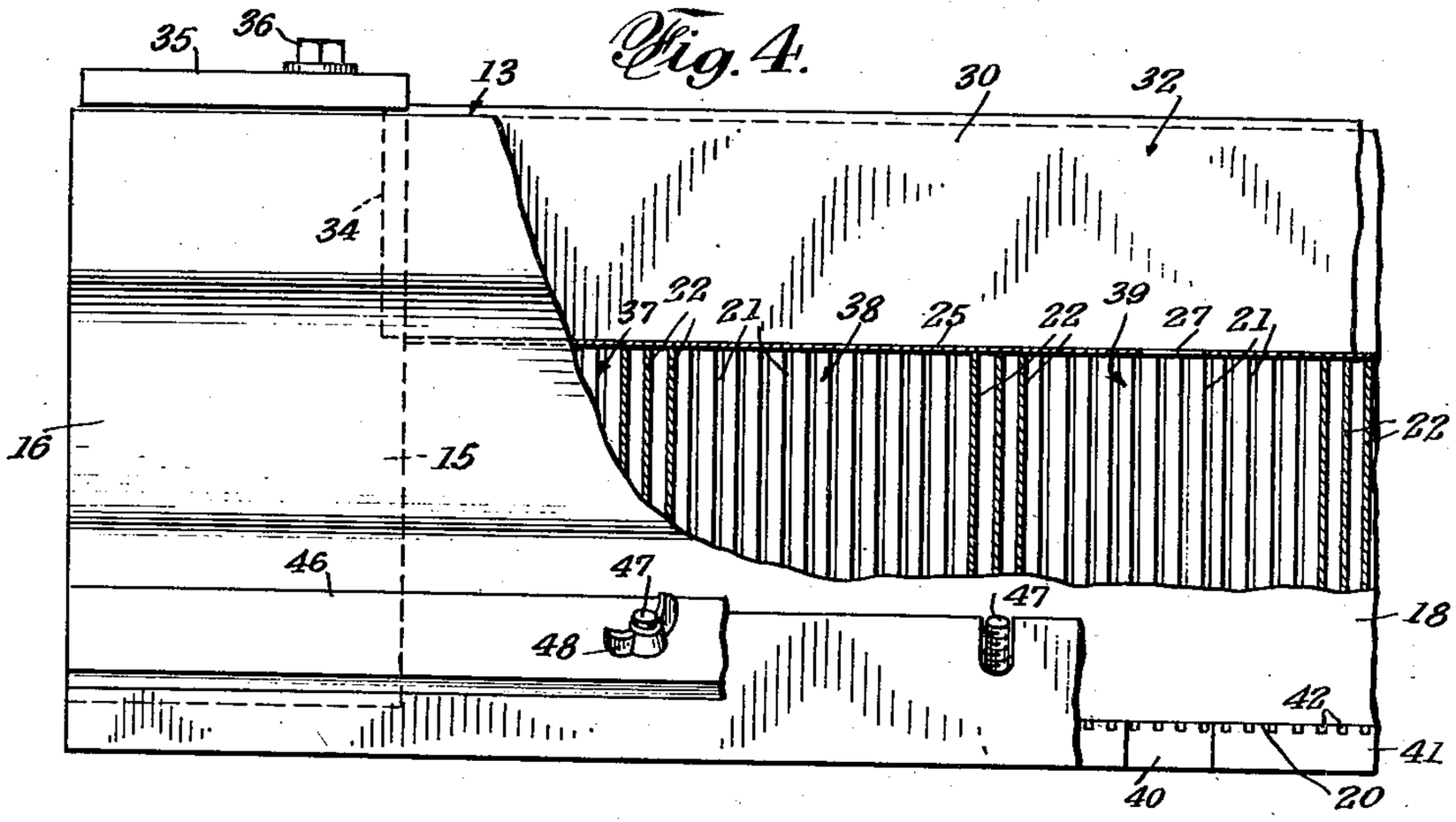
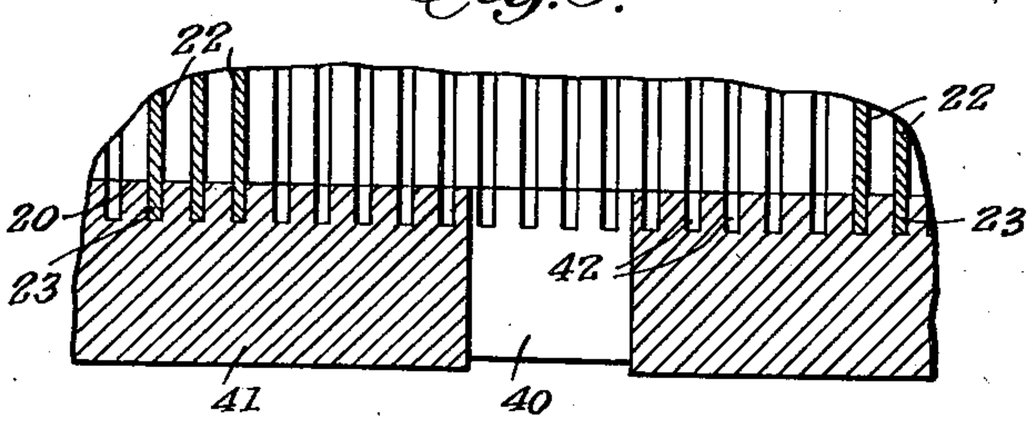


Fig. 5.



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MULTICOLOR TEXTILE PRINTING MACHINE

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5 Claims. (Cl. 101—115)

This invention relates to color printing of fabrics or like materials and deals more particularly with means for applying designs of more than one color to such materials.

The application of printed designs on cloth in two or more colors heretofore entailed passing the cloth through a single stage machine as many times as there were different colors in the design or making use of a multi-stage machine so that the cloth would receive a different color at each stage of said machine. It is obvious that the foregoing either entailed an expensive method or necessitated the use of expensive and space consuming machines.

The present invention contemplates the provision of a single stage machine wherein a plurality of colors may be applied to cloth during a single passage of said cloth therethrough.

The invention, therefore, has for its primary object the provision of a device adapted for easy installation and combination with existing single stage machines whereby two or more colors may be applied in the form of a design to a piece of cloth with a single pass of said cloth through the machine.

The invention further contemplates a device of great flexibility of use whereby the design spacings may be readily set as desired.

The structural features of the device herein contemplated also form a material part of this invention, stress being made on the manner in which the various color pigments are segregated to obviate inadvertent intermixing therebetween.

The foregoing objects, features and advantages and others which will become apparent, are realized in the device illustrated in the accompanying drawings which form the basis for the following detailed specification, it being understood that this disclosure is intended as exemplary only of the invention and capable of many changes in size, proportion, and arrangement.

In the drawings:

Fig. 1 is a transverse cross-sectional view of a pigment-applying device as contemplated herein, said device being shown in its relation to the drum and pattern cylinder of a typical printing machine for the indicated purpose.

Fig. 2 is a fragmentary plan view of a toe plate used in the device.

Fig. 3 is a top plan view of one end of the device shown in Fig. 1.

Fig. 4 is a side elevational view thereof with parts broken away.

Fig. 5 is a fragmentary detail sectional view as taken substantially in the plane of the line 5—5 of Fig. 1.

In that embodiment of the invention which is illustrated, a drum of a typical fabric or cloth printing machine is shown at 10. A pattern cylinder 11 is applied in tangential relation to the surface of the drum 10, the cloth 12 being arranged to pass therebetween. The arrangement of these parts is quite typical and follows present practice.

The pigment-applying device preferably comprises the walls 13 and 14 so shaped as to form a trough-like structure provided with end walls 15. This structure may be of any suitable length in accordance with the width of the cloth to be printed. The walls 13 and 14 are first directed toward each other as at 16 and 17 and then follow a substantially common direction with their respective portions 18 and 19 to form a relatively narrow downwardly directed opening 20.

Each wall 13 and 14, as herein contemplated, is provided with a series of preferably uniformly spaced grooves 21 arranged throughout the entire length of said walls, said grooves preferably following the contours of the wall portions 16, 17, 18 and 19.

Divider plates or partitions 22 are provided. These are shaped to substantially conform to the contours of the mentioned walls. These partitions preferably project downwardly below the opening 20 as at 23 for reasons later apparent. The upper edge of said partitions are preferably spaced from the top edge of the trough to form a pigment-receiving chamber 24.

A separating member in the form of a plate 25 is arranged longitudinally upon the top of the partitions 22 and for the three color arrangement shown, is provided with openings 26, 27, and 28.

Arrangement is made to divide the chamber 24 into a plurality of panels. In this instance, two longitudinal divider members 29 and 30 are shown, said members dividing the chamber 24 into channels 31, 32, 33.

The end walls 15 are preferably grooved as at 34 to receive the ends of the divider walls 29 and 30, the latter being clamped in position as by means of clamp plates 35 and clamp screws 36 having seats in the mentioned end walls.

In setting up the device the spacing between the design elements which are arranged in lines is first determined. The partitions 22 are then placed in selected grooves 21, as best seen in Figs. 3 and 4, to form compartments 37, 38, and 39.

A separator plate 25 which has its openings 26, 27 and 28 so spaced as to accord with the spacing of the compartments, is then selected and placed in the trough upon the partitions 22. It will be noted from Fig. 3 that the opening 26 of the plate 25 communicates the channel 33 with the compartment 38. It is apparent then that pigment placed in the channel 33 can find its way only into the compartment 38 through the mentioned opening 26. In a like manner, the channel 32 is communicated with the compartment 39 by means of the opening 27, and the channel 31 is communicated with the compartment 37 through the opening 28. It should be understood that there are several of each of the openings 26, 27 and 28 all similarly arranged to those shown, to communicate their respective channels with desired compartments.

While a single partition 22 may be employed to separate adjacent compartments, inaccuracies in manufacture dictate the use of two or more such partitions as shown to obviate the possibility of leakage of the pigment in one compartment to an adjacent compartment. A reasonable degree of accuracy in fitting the separator plate 25 will insure against leakage of pigment in the channels into undesired compartments.

After the plate 25 has been placed the longitudinal divider members 29 and 30 are set in the selected grooves 34 formed in the end walls 15 and the clamp plate 35 is slid into place in overstanding relation to the ends of said walls and locked as by means of the bolts 36. The additional groove 34 shown in Figs. 1 and 3 is provided in the event that the trough is to be set up for two color application. In the latter event, one of the walls 29 or 30 would be positioned in the groove 34 to divide the chamber 24 into two channels instead of the three illustrated. Thus, provisions can be made to divide the chamber 24 into any number of channels for as many colors as desired.

The pigment passing from the channels 31, 32, and 33 to the respective compartments 37, 39, and 38 pass downwardly through the opening 20. At this point, the pigment is guided to the pattern cylinder 11 through openings or notches 40 formed in a toe plate 41. The upper surface of said plate is preferably grooved as at 42, said grooves being spaced to align with the grooves 21 of the walls 13 and 14. The mentioned projections 23 of the partitions 22, set into certain of these grooves to form an effective seal against inadvertent seepage of pigment from one compartment to an adjacent compartment. The toe plate 41 is made up in accordance with the spacing of the compartments so that the spacing between the notches 40 accords therewith. The pigment passing through the notches falls against the inner surface of the pattern cylinder, seeking its way through the pattern openings 43 thereof and onto the cloth 12 to be applied thereto as shown at 44.

The toe plate carries a doctor blade 45 which serves to close the front of the notches 40 and has intimate contact with the inner surface of the pattern cylinder to prevent any pigment from seeping therebeyond. The doctor blade is preferably affixed to the toe plate 41 and the former preferably clamped to the wall portion 18 as by means of the clamp bar 46, the spaced studs 47 and the thumb screws 48.

From the foregoing description it can be seen that a different colored pigment may be plated in each of the channels 31, 32, and 33; that these pigments would then pass through the openings in the separator plate 25 to the respective compartments 37, 39, and 38; and that the pigments from these compartments would be directed to the openings in the toe plate and thus to the pattern cylinder and the cloth 12 to be applied upon the latter.

The flexibility of use of the structure is apparent since the spacing increments of the compartments may be varied at will, it being only necessary to provide a separator plate with holes spaced in accordance with the spacing of the compartments and a toe plate with notches similarly spaced. Additional flexibility of use is imparted to the device by the means for permitting interchangeable positioning of the divider walls 29 and 30. These walls coupled with suitably arranged slots 34 will permit setting up the device to provide a number of pigment-receiving channels in accordance with the number of colors thereof to be used.

The device is made readily applicable to and removable from a printing machine, each end thereof being provided with bracket means such as shown at 50. These brackets may be removably supported on any desired part of the printing machine to facilitate ready removal of the device and also of the pattern cylinder.

From the foregoing it can be seen that a simple and efficient device has been provided for the purpose intended. Inasmuch as many changes in construction and arrangement may be made, the foregoing disclosure, while at present preferred, is intended merely to convey the principles of the invention and not to limit the spirit and scope of the appended claims.

What we claim as new and desire to secure by Letters Patent is:

1. A device for applying color to fabrics and like materials comprising a trough, transverse partitions in said trough dividing the same into a plurality of pigment holding compartments, at least two pigment holding channels in the upper portion of said trough, a separating member between said compartments and said channels formed with openings communicating each channel with a respective set of compartments, and a toe plate secured to the trough and formed with openings communicating with said compartments for receiving pigment from said compartments.

2. A device for applying color to fabrics and like materials comprising a trough, transverse partitions in said trough dividing the same into a plurality of pigment holding compartments, at least two pigment holding channels in the upper portion of said trough, a separating member between said compartments and said channels formed with openings communicating each channel with a respective set of compartments, and a toe plate secured to the trough and formed with openings communicating with said compartments for receiving a pigment from said compartments, said toe plate being formed with grooves in which the mentioned partitions are set to seal adjacent compartments from each other.

3. A device for applying color to fabrics and like materials comprising at least two pigment holding channels, a plurality of compartments disposed beneath said channels, a separating member therebetween and formed with openings communicating each channel with a respective set of compartments, and a toe plate formed with

openings communicating with said compartments for receiving pigment from said compartments.

4. The combination with a pattern drum, of a multi-color pigment applying device comprising pigment holding channels disposed longitudinally in relation to said drum, transversely disposed compartments for receiving pigment from said channels, a separating member having openings for communicating each channel with a respective set of compartments, and a member having openings for directing the pigment from said compartments to said pattern drum.

5. In a device for applying color to fabrics and like materials, a trough, a plurality of partitions transversely arranged in said trough to provide pigment-holding compartments, said trough having an open bottom and said partitions extending below said opening, and a member positioned against the bottom of said trough and formed with grooves respective of the mentioned partitions, said member being formed with openings in register with the mentioned compartments.

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