June 23, 1959 R. SENGEWALD 2,891,471

DYEING DEVICE FOR PRINTING MACHINES

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Fig. 1

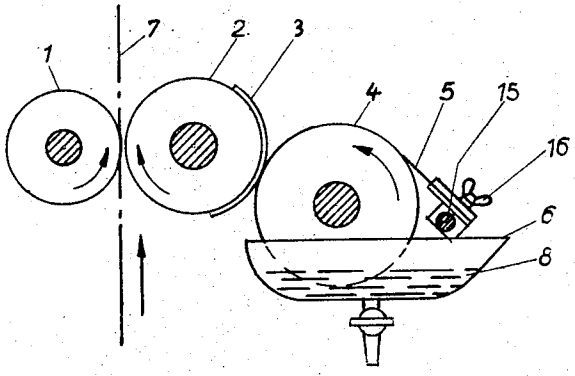
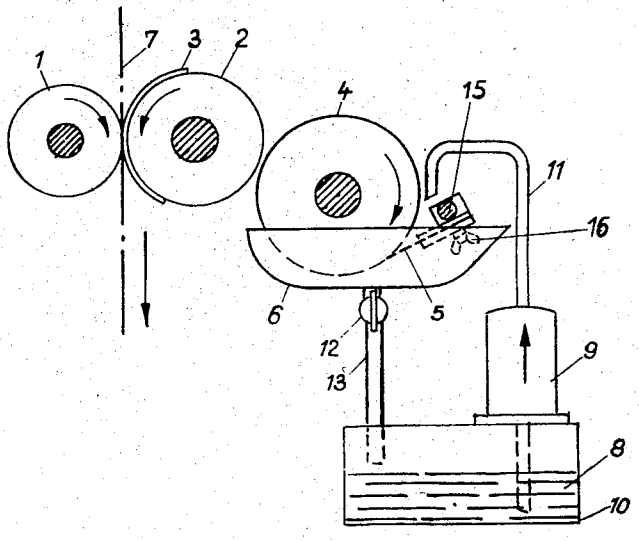


Fig 2



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DYEING DEVICE FOR PRINTING MACHINES

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3 Claims. (Cl. 101—157)

The present invention relates to color printing and color printing machines. More in particular, the present invention relates to dyeing devices of color printing machines and an improved method of the application of dyes in the process of color printing.

It is known in the art to equip the dyeing devices of color printing machines with a doctor and a screen drum; this is done in order to achieve an extremely delicate application of color which is necessary for creating fine nuances and clear contours of color print. According to the construction known in the art, the screen drum dips into the dye and the doctor is applied to the drum at that side of the screen drum where due to the sense of rotation of the latter the color is moved towards the stereotype cylinder of the printing machine. Usually, the sense of rotation of the screen drum is so chosen, that the doctor can be applied at the side of the drum which is visible and accessible to the attending person.

This known construction suffers from the considerable disadvantage that the sense of rotation of the screen drum cannot be reversed because the doctor is applied to the drum at a fixed spot. On the other hand, it is quite desirable and advantageous to reverse the sense of rotation of the screen drum. If this can be done, it is possible to produce both either the original and a reiteration imprint, as may be desired. It is also possible to equip both sides of the color printing machines with dyeing devices of identical construction, although revolving elements of the device on one side of the printing machine have an opposite sense of rotation relative to the corresponding revolving elements on the other side of the machine because of the course the web takes in color printing machines.

It is therefore the general object of the present invention to provide for a dyeing device and a new method of color application in color printing machines capable of achieving the aforementioned desirable functions.

It is the particular object of the present invention to provide for a new dyeing device and a new method of color application in color printing machines enabling a reversal of the sense of rotation of the screen drum appertaining to the dyeing device.

These objects as well as other objects and advantages which will become apparent upon the detailed description given further below are achieved by the apparatus and the method of the present invention, in which the doctor can be applied to the screen drum at will either to the upper side or to the lower side of the drum. If the doctor is in the first mentioned, upper position the dye is lifted from the dye sump by the screen drum itself. In the lower position of the doctor the dye is poured upon the doctor and hence reaches the screen drum.

The invention will be fully comprehended upon the following detailed description of the accompanying drawings, wherein:

Figure 1 is a schematic view partly in section of a part of the dyeing device and shows the doctor in its upper position with the screen drum rotating in counter-clockwise direction;

Figure 2 is a schematic view partly in section of the improved dyeing device of the invention and shows the doctor in its lower position with the screen drum rotating in clockwise direction.

Referring now to the drawings in greater detail the dyeing device comprises the counterpressure cylinder 1, the stereotype cylinder 2 having a stereotype 3, the screen drum 4, the doctor 5, and the oil sump 6. The web 7 to be printed is guided between the counter pressure cylinder 1 and the stereotype cylinder 2. The dye 8 after having been filled into the dye sump 6 in a manner known per se is lifted by the screen drum 4 dipping into the dye in dye sump 6. The drum rotates in counter-clockwise direction as indicated by the arrow. The surface of the screen drum is then scraped by the doctor 5 so that only the dye remaining in the screen portions is transferred to the stereotype 3. The web 7 moves in an upward direction.

In order to enable a displacement of the doctor 5 from its upper position shown in Figure 1 to the lower position shown in Figure 2 and thereby to enable a reversal of the sense of rotation of the screen drum 4, the doctor is displaceably mounted upon the axis 15. It can be fastened to this axis at either end by suitable fastening means, as, for instance the wing nut 16 and thus be held in its respective upper or lower (first or second) position.

If the sense of rotation of the revolving elements of the dyeing device is to be reversed, the doctor fastened upon its axis is loosened therefrom and is then brought into the second or lower position shown in Figure 2 of the drawings. In order to afford easy access to the doctor, the dye sump 6 may, if desired, be lowered in a manner known per se. If the doctor is in this second position, the dye 8 is lifted from the reservoir 10 by means of the pump 9 through pipe conduit 11 the latter being U-shaped in its upper portion. Out of the upper opening of the pipe 11 the dye is poured upon the doctor 5, preferably upon the central portion of the latter. Upon the doctor the dye spreads in both directions and forms a dye level causing a dyeing of the screen drum 4. Because of the clockwise rotation of the latter the doctor removes the dye except the one retained in the screens of the drum.

Any dye not applied to the drum or subsequently removed from the same by the doctor flows down into the dye sump 6 on both sides of the doctor. From there the dye flows through the opened discharge cock 12 and the flexible pipe conduit 13 back to the reservoir 10.

It will be understood that the invention is susceptible to modification in order to adapt it to different usages and conditions, and, accordingly, it is desired to comprehend such modifications within this invention as may fall withn the scope of the appended clams.

What I claim is:

1. In an applicator device, in combination, a rotatably mounted screen drum; take-up means positioned to contact the periphery of said drum and adapted to take up a substance to be applied by the latter; doctor means operatively associated with said drum for doctoring thereon a substance to be applied thereby before said drum contacts said take-up means, said doctor means being mounted for movement between two operative positions in each of which it contacts the periphery of said drum at a point which is spaced from the point of contact between said take-up means and said drum, in one of which positions said doctor means is adapted to doctor the substance on the periphery of said drum while the latter rotates in one direction, and in the other of which positions

said doctor means is adapted to doctor the substance on the periphery of said drum while the latter rotates in the opposite direction; receiving means adapted to hold the substance to be applied and being so positioned with respect to said drum that when the latter rotates in said one direction and said doctor means is in the corresponding operative position, said drum dips into the substance in said receiving means at a peripheral portion of said drum which is intermediate the point of contact between said take-up means and said drum and the point of contact between said doctor means and said drum but ahead of the last-mentioned point of contact; and means for supplying the substance directly onto said doctor means when the latter is in said other operative position thereof in which it is adapted to doctor the substance on the periphery of said drum while the latter rotates in said opposite direction, whereby the same doctor means may be used irrespective of the direction of rotation of said drum.

2. The combination defined in claim 1 wherein said receiving means are further so positioned that when the substance is supplied directly onto said doctor means, excess substance may drop into said receiving means.

3. The combination defined in claim 2 further comprising a reservoir adapted to hold the substance; closable outlet means placing said receiving means in communication with said reservoir; and pump means placing said reservoir in communication with said means for supplying the substance directly onto said doctor means.

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