Feb. 13, 1945 S. R. T. FREEMAN 2,369,121

HANK POLES OR THE LIKE FOR USE IN DYEING AND ANALOGOUS APPARATUS

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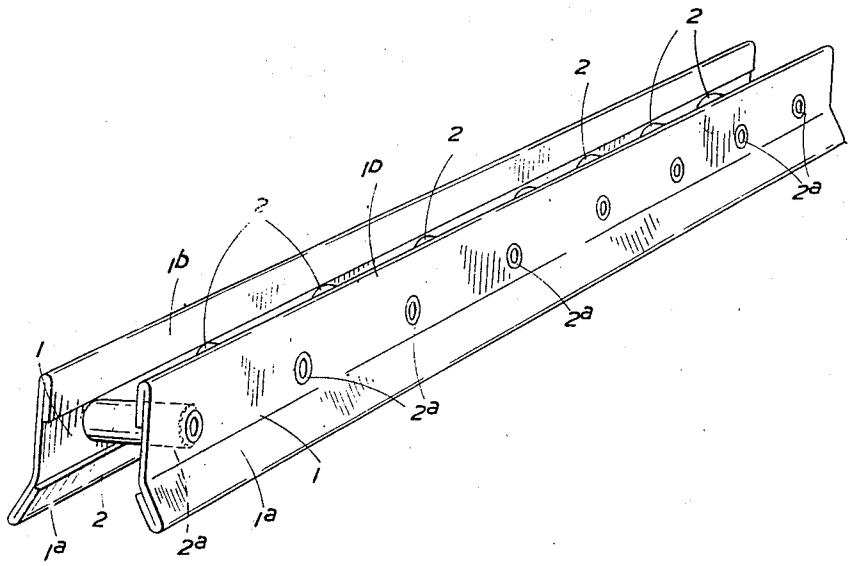


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## HANK POLE OR THE LIKE FOR USE IN DYEING AND ANALOGOUS APPARATUS

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1 Claim. (Cl. 68—212)

This invention appertains to hank poles, rods or like supports of the kind adapted for use in dyeing and analogous apparatus for the purpose of carrying textile materials, such as yarns in hank form and fabrics, which are to be subjected to treatment by fluids circulated or passed through them.

It is principally the intention to apply the invention to hank poles which are adapted to be mounted in a frame and lowered into a dye liquor suchwise that the latter can readily be circulated, e. g. by means of a screw-type propeller, through hanks of yarns hung on the poles.

Those skilled in the art of dyeing and analogous treatment of hanks of yarn and other similar material appreciate that an important desideratum is to effect thorough impregnation of the material with the dye or other medium, and this can, of course, only be done by maximum exposure of the material to the action of the said medium.

Heretofore it has been found that there is a tendency for dyestuff not to penetrate those portions of a hank which pass round and are consequently to some extent in contact with the surface of a supporting pole. This is usually due to the cross-sectional shape of the pole.

With a view to obviating this difficulty various sections designed to enable dye liquor to be brought into contact with the yarn where it touches the pole have previously been proposed or used. For instance, it is known to use a pole of a longitudinally fluted or channelled character so that contact between hanks and the pole occurs only at the junctures of or fillets between adjacent flutes or channels. One such form is a substantially triangular pole having inwardly curved or concave sides; another is a triangular pole left open on one side.

In all existing poles, however, there is a considerable surface area not only for undesirable contact with the yarn but also to cause an obstruction to the flow of dye liquor through said yarn.

The general object of the present invention, therefore, is to provide a hank pole, rod or like support of the kind concerned of an improved construction conducive to thorough treatment of hanks of yarn or other appropriate material or fabric—the principal aim being the provision of a hank pole designed to obviate the specific disadvantages aforesaid.

A specific example of the invention as embodied in a hank pole for use in a hank dyeing machine will now be described with reference to the accompanying drawing which shows a general perspective view of a portion of a skeleton hank pole.

The hank pole illustrated comprises two parallel spaced side plates 1 which are connected together by a series of tubular distance pieces 2. The side plates 1 are mainly flat, being disposed in spaced vertical planes, although, as will be seen, their lower edge portions 1*a* are splayed outwards somewhat. Both the lower edge portion 1*a* and the upper edge portion 1*b* of each side plate is folded inwardly upon itself suchwise as to provide a reinforced, rounded edge. Each tubular distance piece 2 is turned down, i. e. reduced in diameter, at its opposite ends which latter are fitted into appropriately positioned holes formed in the opposed side plates and secured in any suitable manner. For example, the reduced ends, one of which is more clearly indicated in dotted lines at 2*a*, may project slightly through the holes to enable them to be swaged or similarly prevented from withdrawal. The distance pieces 2 extend at right angles to the side plates 1, at regular intervals apart, and offer practically no obstruction to the flow of dye liquor. Both the depth and the width of a pole such as that just described may conveniently be from approximately 1¼" to 1½".

Although any suitable material may be used in the manufacture of the improved pole, stainless or non-corroding sheet metal is recommended. For example, stainless steel known as "Dyebrite" or "Staybrite" may be used. This material has a highly polished surface and consequently poles, rods or the like made thereof are unaffected by liquors used in dye-houses and will not chafe or otherwise damage hanks of the most delicate yarns.

What I claim then is:

A hank pole adapted for use in dyeing apparatus for the purpose of carrying yarns in hank form which are to be subjected to treatment by dye liquor circulated through them, said pole comprising two spaced side plates arranged substantially edgewise with respect to the direction of flow of the said liquor, the upper and lower edge portions of said plates being folded inwardly upon themselves to provide reinforced, rounded edges and the said lower edge portions being, moreover, splayed outwards, and tubular distance pieces connecting said plates together in such a way as to leave the pole wide open at opposite sides, thereby permitting the medium to pass therethrough laterally without obstruction.

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