July 1, 1941. S. BLAIR 2,247,346

DYEING APPARATUS

Filed Aug. 1, 1939

Fig. 1.

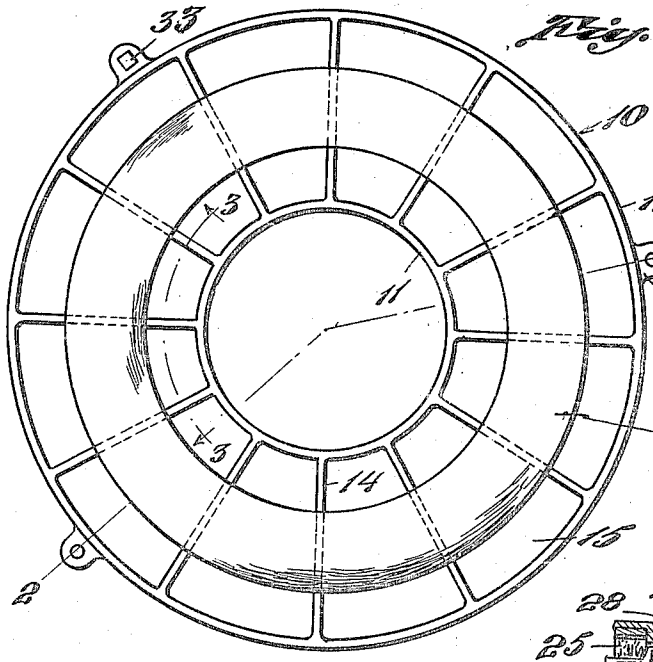


Fig. 7.

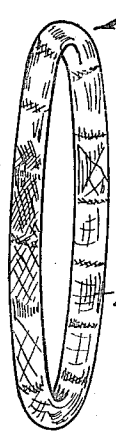


Fig. 3.

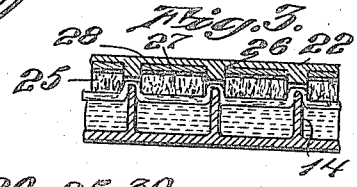


Fig. 2.

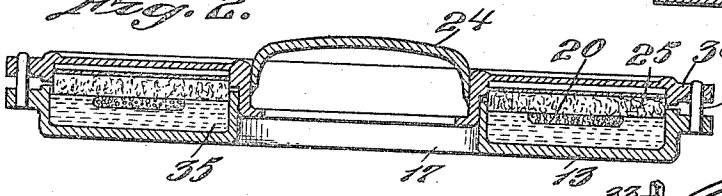


Fig. 5.

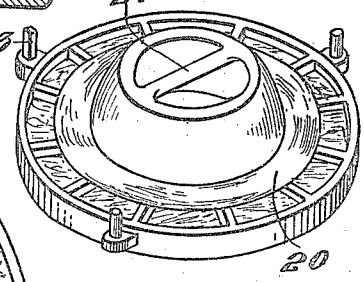


Fig. 4.

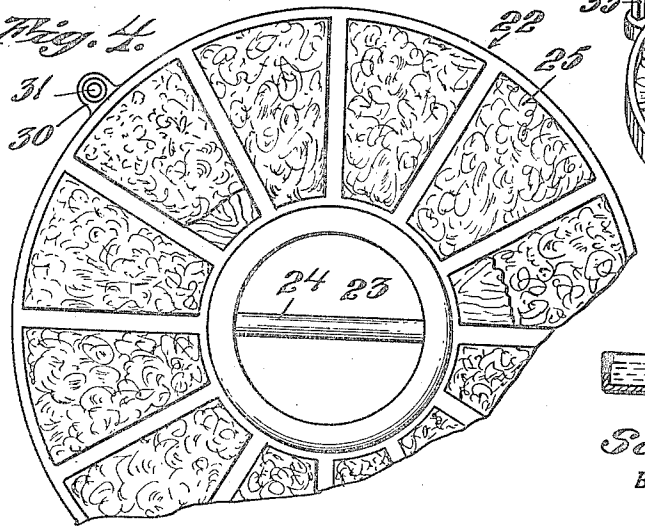
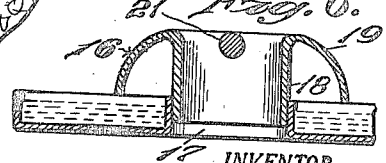


Fig. 6.



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2,247,346

DYEING APPARATUS

Samuel Blair, Edgewood, R. I.

Application August 1, 1939, Serial No. 287,707

7 Claims. (Cl. 68—200)

This invention relates to an apparatus for multi-colored yarn dyeing and has for one of its objects to provide an apparatus in which a wound skein of yarn having an open center may be dyed a plurality of different colors simultaneously so that different sections of the yarn will be of different colors or shades progressively along the length thereof.

Another object of the invention is to provide an endless receptacle into which the yarn may be immersed with divisions to provide a plurality of different compartments for separate dye liquors.

Another object of the invention is to provide a suitable guide for the ready positioning of the skein into the different dye liquors.

Another object of the invention is to provide an arrangement whereby the cover with immersion blocks may be located so as to cause the padding or printing to be always associated with the same dye compartment.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a top plan view of the endless receptacle divided into various compartments;

Fig. 2 is a sectional view on line 2—2 of Fig. 1 with the cover on the receptacle;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a plan view of the under side of the cover with parts broken away;

Fig. 5 is a perspective view showing the guide for positioning the work in place;

Fig. 6 is a sectional view of a fragment of the receptacle illustrating the guide in its relative position to the receptacle; and

Fig. 7 is a perspective view of a skein of dyed yarn.

It is desirable to provide skeins of yarn of various colors, these being useful for certain hand-knitting of fancy fabrics. Yarn to be provided in this manner is variously formed, usually in rather an expensive process, and in order to simplify the operation I have provided a receptacle of a generally endless form and divided the same into a plurality of compartments each containing a different dye liquor. I have then provided a guide for the positioning of yarn and a cover for the immersion and printing of the yarn in the dye liquor, after which the same may be removed for use; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates a receptacle of annular form having an inner wall 11, an outer wall 12 and a bottom wall 13. Radial partitions 14 extend between the inner and outer walls and divide the annulus into a plurality of compartments 15.

A guide designated generally 16 has a central tubular body 18 of a size to fit the central openings 17 of the annulus while there is an apron 19 disclosed in a curvilinear manner depending from the upper edge of the body portion 18 to lie over the different compartments 15 and provide a guide for the positioning of the skein of yarn 20 which has been wound with an open center to cause the same to lie across the top edges of the division walls 14 of the receptacle and over the compartments 15. A handle 21 extending across the tubular portion 18 enables this guide to be lifted from the receptacle after the yarn is in position.

A cover designated generally 22 is in an annular form conforming to the shape of the receptacle 10 having an opening 23 with a handle 24 extending across the same. On the under side of the cover there are a plurality of pads 25 of felt which are secured in place in wooden sheets 27 in the recesses as at 28. The receptacle is provided with a plurality of pins 29 located in ears 32 which extend into openings 31 in ears 30 extending from the cover as shown in Figs. 2 and 4. These ears and pins are located in such an arrangement that they will register when the cover and receptacle are in one relative position only and further, one of these pins 33 will be square and the opening in the ear 30 will also be square so that additionally this will serve as an indication of the position which the cover will assume on the receptacle.

In use, after the yarn is in place and the guide removed the cover will be applied and the pads will serve to force the work 20 into the treating liquor 35 in the various compartments in the receptacle. The felt pads 25 will absorb some of the treating liquor and serve to transfer as by printing the dye to the upper portion of the work. These felt pads absorb and apply the dye conveniently in this manner, it being somewhat important that the level of the treating liquor 35 be maintained substantially as illustrated so that when the cover is applied and the pad forces the work into the bath it will serve to contact the bath and yet will not cause the bath to be ex-

truded over the inner and outer walls of the receptacle.

Also by the registering of the cover and the receptacle the same pad always extends into the same dye bath whereby there is no mixing of the different colors.

It will, of course, be readily apparent that as many different colors may be used as there are compartments and these colors will blend slightly one into the other in the portion of the work which extends over the division wall 14. By this arrangement work may be conveniently and quickly handled and satisfactory results obtained.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible.

I claim:

1. An apparatus for multi-color dyeing of a wound open center skein of yarn comprising a circular formed receptacle having an outer wall, a plurality of radiating walls dividing said receptacle into a plurality of liquid-tight sector-shaped compartments and arranged in endless order for the simultaneous reception of said skein of yarn in open center formation, and means for forcing the yarn into each compartment.

2. An appartus for multi-color dyeing of a wound open center skein of yarn comprising a receptacle, spaced walls dividing said receptacle in a manner to provide a plurality of liquid-tight compartments each providable with a different dye bath and in endless order for the simultaneous reception of said skein of yarn, and a cover for said receptacle having protuberances on the underside in spaced relation to enter said compartments between said walls and force the work thereinto and also against said walls to hold the same in place.

3. An apparatus for multi-color dyeing of a wound open center skein of yarn comprising a receptacle, spaced walls dividing said receptacle in a manner to provide a plurality of liquid-tight compartments each providable with a different dye bath and in endless order for the simultaneous reception of said skein of yarn, and a cover for said receptacle having protuberances on the underside in spaced relation to enter said compartments between said walls and force the work thereinto and also against said walls to hold the same in place, said protuberances having absorptive properties whereby dye material is absorbed and transferred to the portion of said skein engaged by said protuberances.

4. An apparatus for multi-color dyeing comprising concentric circular side walls, a bottom wall between them, a plurality of radial walls between said side walls dividing said receptacle into liquid-tight compartments in endless arrangement, each providable with a different die bath and for the simultaneous reception of a skein of yarn in open center formation, and means for forcing the yarn into each compartment.

5. An apparatus for multi-color dyeing comprising concentric circular side walls, a bottom wall between them, a plurality of radial walls between said side walls, dividing said receptacle into liquid-tight compartments in endless arrangement, each providable with a different dye bath and for the simultaneous reception of a skein of yarn in open center formation, and a cover for said receptacle having protuberances on the underside in spaced relation to enter said compartments between said walls and force the work thereinto and also against said walls to hold the same in place.

6. An apparatus for multi-color dyeing comprising concentric circular side walls, a bottom wall between, a plurality of radial walls between said side walls, dividing said receptacle into liquid-tight compartments in endless arrangement, each providable with a different dye bath and for the simultaneous reception of a skein of yarn in open center formation, and a cover for said receptacle having protuberances on the underside in spaced relation to enter said compartments between said walls and force the work thereinto and also against said walls to hold the same in place, said protuberances having absorptive properties whereby dye material is absorbed and transferred to the portion of said skein engaged by said protuberances.

7. An apparatus for multi-color dyeing comprising an annulus having an open center with liquid-tight compartments arranged in endless formation, a guide member having a part to fit said open center and a portion to extend over the inner edge portion of said compartments for positioning the work in said compartments.

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