Dec. 24, 1940. E. A. STIENEN 2,226,394

APPARATUS FOR DYEING PACKAGES OF TEXTILES AND THE LIKE

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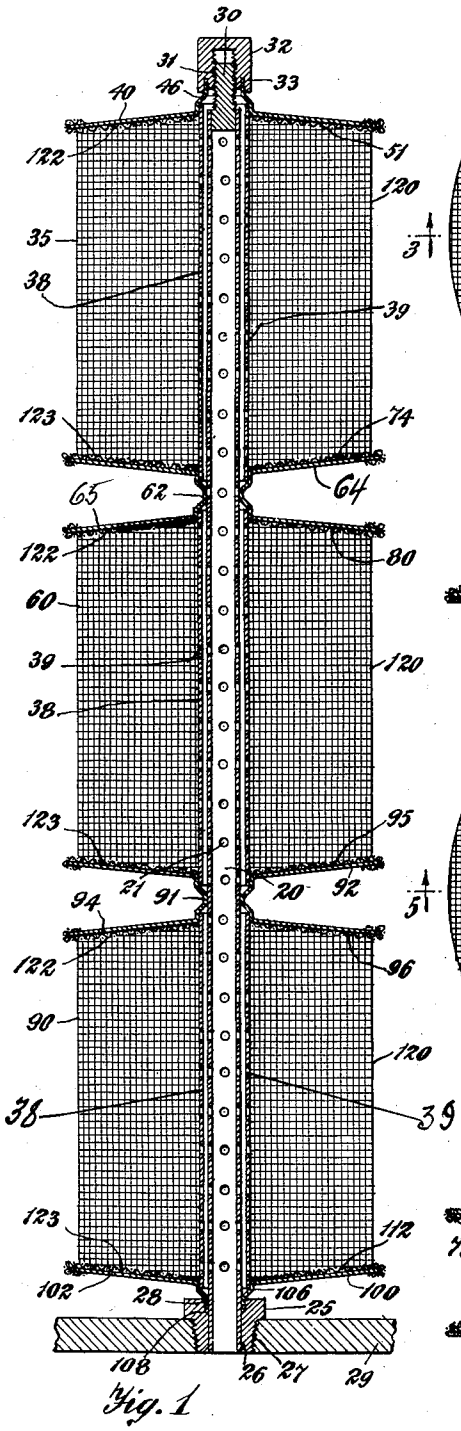


Fig. 1

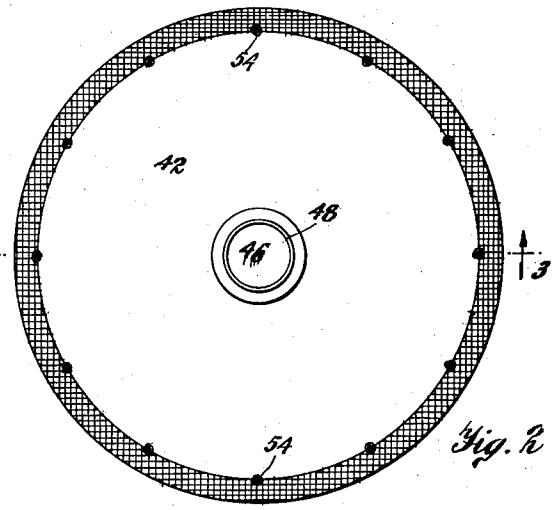


Fig. 2

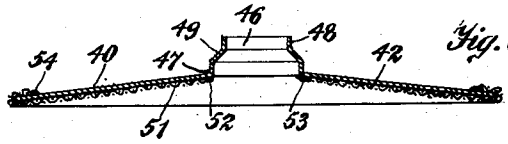


Fig. 3

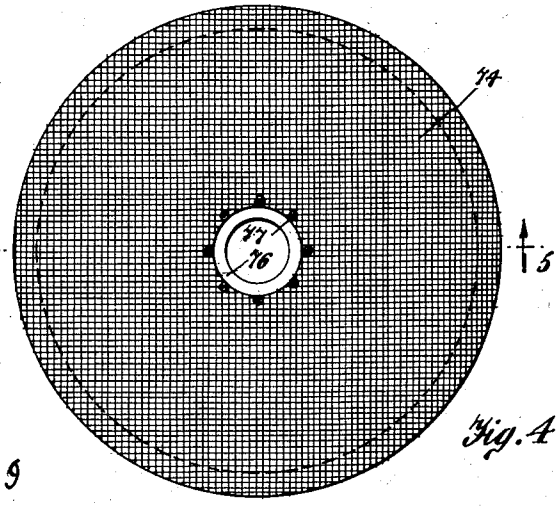


Fig. 4

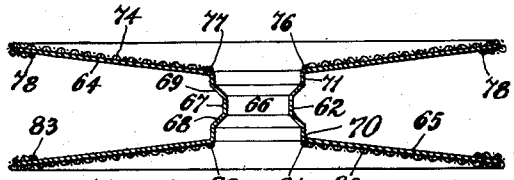


Fig. 5

INVENTOR.
ERNEST A. STIENEN
BY A A de Bonneville
ATTORNEY.

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APPARATUS FOR DYEING PACKAGES OF TEXTILES AND THE LIKE

Ernest A. Stienen, Yorktown, N. Y.

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2 Claims. (Cl. 68—198)

This invention relates to the apparatus for impregnating packages of wound rovings of textiles or spun yarns of wool, cotton, or other textile yarns with fluids, and discharging said fluids therefrom for uniformly dyeing the material operated upon.

The object of the invention relates to the apparatus for impregnating rovings of textiles, or spun yarns of wool, cotton or other textile yarns, uniformly through all portions thereof with fluids, and discharging said fluids therefrom without producing any blowouts in the material operated upon and avoiding leakage in said textiles, spun yarns and the like.

The second object of the invention is the production of holders and protectors for wound rovings of textiles and the like, by means of which the overlapping of the rovings is prevented and thereby avoiding breakage when the rovings are unwound.

Heretofore packages of textiles have been dyed on holders with hoods for the top and bottom and faces thereof and also without the use of said hoods.

When the said hoods were used, no means was employed for the uniform escape of the dye liquor through the top and bottom ends of the packages which caused uneven dyeing in the packages, although said packages were maintained in their original shape during the process of dyeing.

When the hoods were not used, the dye liquor flowed freely through the packages, but the shapes of the packages were disturbed. With the invention of the applicant when said packages of textiles are dyed their shapes are maintained intact, and all portions thereof are uniformly dyed.

Various other objects of the invention will be evident from following specification and claims.

In the accompanying drawing Fig. 1 represents a longitudinal axis section of an exemplification of the improved holder and protector with its appurtenances and packages of wound rovings of textiles; Fig. 2 shows an enlarged top view of one of the protecting hoods of the invention; Fig. 3 indicates a section of Fig. 2 on the line 3, 3; Fig. 4 is a top view of one of the intermediate double protecting hoods and Fig. 5 represents a section of Fig. 4 on the line 5, 5.

The holder and protector is shown to comprise the inner longitudinal supporting tube 20, having the perforations 21. The supporting tube 20, at its lower end is supported by the plug 25, in its axial opening 26.

The plug 25 has integral therewith the tapered threaded shank 27, and the bore 28. The shank 27 is in threaded engagement with the material carrier 29. In the upper end of the supporting tube 20, is fitted a plug 30, having the threaded shank 31. A cap 32, with the circular groove 33, at its lower end, is in threaded engagement with shank 31.

Upon the supporting tube 20, in this instance, are mounted a plurality of wound packages of rovings of textiles designated respectively in their entireties by the numerals 35, 60 and 90. The package 35 is indicated with the core 38, having the perforations 39. At the upper end of the core 38 is supported the single protecting hood designated in its entirety by the numeral 40. The hood 40, is shown with the conical shaped body portion 42. From the said body portion 42 upwardly extends the sleeve designated in its entirety by the numeral 46. The said sleeve 46 comprises the cylindrical portions 47 and 48, connected by the tapered portion 49. The cylindrical portion 48 extends into the groove 33 of the cap 32.

At the lower face of the body portion 42, of the hood 40, is indicated the conical shaped wire mesh cover 51, which at its upper central opening 52 is spot welded to the body portion 42, as indicated at 53. The outer portion of the wire mesh cover 51 is bent over the outer circumferential edge of the body portion 42, and its edge portion is fastened to the upper surface of said body portion 42 by spot welding as indicated at 54.

The packages 60 and 90 are also each shown having the core 38 with the perforations 39.

At the lower end of the package 35, is indicated a double conical shaped protecting hood designated in its entirety by the numeral 62, and which comprises the upper conical shaped body portion 64 and the lower conical shaped body portion 65.

The body portions 64 and 65, are connected by the sleeve designated in its entirety by the numeral 66. The sleeve 66 comprises the central cylindrical portion 67, from which extend the tapered portions 68 and 69. From the portion 68 extends the cylindrical portion 70, and from the portion 69, extends the cylindrical portion 71. The cylindrical portion 71, joins with the body portion 64 and the cylindrical portion 70, joins with the body portion 65.

Bearing upon the upper or inner face of the upper conical shaped body portion 64, is indicated the conical shaped wire mesh cover 74,

which at its central opening 76, is fastened to the conical shaped body portion 64, by spot welding as indicated at 77. The outer circumferential portion of the cover 74, is bent over the outer circumferential edge of the body portion 64, and fastened to the latter by spot welding 78.

Bearing against the lower face of the conical shaped body portion 65, is shown the conical shaped wire mesh cover 80, which at its central opening 81 is fastened to the body portion 65 by spot welding 82. The outer circumferential portion of the cover 80, is bent over the outer edge of the body portion 65 and fastened to the latter by spot welding 83.

Between the packages 60 and 90, is positioned another double conical shaped protecting hood designated in its entirety by the numeral 91, which is similar to the protecting hood 62, and is shown with its upper conical shaped body portion 92, similar to 64 and its lower conical shaped body portion 94, similar to 65. A wire mesh cover 95, similar to 74, bears on the upper face of the body portion 92, and is fastened in place as described for the cover 74. A conical shaped wire mesh cover 96, similar to 80, bears against the lower face of the body portion 94, and is held in place as described for the cover 80.

At the lower end of the package 90, is shown a single protecting hood 100, which is similar to the protecting hood 40, but is located in a position reverse to the latter. The hood 100, is indicated with the conical shaped body portion 102. From the body portion 102, extends downwardly the sleeve designated in its entirety by the numeral 106, which is similar to the sleeve 46, already described. The sleeve 106, at its lower end has integral therewith the cylindrical portion 108, similar to 48 already described. The cylindrical portion 108 extends into and is supported by bore 28 in the plug 25. Upon the hood 100, is supported the conical shaped wire mesh cover 112, similar to 74, and which is fastened in place as described for the latter.

The rovings for the packages 35, 60 and 90, are each indicated in its entirety by the numeral 120. Each roving 120, is cylindrical in the body portion thereof and is shown with the top and bottom end conical shaped faces respectively designated at 122 and 123. Each of the rovings 120, is wound around its core 38. The packages 30, 60 and 90, are then assembled upon the longitudinal supporting tube 20, between their protecting hoods as indicated in Fig. 1.

It will be noted that the wire mesh cover 51, spaces the top conical shaped end face 122, of the roving 120 of the package 35, from the lower face of the body portion 42, of the hood 40. The wire mesh cover 74, spaces the bottom conical shaped end face 123, of the roving 120, of the package 35 from the body portion 64 of the double hood 62. The wire mesh cover 80, spaces the top conical shaped end face 122 of the roving 120, of the package 60, from the body portion 65 of the adapter 62.

In a similar way the wire mesh cover 95, spaces the bottom conical shaped end face 123, of the package 60, from the body portion 92 of the hood 91. The wire mesh cover 96, spaces the top end face 122, of the roving 120 of the package 90, from the body portion 94 of the hood 91, and the wire mesh cover 112, spaces the bottom end face 123, of the roving 120 of the package 90 from the body portion 102 of the hood 100.

To operate the invention dye liquor for dyeing the packages 35, 60 and 90, is directed to the lower end of the supporting tube 20. The liquor will flow through the perforations 21, and then pass through the perforations 39, of the cores 38, and uniformly impregnate each of the rovings 120. The dye liquor will be simultaneously discharged from each of the rovings 120, through its cylindrical wall and through its concaved conical top and bottom end faces 122 and 123. The liquor passing through said top and bottom end faces 122 and 123, will flow through the openings of the wire mesh of each of the packages. The result of the flow of the liquor as described will dye the said packages uniformly throughout all their portions.

Attention is called to the fact that the direction of the flow of the dye liquor through the packages may be reversed from that described, that is to say the dye liquor may enter at the outer cylindrical surfaces of the rovings 120 and also enter respectively through their top and bottom faces 122 and 123, and led to the supporting tube 20.

With the old forms of hoods, packages of some textiles when operated upon with dye liquor become glossy adjacent to said hoods or adapters, resulting from the lack of a uniform flow of the liquor through the ends of the packages. This result is avoided with the hoods described in this application.

Various modifications may be made in the invention and the present exemplication is to be taken as illustrative and not limitative thereof.

Having described my invention I claim:

1. The combination of a supporting tube having perforations extending through its wall, a pair of protecting hoods supported on said tube for the top and bottom end faces of a package of textiles and the like and a wire mesh cover connected to each protecting hood which bears against the top and bottom end faces of the package.

2. The combination of a supporting tube having perforations extending through its wall, a single protecting hood having a conical shaped body portion supported at the upper end of said tube and a single protecting hood having a conical shaped body portion supported at the lower end of the supporting tube and opposite in position relatively to the first protecting hood or adapter, and a plurality of double conical shaped hoods supported on the supporting tube between the hoods at the top and bottom ends of the same, each double protecting hood comprising a pair of conical shaped body portions oppositely positioned to each other, each of the body portions of all protecting hoods having a conical shaped cover of wire mesh adapted to bear against the adjacent end face of a package of textile.

ERNEST A. STIENEN.