Aug. 5, 1969 L. U. RENAUD 3,459,013

WOOL TOP DYEING APPARATUS

Filed July 6, 1964 2 Sheets-Sheet 1

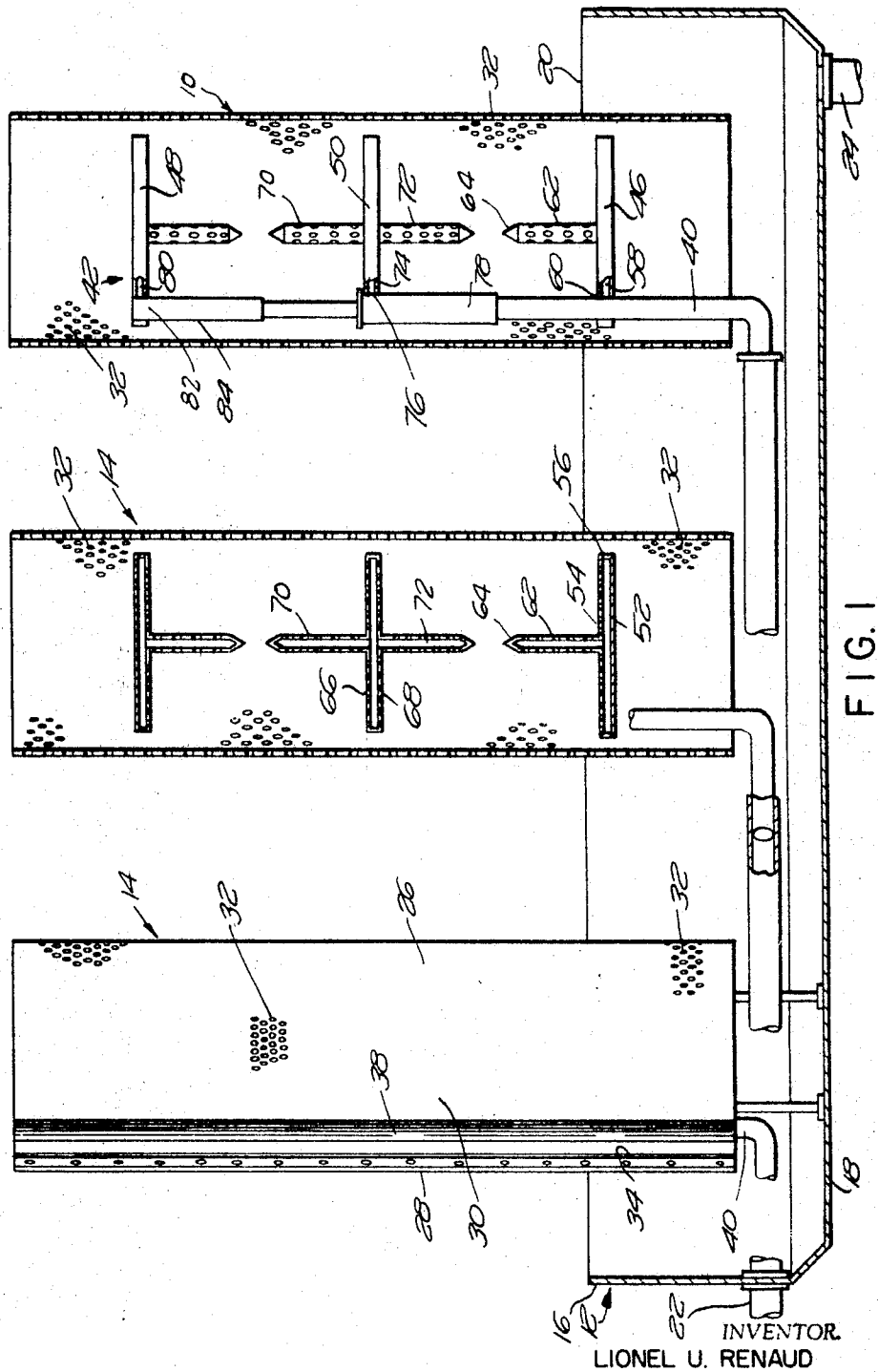

FIG. 1

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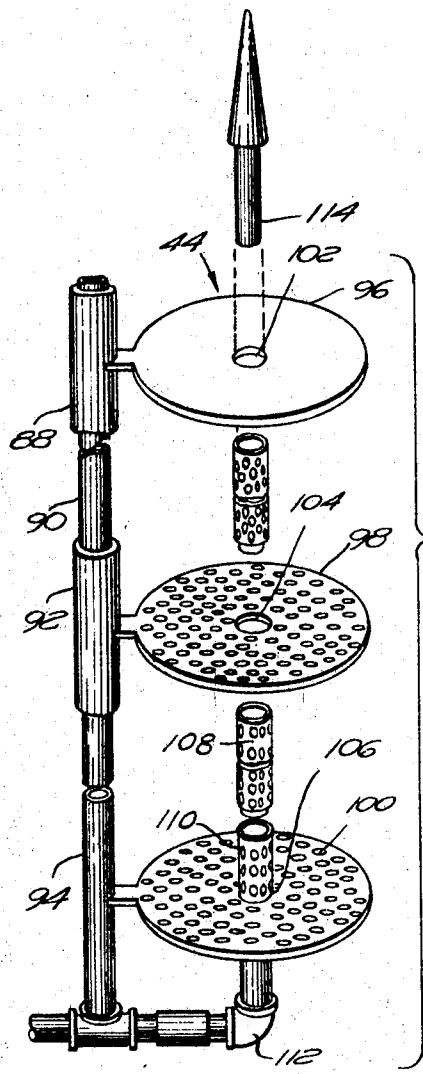

FIG. 2

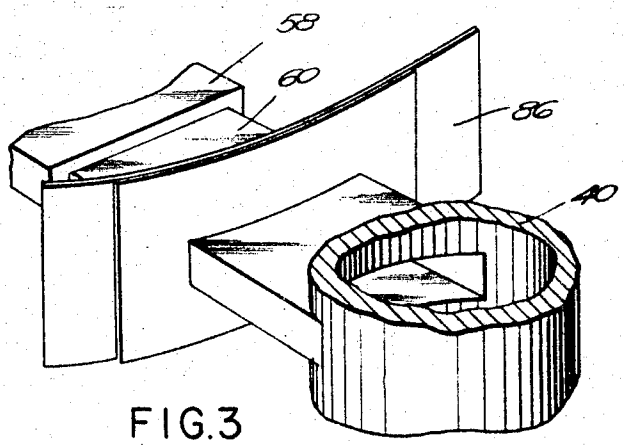

FIG. 3

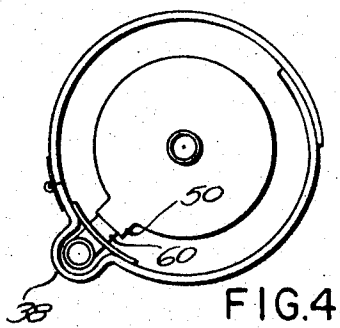

FIG. 4

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WOOL TOP DYEING APPARATUS

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The portion of the term of the patent subsequent to Aug. 5, 1984, has been disclaimed
Int. Cl. D06p 1/22
U.S. Cl. 68—187 11 Claims

The present invention relates to improvements in wool top dyeing apparatus.

An object of the present invention is to provide an improved wool top dyeing apparatus wherein the wool tops can be held and supported in a dye vat for effective dyeing yet wherein the wool tops can be easily removed.

Another object of the present invention is to provide an improved wool top dyeing apparatus wherein the wool tops can be supported by novel means which are so arranged and supported as to accommodate various size tops.

A further object of the present invention is to provide an improved wool top dyeing apparatus wherein the wool tops can be peripherally supported as well as axially supported and wherein the axially supporting means constitutes part of the dye feed system whereby the dye solution is fed through the wool tops from the inside to the outside.

Still another object of the present invention is to provide an improved wool top dyeing apparatus having peripheral and vertical axial supporting means wherein the peripheral means can be opened to load and unload the wool tops therein and the axial means are movable to accommodate various heights of wool tops.

A still further object of the present invention is to provide an improved wool top dyeing apparatus wherein the dye solution is fed through the wool tops by novel means which more fully and evenly permeates the wool tops that has been possible in prior arrangements.

Various other objects and advantages will become apparent from the detailed description to follow.

In the drawings:

FIGURE 1 is a side elevational view of an improved wool top dye apparatus with parts being shown in section;

FIGURE 2 is a perspective partially exploded view of a modified form of wool top supporting and dye feeding means;

FIGURE 3 is an enlarged perspective view showing a detail of the feed means; and

FIGURE 4 is a horizontal section through an assembly utilizing the means shown in FIGURE 3.

Referring more particularly to the drawings, wherein like numerals apply to like parts throughout, it will be seen that my improved wool top dyeing apparatus **10** includes a vat **12** with a series of similar wool top supporting assemblies **14**.

The vat **12** can be of any suitable design such as is presently employed including side walls **16** and a bottom wall **18** with an open top at **20**. Dye solution inlet **22** is adapted to be connected to a suitable source of colorant solution (not shown) including conventional circulating means such as a pump (not shown) and which do not form a part of this invention. The vat also has an outlet **24** which is a return connection for the dye circulating system.

The top supporting assemblies **14** may vary in number and are shown with various sectional cuts for clarity. The assembly located at the left shows a shell jacket **26** which is constructed of two semi-cylindrical sections **28**, **30** of sheet metal having a multiplicity of perforations **32** for

free outward flow of circulating dye solution. The two sections are hingedly joined by the elongated hinge **34**. One of the sections **30** is rigidly supported on the bottom wall **18** of the vat. Suitable latch means are used to releasably hold the two sections in closed relationship.

The shell jacket section **30** of each supporting assembly has an outwardly directed channel **38** extending vertically so as to provide a recess for a vertically disposed dye solution feed conduit **40**, see FIGURE 3.

Within each shell jacket are means **42** for axially supporting the wool tops. FIGURE 1 shows one embodiment and FIGURE 2 shows a modified form of means **44**.

The means **42** includes a bottom disk **46**, a top disk **48** and an intermediate disk **50**. The bottom disk **46** is of hollow shell construction and has an imperforate bottom wall **52** and a perforate top wall **54** joined by an imperforate peripheral wall **56**. The disk **46** is of generally circular shape. A feed tongue **58** of flat tubular form communicates with the interior of the disk at the peripheral wall and extends radially outwardly.

The conduit **40** has a feed outlet **60** which telescopically joins with the tongue **58**.

A spindle section **62** is connected to the top wall **54** of the disk **46**. The spindle section **62** is of small diameter tubular perforated construction having a pointed end **64**. It will be understood that a wool top can be received within the shell jacket and supported on the disk **46** and around the spindle **62**.

The intermediate disk **50** is also of hollow construction but both top wall **66** and bottom wall **68** are perforated. Additionally, upwardly and downwardly directed spindle sections **70**, **72** are connected with the top and bottom walls **66**, **68**, respectively. The disk **50** has a feed tongue **74** which is telescopically connected with the feed outlet **76**. The latter is connected with the feed conduit section **78** which is telescopically adjustable on the conduit **40** to accommodate various height wool tops.

The top disk **48** is similar to the bottom disk only in inverted relation to the assembly. It has a feed tongue **80** connected with the feed outlet **82** of the conduit section **84**. The latter is vertically telescopically adjustable in relation to the other conduit sections for the reason above explained. The conduit sections are all disposed in the channel formation **38**.

Having reference to FIGURE 3, the feed tongue **58** is shown as connected to the feed outlet **60** with the latter being connected to the conduit **40**. A baffle plate **86** is snugly slidably received on the feed outlet **60** so that it can be backed against the interior surface of the shell jacket at the channel formation.

Having reference to FIGURE 2 the modified form of means **44** for axial support of the wool tops is there shown.

The conduit sections **88**, **90**, **92** and **94** are telescopically vertically adjustable and sections **88**, **92** and **94** are respectively connected to the top, medial and bottom disks **96**, **98**, **100**. The latter are similar to the above described disks but have center openings **102**, **104**, **106**. Spindle sections as at **108** and **110** are separate from the disks and are connected together and at their lower end connected to the feed outlet conduit **112**. A cap is provided at **114** for the top spindle section.

Of course, here again, the spacings of the disks can be varied to accommodate various heights of wool tops while providing for full coverage of distribution of the dye solution.

In view of the foregoing, it is believed that I have provided an improved apparatus which fulfills the objects hereinbefore enumerated.

I claim:

1. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, at least certain of said disks being hollow, having perforations directed toward the interior of the respective shell jacket and being connected to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the top and bottom disks, said shell jacket having a pair of semi-cylindrical sections hingedly connected together, one of said sections being rigidly supported in said vat.

2. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, at least certain of said disks being hollow, having perforations directed toward the interior of the respective shell jacket and being connected to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the top and bottom disks, said top disk having a conduit section connected thereto, said conduit section being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops.

3. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, at least certain of said disks being hollow, having perforations directed toward the interior of the respective shell jacket and being connected to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the top and bottom disks, said top disk having a conduit section connected thereto, said conduit section being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops, each of said disks having a spindle section attached thereto and located so as to extend substantially coaxially with said shell jacket.

4. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding a shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, at least certain of said disks being hollow, having perforations directed toward the interior of the respective shell jacket and being connected to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the top and bottom disks, said top disk having a conduit section connected thereto, said conduit section being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops, a sectional hollow, perforated spindle connected with said conduit so as to receive dye solution therefrom, said disks having aligned openings to receive said sectional spindle therethrough.

5. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks.

6. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said shell jacket having a pair of semi-cylindrical sections hingedly connected together, one of said sections being rigidly supported in said vat.

7. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said top and intermediate disks having telescopic conduit sections respectively connected thereto, said conduit sections being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops.

8. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said top and intermediate disks having telescopic conduit sections respectively connected thereto, said conduit sections being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops, each of said disks having a spindle section attached thereto and located so as to extend substantially coaxially with said shell jacket.

9. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said top and intermediate disks having telescopic conduit sections respectively connected thereto, said conduit sections being telescopically associated with said conduit so as to be movable in relation to said bottom disk to accommodate various size tops, a sec-

tional hollow, perforated spindle connected with said conduit so as to receive dye solution therefrom, said disks having aligned openings to receive said sectional spindle therethrough.

10. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said shell jacket having a pair of semicylindrical sections hingedly connected together, one of said sections being rigidly supported in said vat, said one shell jacket section having an outwardly directed channel formation extending longitudinally thereof and adapted to receive said conduit therein.

11. A wool top dye apparatus comprising a vat for holding a supply of dye solution, at least one wool top holding shell jacket mounted in said vat, said vat having a dye feed conduit extending into each said shell jacket, a bottom disk supported in each said shell jacket at the bottom thereof, a top disk supported in each shell jacket at the top thereof, an intermediate disk medially located in each said shell jacket, said disks being hollow, and

having perforations directed toward the interior of the respective shell jacket, means connecting each of said disks to said conduit so as to receive dye solution therefrom and feed the same into any wool top supported between the disks, said shell jacket having a pair of semicylindrical sections hingedly connected together, one of said sections being rigidly supported in said vat, said one shell jacket section having an outwardly directed channel formation extending longitudinally thereof and adapted to receive said conduit therein, said means connecting each of said disks to said conduit including a hollow feed tongue extending from said channel formation and radially inwardly of the respective shell jacket, an arcuate deflector plate encirculing each said feed tongue and fitted against the interior surface of said respective shell jacket at the channel formation.

References Cited

UNITED STATES PATENTS

1,335,459	3/1920	Resch	68—187
2,779,977	2/1957	Wilkie	68—189 X

FOREIGN PATENTS

35,151	6/1929	France.	

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U.S. Cl. X.R.

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