

Sept. 15, 1942.

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2,296,035

DYE APPLICATOR

Filed July 31, 1940

2 Sheets-Sheet 1

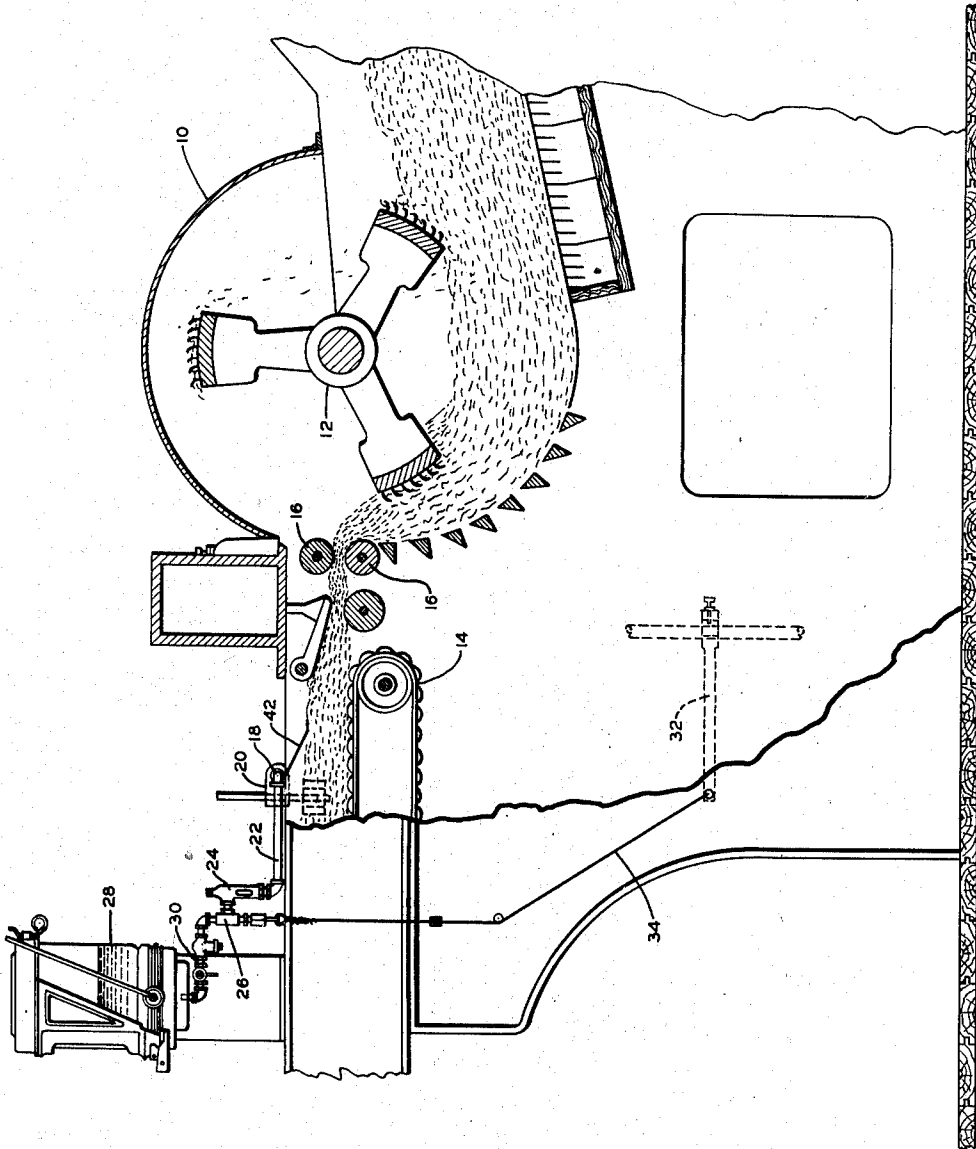


FIG. 1

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FIG. 2

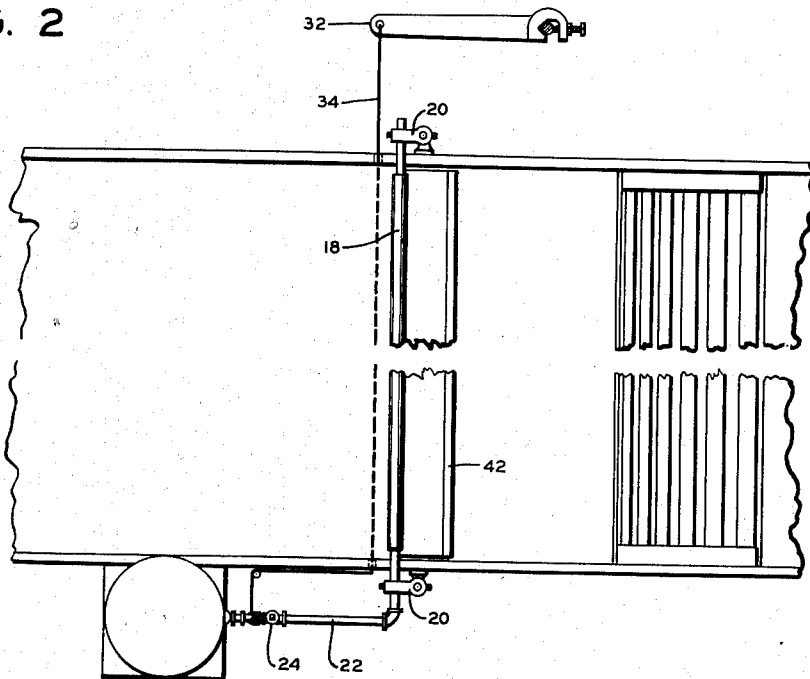


FIG. 3

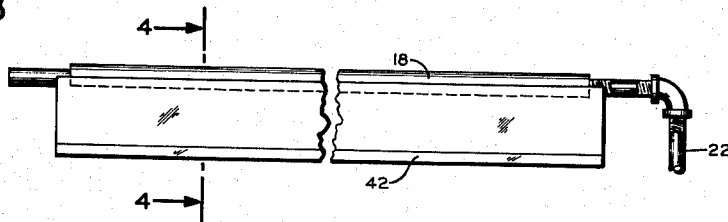


FIG. 4

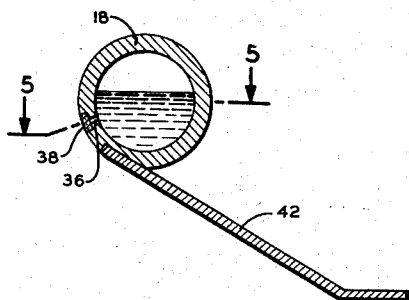
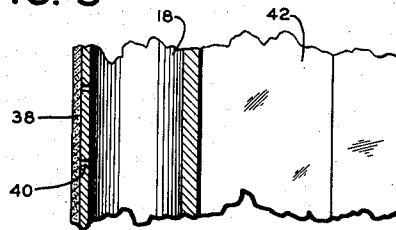


FIG. 5



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DYE APPLICATOR

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mesne assignments, to The Texas Company,
New York, N. Y., a corporation of Delaware

Application July 31, 1940, Serial No. 348,727

1 Claim. (Cl. 68—205)

This invention relates to applicators and more particularly to devices for applying dyes or tinting fluids to fibrous materials.

In the processing of certain fibrous materials, such, for example, as rayon, it is frequently desirable to tint different batches of the material being processed with fugitive dyes of different colors for purposes of identification. In this manner each separate batch of material, tinted with its distinctive color, can at all times be readily identified so long as there is a necessity for such identification. Thereafter the dye can be readily removed.

It is an object of my invention to provide a simple device capable of applying fugitive dyes to fibrous materials in regulated quantities and in a uniform manner. The invention contemplates the provision of an applicator which is simple to install and to operate and the operation of which can be readily synchronized with the operation of the fibre processing apparatus in conjunction with which the applicator is used.

Other objects, features and advantages of the invention will readily appear as the description thereof progresses, reference being had to the accompanying drawings in which

Figure 1 is a view in side elevation, and partly in section, of a section of a fibre processing apparatus equipped with my dye applicator;

Figure 2 is a top plan view of the apparatus shown in Figure 1;

Figure 3 is an enlarged view of my dye applicator in the form in which it is used in conjunction with fibre processing apparatus;

Figure 4 is a sectional view of my applicator, taken on line 4—4 of Figure 3; and

Figure 5 is a partially sectional view of my applicator taken on line 5—5 of Figure 4.

For the purpose of illustrating a typical installation of my dye applicator on one well known form of fibre processing apparatus or picker there is shown in the drawings (Figure 1) such an apparatus having a beater chamber 10 within which operates a rotating beater 12. Fibrous material, such as rayon, is delivered by means of a conveyor 14 through feed rolls 16, 16 to the beater chamber 10 in which it is operated upon by the beater 12 to separate the fibres from the mass in which they enter the beater chamber.

The dye applicator which constitutes the subject matter of this invention comprises a chambered member or pipe 18 which is preferably supported at its ends in a horizontal position across the width of and somewhat above the conveyor or feed apron 14 by brackets 20, 20 55

which are secured to the opposite sides of the fibre processing apparatus in any suitable manner. One end of the pipe 18 is closed in any appropriate manner while the opposite end connects with a supply line 22 which in turn connects with a sight feed valve 24 by means of which the rate of flow of the tinting fluid to the applicator is controlled.

The sight feed valve 24 connects with a housing 26 containing a valve (not shown) which is operated in response to the operation of the fibre processing apparatus to control the supply of dye from a reservoir 28 as shown, or to any one of a number of reservoirs containing different colored dyes, to which the valve housing 26 is or may be connected by a pipe 30 or other necessary piping. The location of the reservoir with relation to the location of the applicator establishes a definite hydrostatic pressure at the orifice of the sight feed valve and means (not shown) are provided within the reservoir for maintaining a constant operating level of the tinting fluid. The valve within the housing 26 is operatively connected with the knock-off arm 32 of the fibre processing apparatus by a cable 34 or other suitable means so that when the arm 32 is actuated to stop the processing apparatus the supply of dye to the applicator is simultaneously cut off, and when the operation of the processing apparatus is resumed dye is again supplied by gravity to the applicator.

The applicator per se, as already explained, comprises the chambered member or pipe 18. The outer wall is provided with a longitudinally extending groove 36 which serves as a receptacle for a longitudinally extending wick 38. A plurality of holes 40 connect the base of the groove 36 with the inside of the tubular member which, while the fibre processing apparatus is in operation, is kept filled with the liquid dye or tinting material to a point above the level of the holes 40. The tinting material passes by gravity through the holes and saturates the wick 38 as long as the required level is maintained in the tubular member 18, the wick distributing the tinting material evenly throughout the length of the applicator and also regulating the passage of dye through the holes 40.

A resilient wiper member 42 of a length substantially coextensive with that of the tubular member 18 is attached at one longitudinal edge to the tubular member 18 and extends in a direction tangential thereto. The point of attachment is below the level of the holes 40 so that the wiper 42 extends downwardly and to the rear

of the tubular member 18, as viewed in Figure 1. In operation the lower surface of the wiper 42 is in constant contact with the top of the lap of fibrous material as the latter is moved to the beater chamber 10 by the conveyor 14.

In operation the reservoir 28 is filled with the particular dye or tinting material which it is desired to use, and that dye is supplied to the applicator so long as the fibre processing machinery continues to operate, the amount of dye supplied to the applicator being regulated by the sight feed 24. Upon reaching the applicator the dye or tinting material is distributed throughout the length of the tubular member 18 and is maintained at a level above that of the holes 40. As long as this level is maintained the dye passes through the holes and saturates the wick 38 and the excess dye from the wick gravitates downwardly over the lower face of the wiper 42, which is maintained constantly moist with the dye. Thus while the fibre processing apparatus is in operation and the conveyor 14 is feeding fibrous material to the beater chamber, the fibre is caused to pass under and in contact with the lower face of the wiper 42 and by reason of this wiping engagement between the fibre and the wiper, dye or tinting material is transferred from the wiper to the fibrous material. As the fibre enters the beater chamber 10 and is acted upon by the beater 12 to separate the fibres from the mass-like form in which they enter the beater chamber, the tinted fibres are separated and mixed with the untinted fibres and this mixing

produces a substantially uniform coloring of the entire mass of fibres.

Obviously dyes of any desired colors can be used in the reservoir 28, or a series of different reservoirs, each containing a different color, can be connected up to the supply line 22 so that any selected color or combination of colors can be supplied to the applicator at will.

Obviously many modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claim.

I claim:

A dye applicator adapted to be disposed above a moving conveyor of fibrous material and comprising a tubular member formed with a longitudinally disposed groove in the outer wall thereof and a plurality of holes connecting the base of said groove with the inside of the tubular member, wicking disposed throughout the length of said groove, a resilient wiper secured to said tubular member in tangential relation thereto at a point below the level of the holes therein and adapted to make wiping contact with the fibrous material on the conveyor, a reservoir from which dye flows by gravity at a predetermined and constant hydrostatic pressure to the tubular member, and means for regulating the flow of the dye to said tubular member.

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