

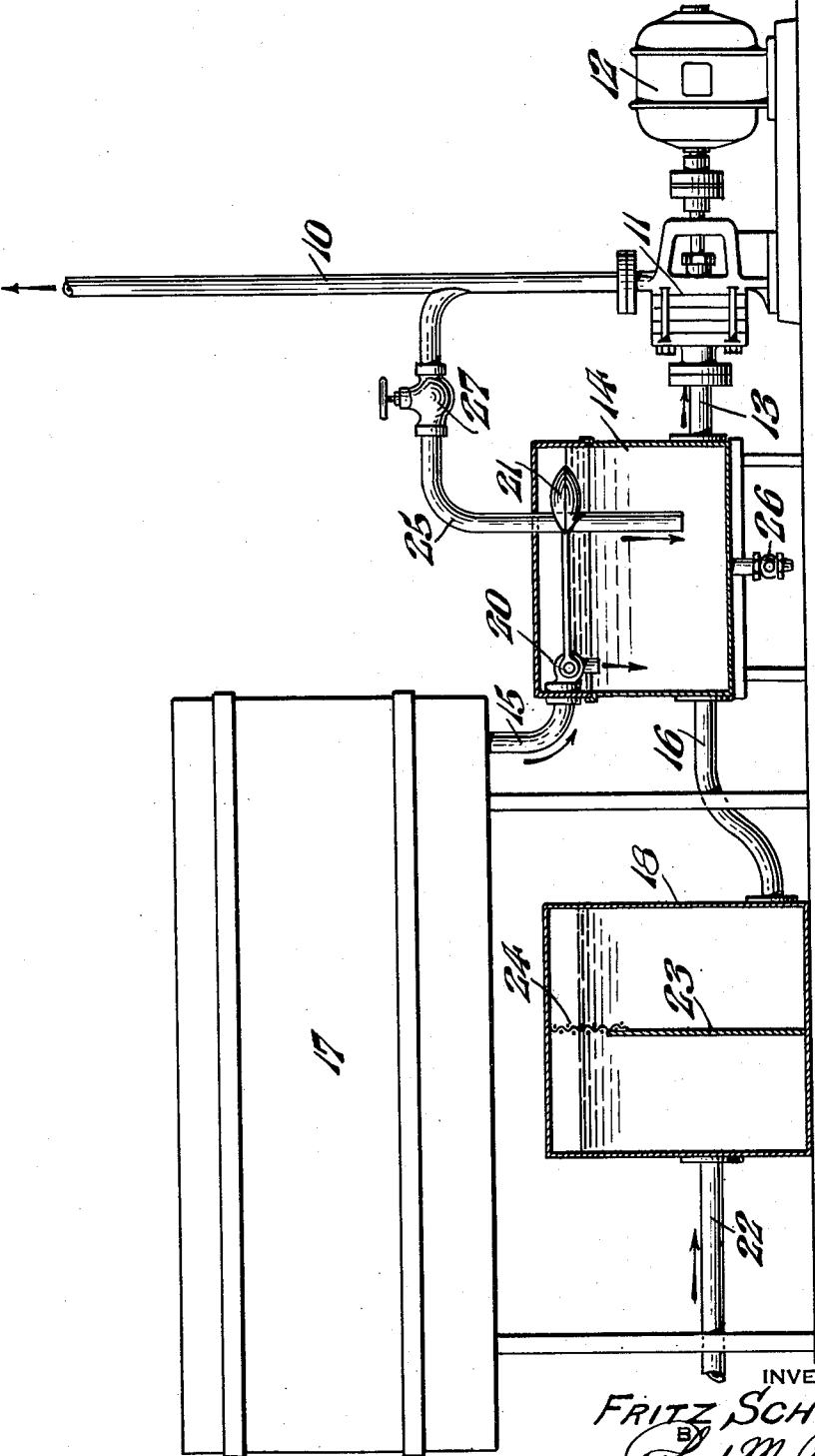
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APPARATUS FOR MAINTAINING A LIQUID IN UNIFORM CONDITION

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APPARATUS FOR MAINTAINING A LIQUID
IN UNIFORM CONDITION

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The present invention relates to the control of treating liquids and more particularly to means for maintaining a treating liquid in uniform condition.

5 In treating textile materials, such for example as hosiery carried by the usual forms, it has been the general practice to return any surplus liquid to the main supply tank after a treating operation. Such method has serious disadvantages
10 because all returned liquid has collected from the fabric being treated foreign matter and other substances in the form of dirt, fibers, flakes and the like. When such returned liquid is reused the fabric is not only spotted by the matter in suspension but where the liquid is used for spraying
15 the spray nozzles become clogged and uneven treatment results. Furthermore this surplus liquid has been depleted of its treating content and as a result the contents of the supply tank
20 gradually become thinner and thinner so there is a wide variation between the first and last materials treated, even though these receive liquid from the same source.

Some of the objects of the present invention
25 are to provide an apparatus wherein the foregoing disadvantages in the treatment of hosiery and other fabrics are eliminated; to provide an apparatus wherein surplus liquid from a fabric treating operation can be returned to a source of
30 supply without materially varying the active content of the treating liquid; to provide an apparatus wherein surplus liquid from a fabric treating operation can be efficiently reused in substantially its original condition and chemical content;
35 to provide means for separating foreign particles and matter from treating liquid which is to be reused; and to provide other improvements as will hereinafter appear.

40 In the accompanying drawing the figure represents a side elevation, partly in section, of a control system for treating liquid embodying one form of the present invention.

Referring to the drawing the present invention, as here shown, consists of a supply pipe 10
45 leading from the discharge side of a pump 11 to a point of use, such for example as an apparatus for spraying or otherwise impregnating hosiery or other textile fabrics. The pump 11 is driven by a suitable motor 12 and has its inlet side connected by a pipe 13 to a tank 14 which functions
50 as a control tank, as will later appear. Preferably the tank 14 is supplied with treating liquid by two pipes 15 and 16, the former being connected to a main reservoir 17, and the latter to
55 a settling receptacle 18. The main reservoir 17

is relatively of large capacity as compared to the control tank 14 and holds the treating liquid which is properly prepared as to chemical content and proportions for the use intended. Preferably the position of the tank 14 with respect
5 to the reservoir 17 is such that flow from the reservoir 17 is by gravity and is controlled by a valve 20 arranged to be closed and opened through the rise and fall of a float 21 riding
10 upon the liquid in the tank 14 at a location to maintain a level near the top of the aforesaid tank 14.

The pipe 16 communicates with the settling receptacle 18 which receives the return surplus liquid after the treating operation by way of return pipe 22. A partition 23 divides the receptacle 18 into two portions, one communicating
15 with the pipe 22 and the other with the pipe 16. This partition 23 terminates a short distance from the top of the receptacle 18 so that the incoming liquid rises at one side and overflows
20 to the other side. Thus on the inlet side any foreign matter, such as fibers, flakes and so forth will have a chance to settle whereby relatively clear solution flows over the partition 23. More
25 complete filtering is obtaining by mounting a straining screen 24 at a convenient location so that all of the return liquid passes therethrough.

In order to properly mix the liquid in the control tank 14, a branch pipe 25 leads from the
30 supply pipe 10 into the tank 14 where its outlet is located in relatively close proximity to the bottom thereof. Thus the liquid by-passed through the pipe 25 acts to agitate the liquid in the tank 14 and thus maintain it in a uniform
35 condition.

The control tank 14 is provided with a drain outlet 26 by which any sediment or residue can be drawn off when necessary, or the tank emptied for cleaning purposes. Also a valve 27 is located
40 in the branch pipe 25 so that the agitating action can be controlled at will.

In operation the main reservoir 17 is filled with the treating liquid which has been duly prepared and proportioned for the required treatment and
45 with the valve 20 opened the control tank 14 fills to the fixed level whereupon the valve 20 closes. With the pump 11 in operation the liquid is drawn from the tank 14 and discharged through pipe 10 to the apparatus by which the hosiery or
50 fabric is treated. All surplus from this treating apparatus returns by pipe 22 to the settling receptacle 18 where it is filtered and delivered by pipe 16 to the control tank 14 where a complete mixing takes place with fresh liquid admitted
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automatically when needed through the valve 20. In this way a treating liquid uniform as to its constituents is maintained so that the material treated is free from the spots, irregularities and variations usually accompanying treating liquids supplied by ordinary known methods. It should be noted that the capacity of the control tank 14 with respect to the main reservoir 17 is relatively small.

10 Having thus described my invention, I claim:

1. An apparatus for controlling liquid delivered to hosiery being processed comprising a main reservoir, means to discharge liquid from said reservoir to a point of use, a control tank interposed between said main reservoir and said discharge means, a device actuated by variations of level in said tank for controlling the flow from said reservoir, a return from the point of use for delivering surplus liquid to said control tank, 15 and a by-pass for liquid from said discharge

means to agitate the liquid in said control tank.

2. An apparatus for controlling treating liquid delivered to hosiery being processed comprising a main reservoir for prepared treating liquid, a control tank arranged to receive liquid from said reservoir, said tank having a small cubic capacity relative to said reservoir, means including a float in said tank for controlling the feed of liquid from said reservoir, pump means for drawing liquid from said tank and discharging it to the hosiery point of use, a return for used treating liquid communicating with said control tank, a filtering receptacle in said return, whereby a fresh supply and a used filtered supply of treating liquid are commingled in said control tank, 15 and a by-pass from the discharge of said pump means to deliver liquid under the line pressure into said control tank to mix the two supplies of treating liquid.

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