

Oct. 6, 1925.

1,556,057

H. S. WHELLER

TEXTILE DRIER

Filed June 11, 1923

Fig. 1.

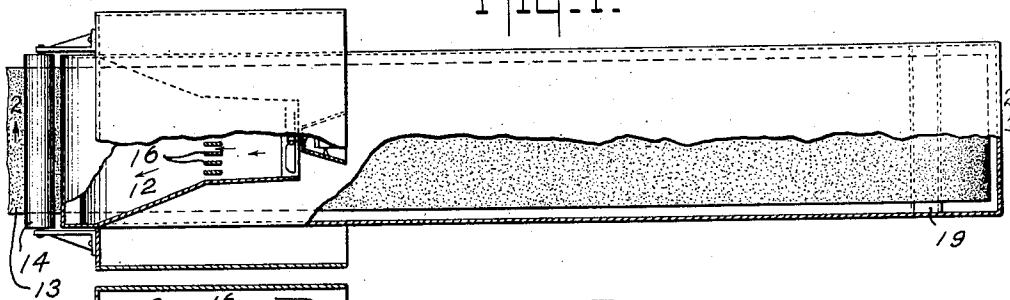


Fig. 2.

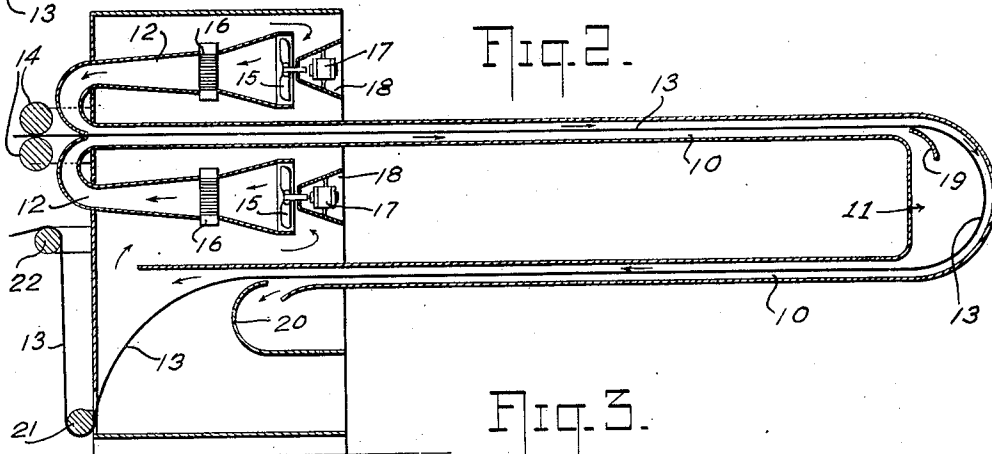


Fig. 3.

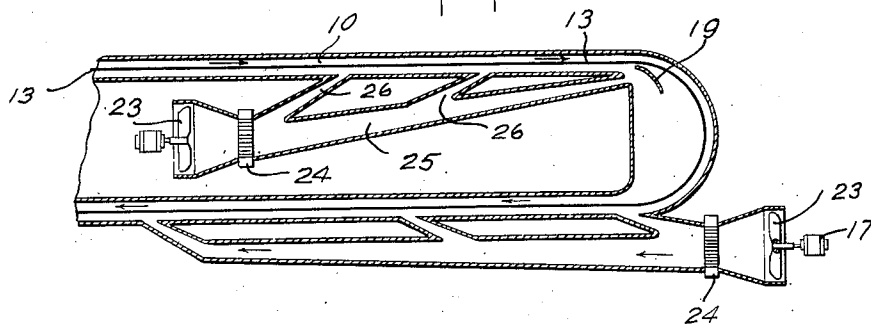


Fig. 4.

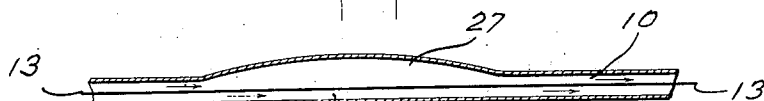
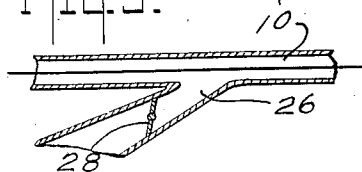


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TEXTILE DRIER.

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To all whom it may concern:

Be it known that I, HARRY S. WHELLER, a citizen of the United States, and a resident of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in a Textile Drier, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: To expedite the drying of textiles; to increase the drying service; to avoid marking the materials by contact with metal or other supports; and to economize in the space required for the operation of drying.

Drawings.

Figure 1 is a top plan view of a drier constructed and arranged in accordance with the present invention, the upper portion thereof being partly cut away to show the interior construction.

Figure 2 is a vertical section thereof, the section being taken on the line 2—2 in Fig. 1.

Figure 3 is a vertical section, showing a fragment of the drier and in conjunction therewith a modified form having means for overcoming the gravity of the textile.

Figure 4 is a detailed view in section showing a fragment of the drier and a modified form for supporting the textile therein.

Figure 5 is a detailed view in section showing a fragment of the drier and a modified means for supporting the fabric.

Description.

As seen in the drawings the driers when constructed and arranged in accordance with the present invention provide a series of horizontally extended channels 10. The channels 10 are preferably wide, narrow and superposed, the various extensions being connected by enlarged end chambers 11. The apparatus forming the channels 10 and chambers 11 is preferably constructed from sheet metal, the metal forming the first of the series of channels being preferably the extension of one of the side walls forming the blower funnels 12. The opposite walls of the funnels 12 are parted and juxtaposed on a line intermediate the walls forming the channel 10 as best seen in Fig. 2 of the drawings. The ends of the walls forming the funnels 12 are brought close together to form a feeding aperture for the textile 13 when the same enters the channels 10. The

textile is supported by feed rollers 14 opposite the entrance to the channel 10 to avoid friction on the walls of the blower funnels 12 where the said textile enters the channel 10.

The textiles for drying which, the present apparatus is designed, are such as are dyed and are delivered wet to the rollers 14 and the channel 10. The fabric while in the channels 10 is prevented from touching the upper and lower sides of the said channel by the air current delivered through the funnels 12 by the blowers 15. Air delivered from blowers 15 enters the channel 10 above and below the textile 13. It will be seen that the air delivered from the funnels 12 is delivered in the direction of travel of the textile 13. Also it will be seen that the textile is supported by the air current delivered from the lower funnel 12 and blower 15 thereof. When necessary the air current above the textile may be diminished or introduced at a lower pressure than the current from the lower funnel. This insures the suspension of the textile and prevents the same from touching the lower wall of the chamber 10.

The air employed for drying is heated by being passed through the heating radiators 16. The blowers are driven by motors 17 which are housed in casings 18. The forward end of each casing 18 is closed so that the air drawn by the blower 15 is not contaminated by the oil or other emanations from the said motor 17.

Within the chamber 11 situated where the chamber 10 leads thereinto is a baffle 19, the purpose of which is to deflect the air entering the chamber 11, which otherwise might blow or ground the bent portion of the textile 13 against the far side of the chamber 11. A similar result is obtained by the baffle 20 at the delivery end of the last of the channels 10. By removing the air pressure from the textile 13 after delivery from the channels 10 it is permitted to fall and pass under the roller 21 from which it passes to the supporting roller 22 as seen best in Fig. 2 of the drawings.

The channels 10 may be multiplied and elongated to suit the design of the builder. In Figures 3, 4 and 5 there are shown certain modifications, the purpose of which is to locally support the textile to counteract at any place within the channels 10, a tendency for the material to sag, thus in Fig. 3

are shown supplemental blowers 23, the air from which is delivered through radiators 24 to a funnel 25. The funnel 25 is contracted and has provided twyers 26 which enter the channel 10 beneath the fabric 13. It is obvious that when air supplied by the blower 23 is directed by the twyers 26 beneath the textile, it is lifted from the lower wall of the channel 10.

In Fig. 4, the channel 10 is shown as being provided with an enlargement 27 above the textile. This results in locally lessening the air pressure above the textile, thereby relatively intensifying the pressure of the air below the textile, with the result that it is at this point lifted away from the lower wall of the channel 10.

A further modification of the structure shown in Fig. 3, is that shown in Fig. 5, wherein a valve or damper 28 is mounted in the twyer 26. By manipulating the damper, it is obvious the air volume delivered through said twyer may be varied with the corresponding result of the air pressure below the textile in the channel 10.

From the foregoing, it will be seen that the textile is treated with heated air on both surfaces thereof with a drying effect, while at the same time being carried and propelled toward the delivery end of the channel through which it is passing, thus eliminating friction incident to the movement of the textile through the channels while avoiding any marring of the surface of the textile by reason of its contact with metal or other hard surfaces.

Claims.

1. A textile drier comprising an elongated flattened tube having a receiving and a delivery end; means for introducing within

said tube at the receiving end thereof air currents for supporting and conveying textile within said tube and for varying air pressure at either side of said fabric to maintain the level of the fabric in said tube.

2. A textile drier comprising an elongated flattened tube bent at intervals; means for feeding textile fabric to said tube; means for producing a plurality of air currents, one delivered to said tube below the textile, and the other above the textile; and means for varying the pressure of said currents, at will.

3. A textile drier comprising an elongated flattened tube bent at intervals; means for feeding textile fabric to said tube; means for producing a plurality of air currents, one delivered to said tube below the textile, and the other above the textile; and means for varying the pressure of said currents, at will, said means embodying metallic deflectors for diverting the air current from the textile.

4. A textile drier comprising an elongated flattened tube having a receiving and a delivery end and bent upon itself intermediate said ends to form superposed channels, pneumatic means for conveying textile through said tube in spaced relation from the walls thereof and means for varying air pressure in said tube for control of the spacing of the textile passing therethrough.

5. A textile drier comprising an elongated tube having a receiving and a delivery end and provided with convolutions intermediate said ends, and pneumatic means for conveying textile through said tube and supporting the textile in spaced relation from the walls thereof throughout the tube.

HARRY S. WHELLER.