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RETURN AIR CONDENSER SYSTEM FOR NAPPERS

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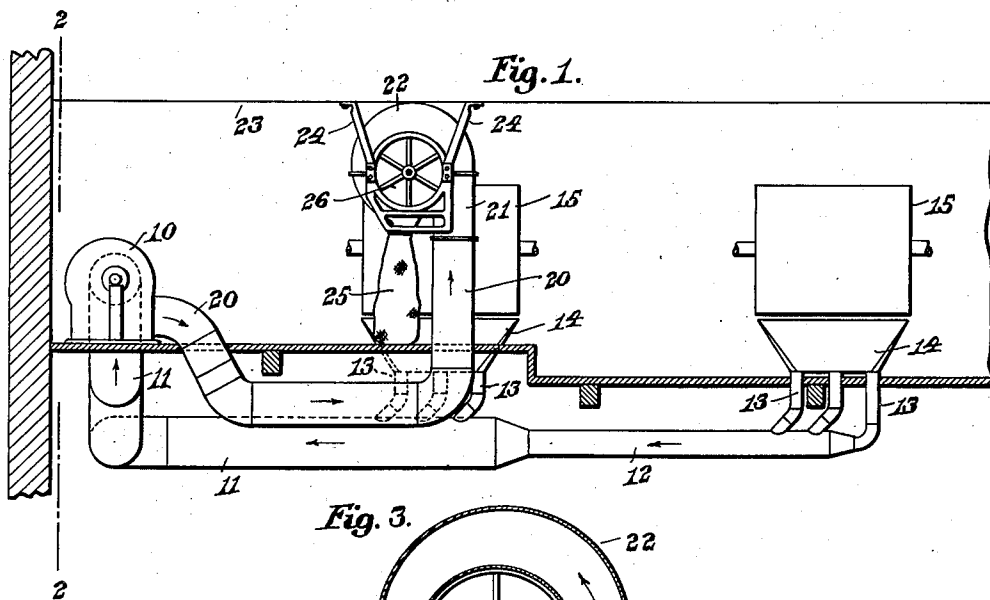
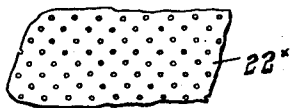
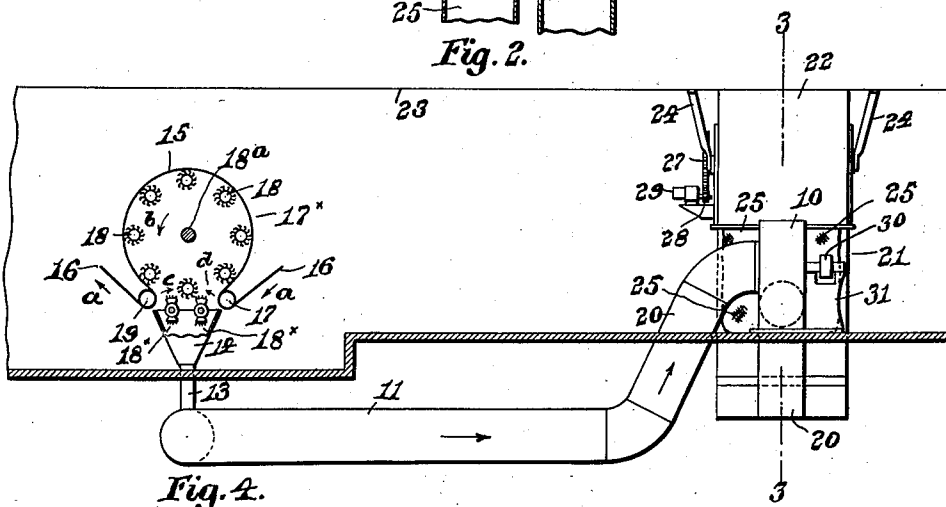
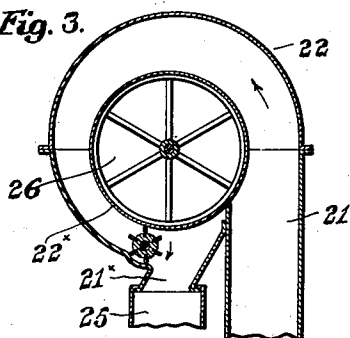


Fig. 3.



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RETURN AIR CONDENSER SYSTEM FOR
NAPPERS

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2 Claims. (Cl. 26—29)

This invention relates to a return air condenser system for use with machines for treating cloth and consisting of means for collecting the flock and nap discharged from a plurality of machines such as nappers or felters, and delivering the same to hoppers from which the flock is subjected to an air suction to remove it from said hoppers and deliver the flock-laden air into a filter mechanism, whereby the flock is separated from the air and collected in a suitable closed receptacle and the air, free from flock, is returned into the room in which said machines are located.

By means of this system the air in the room in which the nappers and felters are located may be retained at the desired temperature and humidity and the use of a dust room is dispensed with, these features being the main objects of the invention.

These objects are attained by means of the mechanism illustrated in the accompanying drawing.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawing, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described except as required by the scope of the appended claims.

Of the drawing:

Figure 1 represents an elevation of a system of devices for carrying out the invention, some of said devices being shown diagrammatically.

Figure 2 represents a vertical section of the same on line 2, 2 on Fig. 1.

Figure 3 represents a vertical section of the return air condenser, on line 3, 3, on Fig. 2, and Figure 4 represents an elevation of a portion of the screen in said return air condenser.

Similar characters indicate like parts throughout the several figures of the drawing.

In the drawing, 10 represents a fan having communicating with the inlet thereof one end of a pipe 11, the opposite end of said pipe 11 having a pipe 12 of reduced diameter extending therefrom.

From the pipes 11 and 12 extend upwardly a plurality of smaller pipes 13, the upper ends of which communicate with elongated hoppers 14 having inclined sides, said hoppers being open at the top.

These hoppers 14 extend lengthwise of the pipe

line 11, 12. Located above each hopper 14 is a napper or feltter 15 shown only in diagram.

The nappers and feltters 15 are located in a room which is warmed and humidified as desired in order to produce the best results during the napping operation.

These nappers or feltters 15 may be of any well known construction, such for instance as those manufactured by the Woonsocket Napping Mch. Co., Woonsocket, R. I., or the Davis & Furber Machine Co., North Andover, Mass.

As there is no novelty in these machines 15 it is deemed unnecessary to illustrate them in detail.

It is sufficient to say that cloth 16 to be treated is moved by a roller 17 into a casing 17^x and moves in the direction of arrow *a* (Fig. 2).

Within the casing 17^x the cloth is acted upon by a plurality of worker rollers 18 to nap the surface thereof, said rollers being revoluble in the same direction about their own axes and all of them rotate about the axis of shaft 18^a in the direction of arrow *b*.

During the operation the cloth is napped in the usual manner and then passes from the casing 17^x around the roller 19.

During the napping operation the worker rollers 18 collect considerable flock thereon which must be removed therefrom.

The flock on the rollers 18 is removed from the roller 18 by the revoluble brushes 18^x revoluble in the direction of arrows *c*, *d*.

The brushes 18^x are disposed within the upper open end of the hoppers 14 to insure that all flock will be discharged into said hoppers.

These brushes 18^x cause the flock on rollers 18 to be delivered from the machines 15 into the hoppers 14, where it is subjected to air suction which will cause the flock to be drawn down through the small pipes 13 into the larger pipes 11 and 12 and mixed with the air stream therein.

The rotation of the fan 10 draws the flock from the hoppers 14, through the small pipes 13, and the larger pipes 11 and 12, into the fan casing 10 and then discharges the same through a delivery pipe 20.

This delivery pipe communicates with an inlet 21 to a return air condenser 22 suspended from the ceiling 23 by supports 24.

This return air condenser 22 is similar in construction and operation to the device shown and described clearly in Patent No. 2,009,140, issued to me July 23, 1935, to which reference may be made for details of construction.

As in said air return condenser shown in the above mentioned patent the flock-laden air passes

over a revoluble screen 22^x and the flock is separated from the air and finally delivered into a closed receptacle such as the bag 25 connected with the outlet 21^x of said condenser 22.

5 The interior of the cylindrical screen 22^x communicates with end outlets 26 through which air freed from flock is delivered into the room in which the nappers and felters are located, and said air may have such a warmth and humidity
10 as is required for the proper operation of the machines.

The perforated screen 22^x of the condenser is driven by gear 27, a pinion 28 and a motor 29, while the fan 10 is driven by a pulley 30.

15 Any number of hoppers 14 may be connected with the line of piping 11, 12 and all of the flock-laden air from these hoppers and passing through this line of piping 11, 12 is carried through the fan 10 to the return air condenser 22 where the
20 flock will be removed from the air and collected in bag 25, all as described in the patent above referred to.

It must be understood that other means for separating the flock from the air may be used
25 without altering the principles of the invention.

By this construction of mechanism there is no necessity of carrying the flock into a dust room and the air in the room in which the nappers and felters are located may be used over and over
30 again, thus insuring an even temperature and even humidity in the room in which said machines are located.

It is believed that the operation and many

advantages of the invention will be understood without further description.

Having thus described my invention, I claim:

1. In a system for treating cloth, a napper, a funnel located with its wider end uppermost and
5 of dimensions substantially equal to the area of the bottom of the napper, said funnel having its upper end in close proximity to the napper whereby substantially all of the flock produced by the napper will drop directly into the funnel, a
10 cleaner for said napper in said funnel, a suction fan having an outlet pipe, a casing through which air from said pipe passes, a screen in said casing for removing entrained flock from the air passing through the casing, a suction pipe leading
15 to said fan, and pipe connection means between the bottom of the funnel and said suction pipe.

2. In a system for treating cloth, a napper, a funnel located with its wider end uppermost and
20 of dimensions substantially equal to the area of the bottom of the napper, said funnel having its upper end in close proximity to the napper whereby substantially all of the flock produced by the napper will drop directly into the funnel, a
25 cleaner for said napper in said funnel, a suction fan having an outlet pipe, a casing through which air from said pipe passes, a screen in said casing for removing entrained flock from the air passing through the casing, a suction pipe leading to said
30 fan, and a plurality of pipes connecting at their upper ends with the bottom of the funnel at spaced points and connecting at the lower ends with the suction pipe.

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