

Sept. 17, 1940.

W. C. GLOVER, JR

2,214,923

GARMENT SHAPING AND DRYING MACHINE

Filed April 10, 1939

2 Sheets-Sheet 1

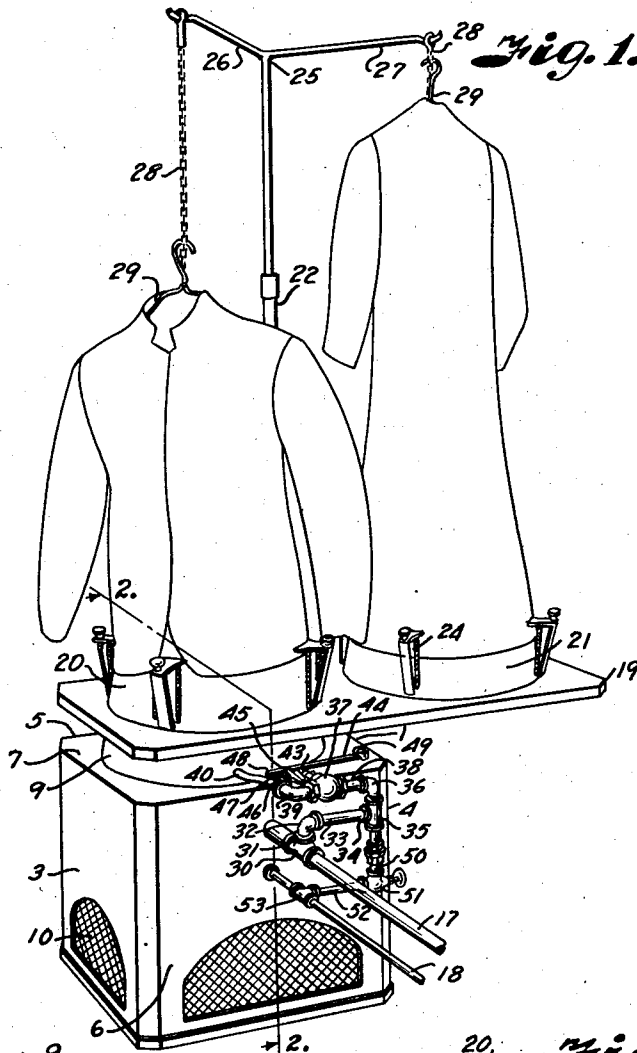
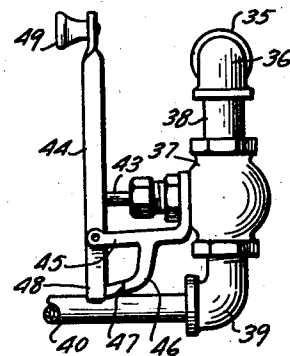
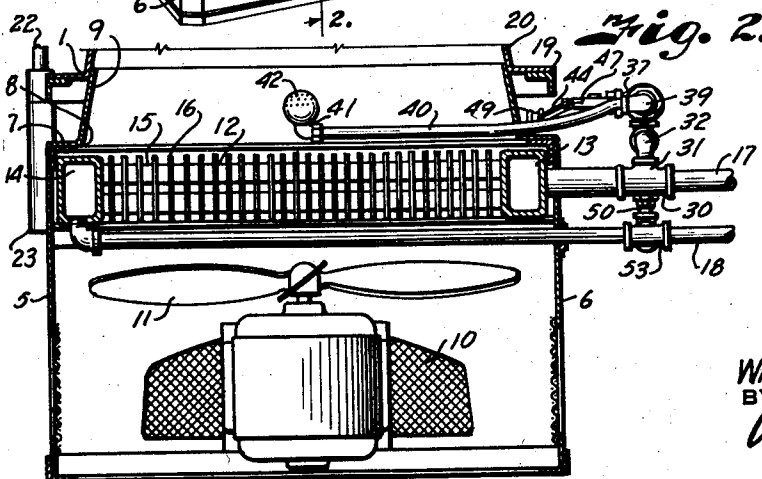


Fig. 3.



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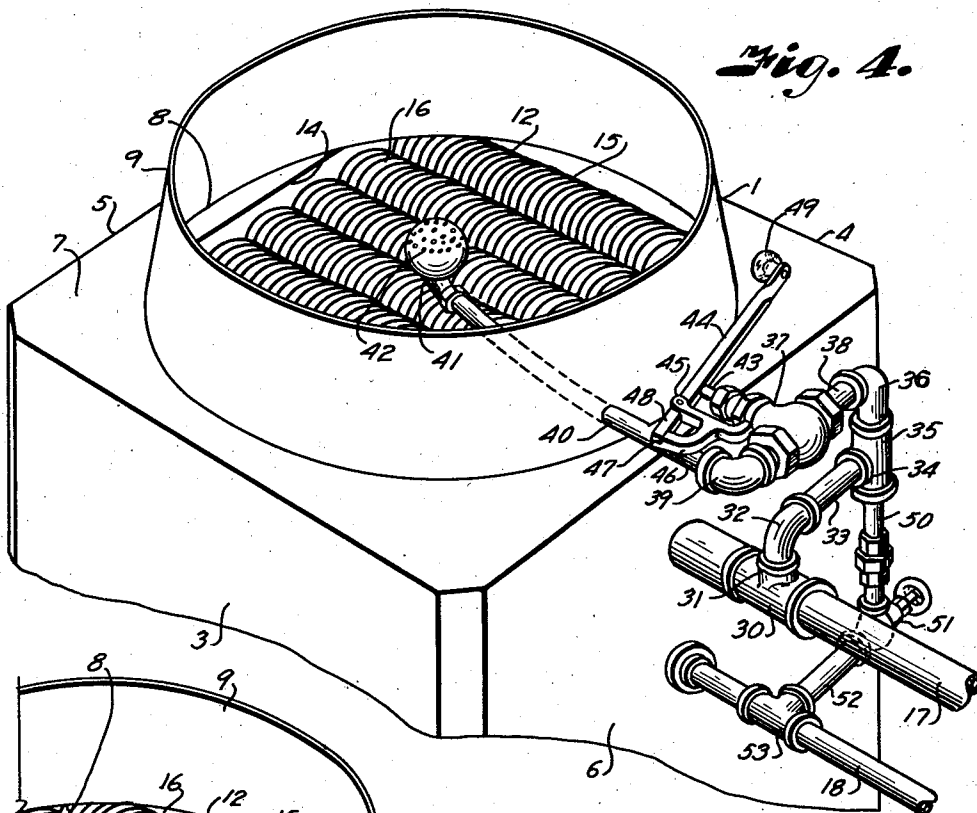
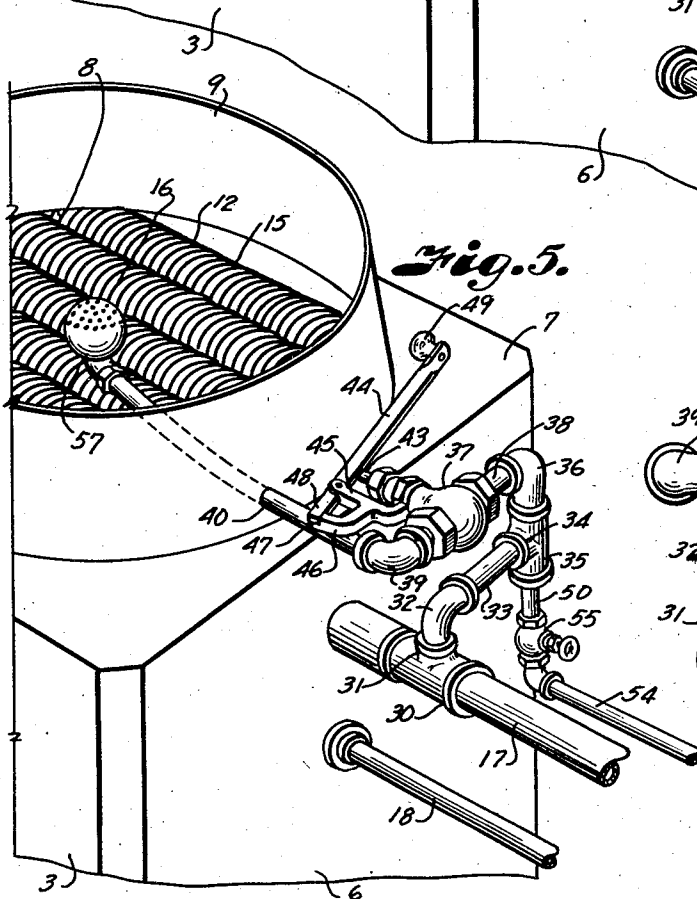
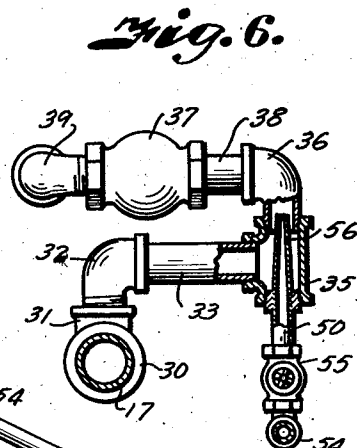
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GARMENT SHAPING AND DRYING MACHINE

Filed April 10, 1939

2 Sheets-Sheet 2



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GARMENT SHAPING AND DRYING MACHINE

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Application April 10, 1939, Serial No. 266,942

4 Claims. (Cl. 223—51)

This invention relates to a garment drying apparatus of the type disclosed in my copending application, Serial No. 218,461, filed July 9, 1938, and has for its principal object to provide a drier of this character with a steamer whereby steam is selectively delivered directly into the garment simultaneously with ballooning thereof with heated air, thereby facilitating removal of wrinkles and shaping of the garment.

Other objects of the invention are to selectively admit either dry or moisture laden steam so as to obtain a steaming action best suited for the garment under treatment; to provide for tempering relatively dry steam with a desired degree of moisture; to provide for taking wet steam from the heated coil of the drier and effecting its induction into the garment; and to provide a steaming mechanism with controls that are readily manipulated by the operator.

In accomplishing these and other objects of the invention, as hereinafter described, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a garment drier equipped with a steaming mechanism embodying the features of the present invention and showing garments applied thereon.

Fig. 2 is a vertical section through the drier on the line 2—2 of Fig. 1.

Fig. 3 is a detail plan view of the valve and its control lever for admitting steam directly into a garment.

Fig. 4 is an enlarged perspective view of a portion of the drier, particularly illustrating the steaming mechanism.

Fig. 5 is a similar view showing a modified form of the invention utilizing water as a moisture tempering medium for the dry steam.

Fig. 6 is a fragmentary detail view, particularly illustrating the injector nozzle whereby water is induced into the dry steam which is to be discharged into a garment.

Referring more in detail to the drawings:

1 designates a garment drier, such as illustrated in the above mentioned application, and which includes a base section 2 in the form of a housing having side walls 3—4 and 5—6 and a top 7. The top 7 has a central opening 8 encircled by an inwardly directed flange 9. The lower portions of the side walls are provided with screen covered openings 10 through which air is drawn into the housing by a fan 11 and blown through a radiator 12 for discharge from the opening 8.

The radiator includes inlet and outlet manifolds 13 and 14, located on opposite sides of the openings 8 and connected by a plurality of tubes 15 so that a heating medium, such as steam, is circulated therethrough to heat the air blast

discharged by the fan, the tubes preferably being arranged in horizontal rows with the tubes in one row in staggered relation with the tubes in the other row so that the air is directed against and across the sides of all of the respective tubes. The tubes are provided with spaced fins 16 to increase the radiating capacity thereof and assure maximum heat exchange with the air. Steam is admitted to the intake manifold of the radiator through a pipe 17 that extends through the side wall 6 and is connected with a suitable source of steam supply, and spent steam, containing the condensate, is discharged from the manifold 14 through a pipe 18, also extending through the wall 6, as best shown in Fig. 2.

Supported above the housing is a garment carrier 19, including an elongated frame carrying a pair of air directing nozzles 20 and 21 which are alternately brought over the opening 8 in cooperating relation with the air directing flange 9, upon swinging, vertical movement of the carrier frame on a post 22 that is carried by a bracket 23 attached to one corner of the housing, as shown in Fig. 2. The nozzles 20 and 21 are of substantially frusto-conical form and have their base portions substantially conforming to the outer diameter of the flange 9 so that they closely telescope thereover in forming a substantially steam-tight joint. Located about the peripheries of the nozzles are garment clamps 24 adapted to cooperate with the nozzles in clamping the skirt portion of a garment therebetween. The post 22 extends upwardly and carries a garment supporting bracket 25 having diverging arms 26 and 27 terminating in registry with the extended axes of the respective nozzles, and which carry flexible garment suspending members, such as chains 28, into the links of which are hooked ordinary garment hangers 29.

In using a drier as thus far described in drying a garment, for example a coat, it is applied to the hanger 29 and the hook of the hanger adjusted in the chain 28 so that the skirt portion thereof overlaps the upper portion of the nozzle 20, which is in registry with the opening 8 in the housing, after which the clamps 24 are adjusted to securely anchor the skirt portion of the garment over the nozzle. The carrier frame is then lifted to clear the other nozzle from engagement with the air directing flange 9, and the carrier rotated on the supporting post to bring the garment directly over the opening in the housing so that the blast of air discharged through the radiator by the fan balloons the garment and effects drying and shaping thereof. While the garment is being dried, another garment is simultaneously applied to the support associated with the other nozzle so that it is ready to be moved over the drier when the first garment has dried.

I have found that unless the garments are sufficiently wetted, or if they have partially dried prior to their application on the drier, it is difficult to remove the wrinkles and restore shape of the garments. I therefore provide the drier with a steaming mechanism whereby relatively dry or moisture laden steam is admitted directly into the garment in proportion required to more readily remove the wrinkles. The steam supply pipe 17 is, therefore, provided with a T-fitting 30 into the lateral branch 31 of which is connected a street L 32 carrying a nipple 33 to which is connected a lateral branch 34 of a T 35. The T is therefore arranged in lateral spaced relation with the steam pipe and the axis thereof extends at right angles thereto. Connected in the upper end of the T is a street L 36 that is connected with a shut-off valve 37 by a nipple 38. The outlet of the shut-off valve carries an elbow fitting 39 which in turn connects with the pipe 40 that extends through an opening in the flange 9 and terminates in registry with the center of the opening 8 as shown in Fig. 2. Connected with the terminal end of the pipe is a ball-shaped nozzle 41 having a plurality of openings 42 therein for discharging steam in relatively fine jets into the path of the heated air which carries the steam into contact with the garment whenever the stop valve 37 is opened.

The stop valve includes an actuating stem 43 that is engaged by an actuating lever 44 pivotally connected with an arm 45 extending laterally of the valve housing. The arm 45 is preferably provided with a projection 46 having a shoulder portion 47 adapted to be engaged by the projecting end 48 of the lever when the valve is in closed position. The opposite end of the lever carries a knob-like handle 49 by which the lever is readily manipulated to effect opening of the valve.

In order to temper the steam with moisture, the lower end of the T fitting 35 carries a nipple 50 with a control valve 51 having its inlet connected by a nipple 52 with a T fitting 53 in the condensate return line 18, the valve 51 being provided with a hand wheel whereby the valve may be opened and closed to regulate the amount of steam and condensate passed from the pipe 18 into the T fitting 35 to mix with the dry steam admitted from the pipe 17.

By adjustably opening the valve 51, wet steam from the return line, that is, steam carrying condensate, is discharged in any desired amount into the dry steam when the valve 37 is opened, so that the steam is provided with sufficient moisture to effect desired moistening of the garment, in facilitating removal of the wrinkles, and restore shape of the garment. Upon removal of the wrinkles, the wet steam is shut off and the garment is dried in the imparted shape by the heated air discharged from the fan.

In the form of the invention illustrated in Fig. 5, a water supply pipe 54 is connected to the lower end of the T 35 through a hand operated valve 55 so that when the valve 55 is opened water is drawn into the dry steam by the injector action of the steam upon opening of the valve 37. To promote the injecting action and prevent back pressure in the water system, the discharge end of the pipe 50 is provided with a nozzle 56 extending in the axis of the T fitting 35. The steam, passing around the nozzle 56, thus draws the water through the nozzle and

discharges it through the spray head 57, the amount of the water being regulated to the required amount by manipulation of the valve.

From the foregoing it is obvious that I have provided a drier with a simple and efficient apparatus whereby dry or wet steam may be delivered into the garment at selected intervals and in the amount required to facilitate removal of the wrinkles.

What I claim and desire to secure by Letters Patent is:

1. In a garment drier, a housing having a discharge opening, means supporting a garment over said opening, a fan in the housing for discharging air through said opening to balloon the garment, a radiator supported in the path of the air moved through the housing for heating the air, means supplying steam to the radiator, means for discharging spent steam and condensate from the radiator, a nozzle supported in the path of the air, means connected with the steam supply for supplying steam to the nozzle, and means for mixing spent steam discharged from the radiator with the steam supplied to the nozzle.

2. In combination with a drier having a radiator, a pipe connected with the radiator for supplying dry steam, a return line connected with the radiator for removing the spent steam and condensate accumulating in the radiator, means for selectively moistening a garment while supported on the drier including a nozzle for directing steam into contact with the garment, means connecting the steam pipe with the nozzle, a shut-off valve in said connecting means, means connecting the return line with the connecting means to effect mixture of spent steam with the dry steam admitted to said nozzle, and means controlling at least one of said steam supplies to the nozzle relatively to the other.

3. The combination with a drier having means supporting a garment, a radiator, a fan for blowing air through the radiator to balloon and dry the garment, a pipe connected with the radiator for supplying dry steam, and a return line connected with the radiator for removing the spent steam and condensate accumulating in the radiator, of means for selectively moistening garments while supported on the drier including a nozzle for directing steam into the ballooned garment, means connecting the steam pipe with the nozzle, a shut-off valve in said connecting means, means connecting the return line with the connecting means to deliver spent steam to said nozzle, and means controlling at least one of said steam supplies to the nozzle relatively to the other.

4. In an apparatus of the character described, a radiator, a fan, means supporting the fan for moving air to be heated through the radiator, a garment support located in the path of the heated air to balloon a garment carried thereby, means supplying steam to the radiator, means for discharging spent steam and condensate from the radiator, means selectively moistening the garment including a nozzle for directing steam in contact with the garment, means connecting the steam supply means with the nozzle, and means connecting said spent steam and condensate discharge means with said connecting means for mixing spent steam and condensate with the steam supplied to the nozzle from said steam supply means.

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