March 23, 1926. 1,577,859

J. H. WOODARD

DRIER

Filed April 20, 1925 2 Sheets-Sheet 1

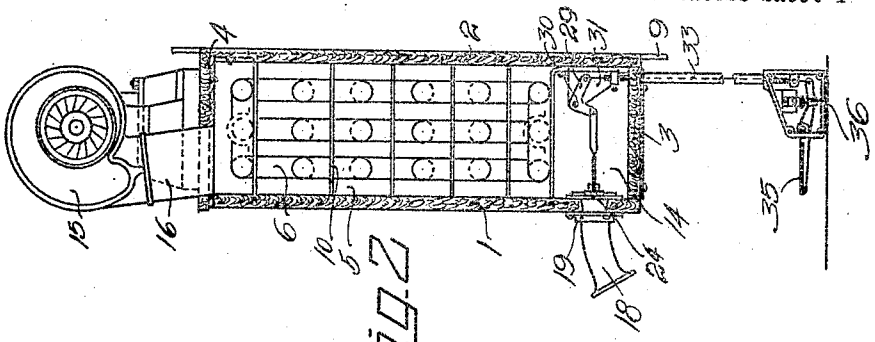


Fig. 2

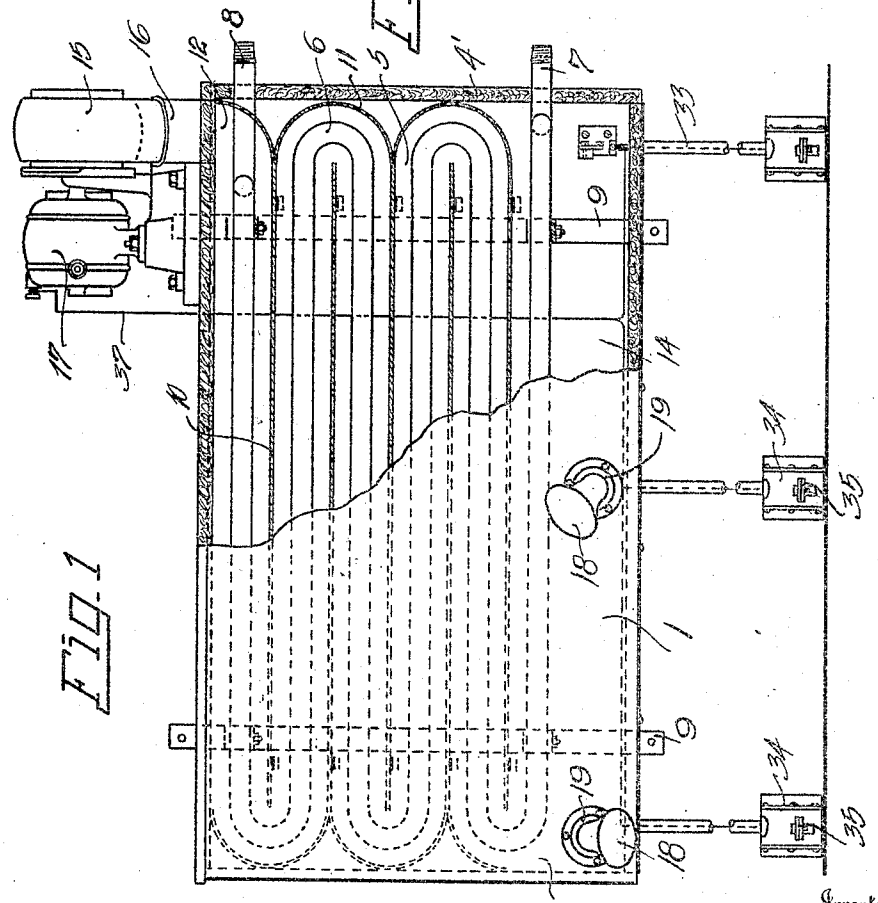


Fig. 1

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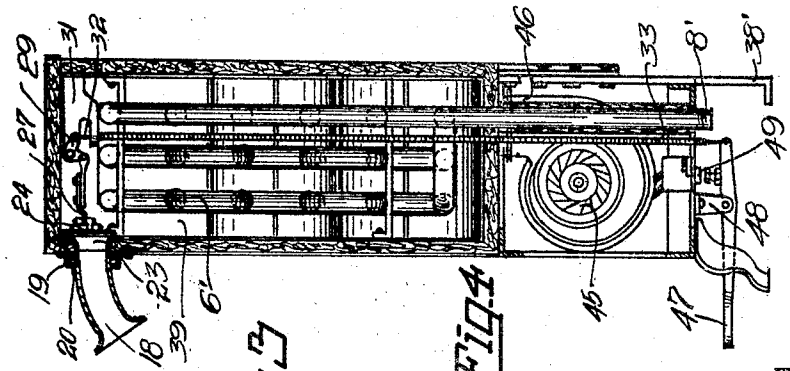


Fig. 4

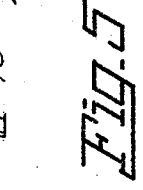


Fig. 5

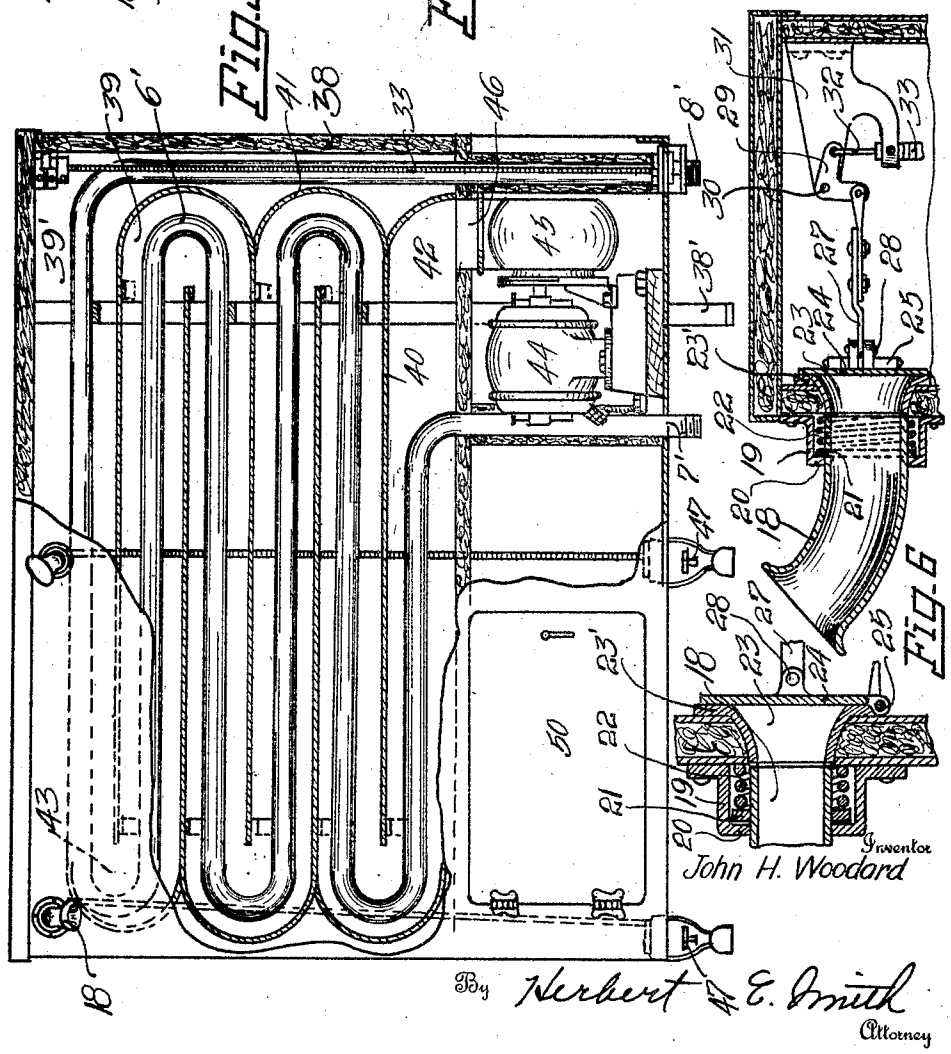


Fig. 3

Fig. 6

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Patented Mar. 23, 1926. 1,577,859

UNITED STATES PATENT OFFICE.

JOHN H. WOODARD, OF SPOKANE, WASHINGTON, ASSIGNOR TO SANITARY HAND DRYER COMPANY, OF SPOKANE, WASHINGTON, A CORPORATION.

DRIER.

Application filed April 20, 1925. Serial No. 24,308.

To all whom it may concern:

Be it known that I, JOHN H. WOODARD, a citizen of the United States, residing at Spokane, in Spokane County and State of Washington, have invented certain new and useful Improvements in Driers, of which the following is a specification.

My present invention relates to improvements in driers especially adapted for use in toilet apartments, wash rooms and similar places, for drying the hands and face, and in tonsorial parlors, barber shops and other public places where rapid and thorough drying of the hair or face is desirable.

The invention is embodied in a cabinet or stand and adapted for use either as a wall fixture or as an article of furniture to stand upon the floor.

My invention consists in certain novel features of construction and combinations and arrangements of parts as will hereinafter be more fully set forth, whereby a supply of air is heated within the cabinet or enclosure and blown therefrom through an outlet nozzle or nozzles. Means are provided for simultaneously controlling the actuation of the fan blower or blast device and the discharge of the blast from the air chamber through the nozzle or nozzles. Other features of construction which add to the convenience and economy in the use of the apparatus will be more specifically set forth hereinafter.

In the accompanying drawings I have illustrated two adaptations of my invention, one as a wall fixture and the other as an article of furniture to stand upon the floor, in which the parts are combined and arranged in accordance with the principles of my invention.

Figure 1 is a view in elevation partly broken away for convenience of illustration showing my invention embodied in a wall fixture.

Figure 2 is a vertical transverse sectional view of the drier of Figure 1.

Figure 3 is a view in elevation and partly in longitudinal, vertical section showing the drier embodied in a floor cabinet or stand.

Figure 4 is a transverse vertical sectional view of the drier of Figure 3.

Figure 5 is an enlarged detail sectional view showing a portion of the cabinet and a discharging valve and nozzle.

Figure 6 is a detail sectional view showing valve and nozzle constructions.

In Figures 1 and 2 the invention is embodied in a wall fixture that is elevated a suitable distance above the floor and secured to the wall or other support in approved manner. In carrying out my invention I utilize a cabinet preferably of rectangular shape and comprising insulated front and rear walls 1 and 2, a bottom 3, top 4 and end walls 4′ fashioned of suitable material to prevent transmission of heat from the interior air chamber 5.

For the purpose of heating the air in the air chamber I provide a heating element, in this instance shown as steam coils 6 having an inlet pipe 7 and outlet pipe 8 that communicate with a suitable source of supply. The coils are arranged in a vertical plane within the chamber 5 and supported on brackets 9 in usual manner, to extend back and forth longitudinally of the air chamber 5.

Within the chamber I provide a tortuous passage for the air to be heated as the air currents are directed along this passage in contact with the heated steam coils. The passage is formed by the use of spaced, horizontal, flat plates or partitions 10, which at one end terminate in curved plates or bends 11 and at the other end terminate short of one of these bends to form a zig-zag passage from the top inlet duct 12. At the lower end of this tortuous passage an outlet duct 13 opens into a hot air distributing chamber 14 which is formed at the bottom of the cabinet below the lowermost partition 10.

For supplying the air to the heating chamber I employ a fan blower 15 preferably located on top of the cabinet and pro-

vided with a discharge pipe 16 that opens into the inlet duct 12 at the top of the coils and tortuous passage.

An electric motor 17 is employed in connection with the fan blower to supply power at intervals and only when the control mechanism is operated for that purpose.

In the front of the cabinet are arranged a suitable number of hot air nozzles 18 communicating with the distributing chamber and separately and independently operated and supplied with an air blast from the distributing chamber. In this form of the cabinet the nozzles are preferably located near the bottom of the cabinet and they are supported to have a swivel movement in order that they may be adjusted to direct the blast or air in desired directions.

The nozzles and their connections are substantially the same in both embodiments of the invention illustrated in the drawings, except that in the wall fixture they are located at the bottom of the cabinet while in the floor cabinet they are located near the top portion thereof.

Each nozzle is provided with a supporting cap 19 fastened to the front wall of the cabinet and the cap has a circular central opening and retaining flange 20. A circular gasket 21 surrounds the nozzle within the cap and a spring 22 around the inner end of the nozzle and interposed between the gasket and front wall of the cabinet serves to make an airtight joint and at the same time permits the nozzle to be turned or swiveled in its bearing or supporting cap.

Within the front wall of the cabinet is fixed a flaring sleeve 23 with an attaching flange 23′ and the nozzle is axially alined with this sleeve for the passage of the air blast from the distributing chamber of the drier. The flanged sleeve forms a valve seat within the distributing chamber for the valve 24, which is in the form of a flat circular disk, hinged at 25 to the flanged sleeve and provided with a stop lug to prevent excessive movement on its hinge. A link 27 is pivoted at 28 to the valve and to a bell crank lever 29 which is pivoted at 30 on a supporting bracket 31 within the distributing chamber. A lift rod or other flexible connection 32 is connected to the bell crank lever, and the rod passes down through a tubular guide or pipe 33, out through the bottom of the wall fixture and to a housing 34 on the floor.

Within the housing 34 located on the floor as indicated in Figures 1 and 2 is pivoted a foot pedal 35 to which the push or lift rod 32 is connected, and it will be apparent that as the pedal is depressed the rod through the bell crank lever and link will open the valve, to permit a blast of air to pass through a nozzle. Within the housing is an electric switch or circuit maker 36 which is closed by depressing the pedal to energize or operate the motor for the fan blower, the wires of the motor circuit being indicated by the numeral 37 in Figure 1.

Each of the nozzles is equipped with a valve, pedal mechanism and electric switch in order that the nozzles may be used selectively or simultaneously. The operation of the motor is controlled by any one of the levers or pedals, but the valve for each nozzle is controlled only by its own pedal.

In the form of floor stand or cabinet 38 indicated in Figs. 3 and 4 the structure is supported from the floor on feet or corner posts 38′ and the steam coil 6′ is provided with inlet 7′ and outlet 8′ both passing out through the bottom of the cabinet.

The heating chamber 39 of the cabinet is located below the distributing chamber 39′ which latter is located at the top of the cabinet and the horizontal partitions 40 and bends 41 which form the tortuous passage for air along the heating coils are of construction and arrangement similar to that of Figs. 1 and 2, but the inlet for air is located at 42 at the lower end of the passage while the outlet to the distributing chamber is located at 43 near the top of the cabinet.

The nozzles 18 are located near the top of the cabinet for communication with the distributing chamber for hot air, and the motor 44 and fan blower 45 are located in the bottom portion of the cabinet. The discharge pipe 46 from the motor-operated fan blower directs air currents upwardly through the tortuous passage where they are heated by the coils.

The valves 24 of the nozzles are controlled by pedals 47 pivoted in brackets 48 beneath the cabinet and the push rods or links 32 are operated from these pedals to open the valves. An electric switch 49 is provided for each of the pedals 47 to control the operation of the motor 44, and a hinged door 50 is provided at the front of the cabinet to give access to the interior of the cabinet when desired.

It will be understood that steam is constantly passing through the coils for the purpose of heating them and maintaining a long heat-radiating surface within the cabinet. This heating element with its large or long radiating surface is designed to instantaneously heat the air currents as they pass through the tortuous passage, and of course the hot air contained in the passage is first ejected therefrom by the initial movement of the blower. Thus the blast of hot or warm air is ready for instant use when expelled from the cabinet and the air currents following are heated as they pass through the tortuous air duct. One or more of the nozzles may be used at the same time, and

the number of nozzles employed may be varied with the capacity of the distributing chamber.

When not being used the valves are all normally closed to prevent egress of warm or hot air and they are opened only when a blast is desired.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a drier the combination with a supporting cap having a retaining flange, a nozzle supported in said cap, and a fixed sleeve forming an extension of the nozzle, of a valve hinged on said sleeve to normally close the inner end of the sleeve, and means for opening the valve.

2. In a drier the combination with a fixed sleeve having a hinged valve at one end and means for opening said valve, of an axially alined cap having a retaining flange and a nozzle swiveled in said cap, a support for the sleeve, a gasket on the nozzle enclosed within the cap and a spring located between said support and gasket.

3. In a drier the combination with a flaring sleeve fixed within its wall and a valve hinged at one end of said sleeve, of an axially alined cap fixed to the wall and having a retaining flange, a nozzle swiveled in the cap, a gasket on the nozzle enclosed within the cap, a spring surrounding the nozzle and interposed between said wall and gasket, a link pivoted on the valve, a bell crank lever pivoted to the link, and means for actuating said lever.

In testimony whereof I affix my signature.

JOHN H. WOODARD.