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DRIER

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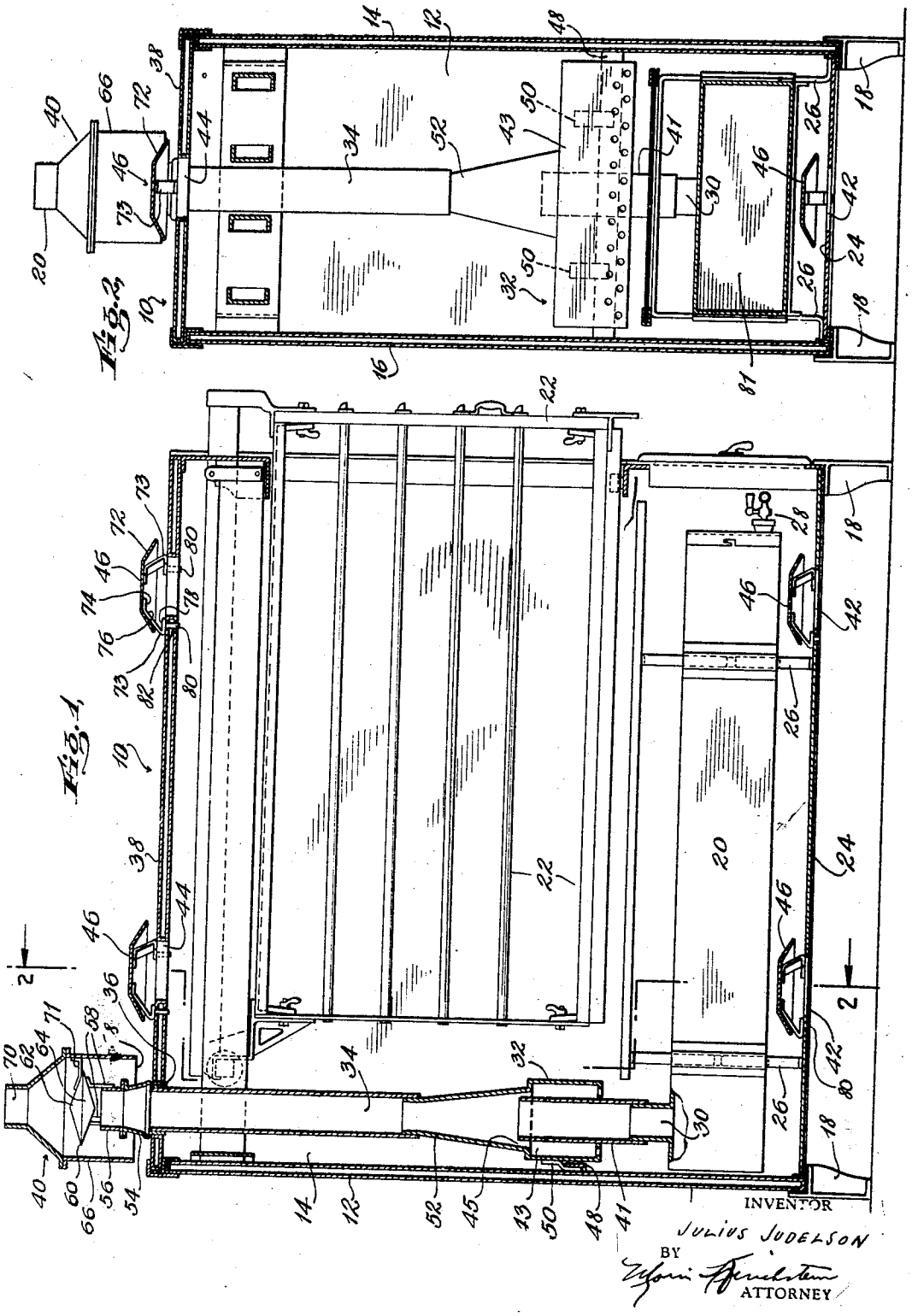


Fig. 2.

Fig. 1.

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UNITED STATES PATENT OFFICE

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DRIER

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This invention relates to driers. The invention is directed among other features to an improved construction of drier cabinets whereby direct venting of the evaporated moisture is had, and also, the passage of burnt gases from a heater in said cabinet to the outer air, is facilitated without the liability of any back draft.

An object of the invention is to provide an improved drier cabinet, having means for the passage of air, for drying purposes, directly through the cabinet, without the admixture of any burnt gases, or other heating medium therewith.

A further object of the invention is the provision of a source of air in-flow to provide a medium for drying materials housed in the cabinet, and at the same time, to supply the necessary air for combustion purposes.

A still further object of the invention is the provision in conjunction with heating means housed in the cabinet producing a burnt gas to be exhausted from said cabinet, of means mounted relative to said means to prevent the burnt gas from being forced from the heater into the cabinet itself.

Another object of the invention is to provide, in connection with the heater for a drier, a back draft preventer.

A still further object of the invention is to provide a collapsible clothes drier having a heater mounted therein and means for producing an air flow through said heater, the parts whereof may be readily disassembled for shipping or quick assembly.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a vertical, longitudinal section of a drier embodying the invention; and

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

On the drawings, a drier cabinet 10 preferably of the types shown and described in my Patent No. 1,513,595, dated the 28th day of October, 1924, comprises vertical wall portions 12, 14, 16, made up in the manner described in the above mentioned patent and mounted on the legs 18. The heater 20 is located in said cabinet in proximity to the drier rack 22, mounted for reciprocal movement as set forth in said patent. Cabinet 10 is preferably made long and narrow, as shown in Fig. 1, the heater 20 substantially filling the lower portion of said cabinet and being spaced from the bottom wall 24 by the legs 26.

The heater 20 is provided with a gas inlet and burner 28, as more particularly described in my previously named patents, the heater being made up in the manner therein described, and having mounted at one end thereof the outlet vent 30, upon which is mounted the extractor 32. Extending from said extractor is the stack pipe 34, received in an aligned opening 36 in the top 38 of the cabinet. Received over the end of stack pipe 34 and preferably extending partially through opening 36 around said pipe is the back draft preventor 40 hereinafter more particularly described. Received in openings 42, 44 in the bottom wall 24 and top wall 38, respectively, are baffle members 46. Openings 42 and 44 are substantially in alignment and provide means for the passage of air into, through and out of cabinet 10 to facilitate the evaporation of moisture from clothes, or the like, hung upon the rack 22, and to carry said evaporated moisture out of the cabinet, said openings having the character of means auxiliary to the extractor 32 for removing said moisture.

The rack 22 made up in any suitable manner may be fixed within the cabinet, or slidable through a wall thereof, being shown in the drawings as supported in the manner more particularly described in my Patent No. 1,632,904 issued June 21, 1927, for movement through the front wall of the cabinet. The connections between heater 20, vent 30, extractor 32, stack pipe 34, and back draft

preventer 40 are all separable, so that this entire apparatus may be knocked down for housing in a small compass, when ready for shipment, or may be set up easily during the assembling thereof. The back wall portion 12 has secured thereto a cross-bar 48 on which may be received the Z-pieces 50 secured to the extractor 32 by means of which the latter is positively positioned relative to the heater 20. Said extractor, as described in my Patent No. 1,513,598, dated the 28th day of October, 1924, includes an inlet 41 opening into an enlarged chamber 43, which itself is open on all sides to the interior of cabinet 10. Inlet 41 extends substantially into the reduced outlet 45 leading from chamber 43 so that an aspirating action will take place to withdraw gases from chamber 43 and thereby from cabinet 10. Stack pipe 34 slips over the outlet pipe 52 of said extractor, being received through the suitably shaped opening 36.

The back draft preventer 40 is formed of sheet metal, or the like, and comprises an inlet portion 54, formed with the same cross-section as the stack pipe 34 and tapering down to the reduced portion 56. Supported immediately over the opening of reduced portion 56 by means of straps 58 or the like, is the body 60, formed by securing two cones of sheet metal 62, 64, with their bases coincident. Surrounding the reduced portion 56 and body 60, a cylinder 66 is erected and has an open end 68 at its lower portion communicating with the air outside of cabinet 10. The upper end of said cylinder immediately above body 60 gradually tapers to the outlet 70, which likewise is open to the atmosphere outside of drier cabinet 10. Said cylinder and its associated parts are secured to the preventer 40 by means of straps 71 riveted to body 60 and to said cylinder.

Baffles 46 are made up of sheet metal and comprise a conical portion 72, having secured thereto the bracket supports 73 which are formed with flat portions 74, riveted to conical portion 72. An arm 76 extends from said flat portion and terminates in a portion 78 parallel to portion 74 and to which is secured the pin 80. Openings 82 provided in bottom wall 24 and top wall 38 around the openings 42, 44, are arranged in such manner as to receive the pins 80, to properly position said baffles relative to said openings.

By the construction above described, when heat is applied at burners 28 to heater 20, air is drawn through the lower openings 42 to feed air to said burner through suitable openings in the burner and in the walls of the combustion chamber 81 of heater 20; also, as the warm air in contact with said heater rises air will be drawn through said openings to displace said warm air.

As the gases passing through heater 20, are substantially at all times, higher in temperature than the air, or vapor in cabinet 10, the draft at stack 34 will always be greater than that at any of the openings in drier 10. However, for points substantially spaced from stack pipe 34, the effect of extractor 32 will be substantially nullified, and unless some means for venting said chamber is provided, a heavy laden mixture of air and water vapor will be produced at these spaced points. This mixture will not pass from the chamber readily, until practically all the moisture in the vicinity of pipe 34 has been removed. Furthermore, some means must be provided whereby the vented air, and the like, is replaced; also some means is necessary to provide for airing the clothes during the drying operation. All these purposes are accomplished by the spaced openings 42, 44, which pass air into the cabinet adjacent the heater, then permit such air to pass up through the cabinet in proximity to rack 22, and thereafter out the stack pipe 34, by way of the extractor 32, or out the openings 44.

While at times, by a gust of air or the like, it might have been possible to build up a back pressure in stack pipe 34, so that burnt gases in heater 20 would be forced back into cabinet 10, however, in this apparatus, the preventer 40 diverts any such gust of air, so that it will have practically no effect on the open end 56. The hood formed by cylinder 66 prevents any direct effect from horizontal blast, while blasts coming from above and below are diverted by the cones 62, 64.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompaying drawings is to be interpreted as illustrative and not in a limiting sense.

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

1. A clothes drier comprising a casing having a top wall and a bottom wall, a clothes rack in said casing, a gas heater mounted within said casing adjacent said bottom wall and beneath said rack, conduit means adjacent one end of said casing and communicating with said heater for removing the burnt gases therefrom, said conduit means extending to the top wall of said casing, a back draft preventer mounted on said conduit, said bottom and top walls having openings therein above and below said rack respectively, said openings being located adjacent the end of said casing opposite said conduit means, and an extractor interposed in said conduit means having openings disposed within said

casing for removing air from said casing and inducing currents of air thru said opening in the bottom wall around said heater.

2. A clothes drier comprising a casing having top and bottom walls, means for supporting clothes in said casing, a heater mounted within said casing adjacent said bottom wall and beneath said supporting means, said top and bottom walls having openings for the passage of air through said bottom openings upwardly through said casing and out through the openings in said top wall, and an extractor within said casing having an air opening communicating with said casing intermediate the top and bottom thereof for drawing air longitudinally therethrough.

3. A clothes drier comprising a casing having top and bottom walls, means for supporting clothes in said casing, a heater mounted within said casing adjacent said bottom wall and beneath said supporting means, conduit means at one end of said casing interconnecting said heater with the top wall of said casing, an extractor within said casing interposed within said conduit means, and a back draft preventer mounted on said conduit, said bottom and top walls having openings therein located adjacent the end of said casing opposite said conduit means.

In testimony whereof I affix my signature.

JULIUS JUDELSON.