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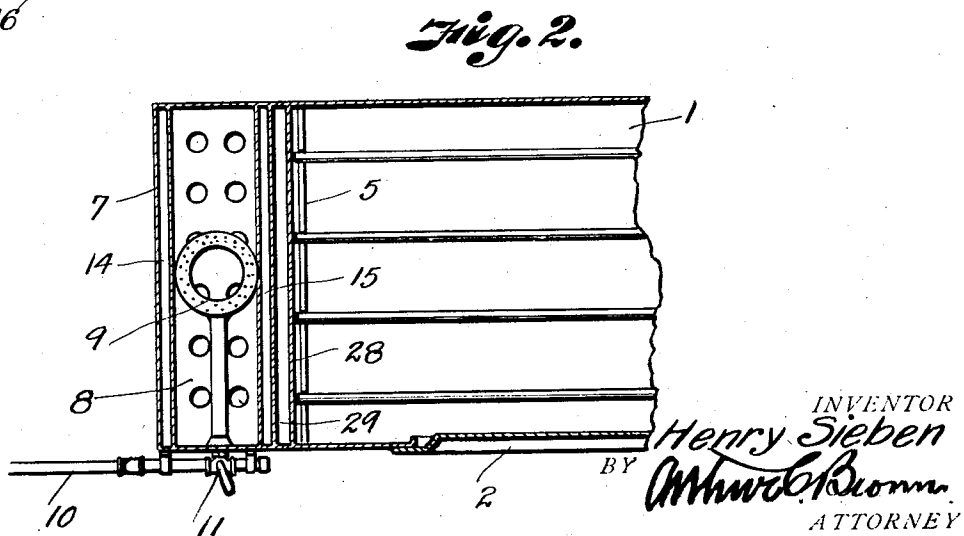
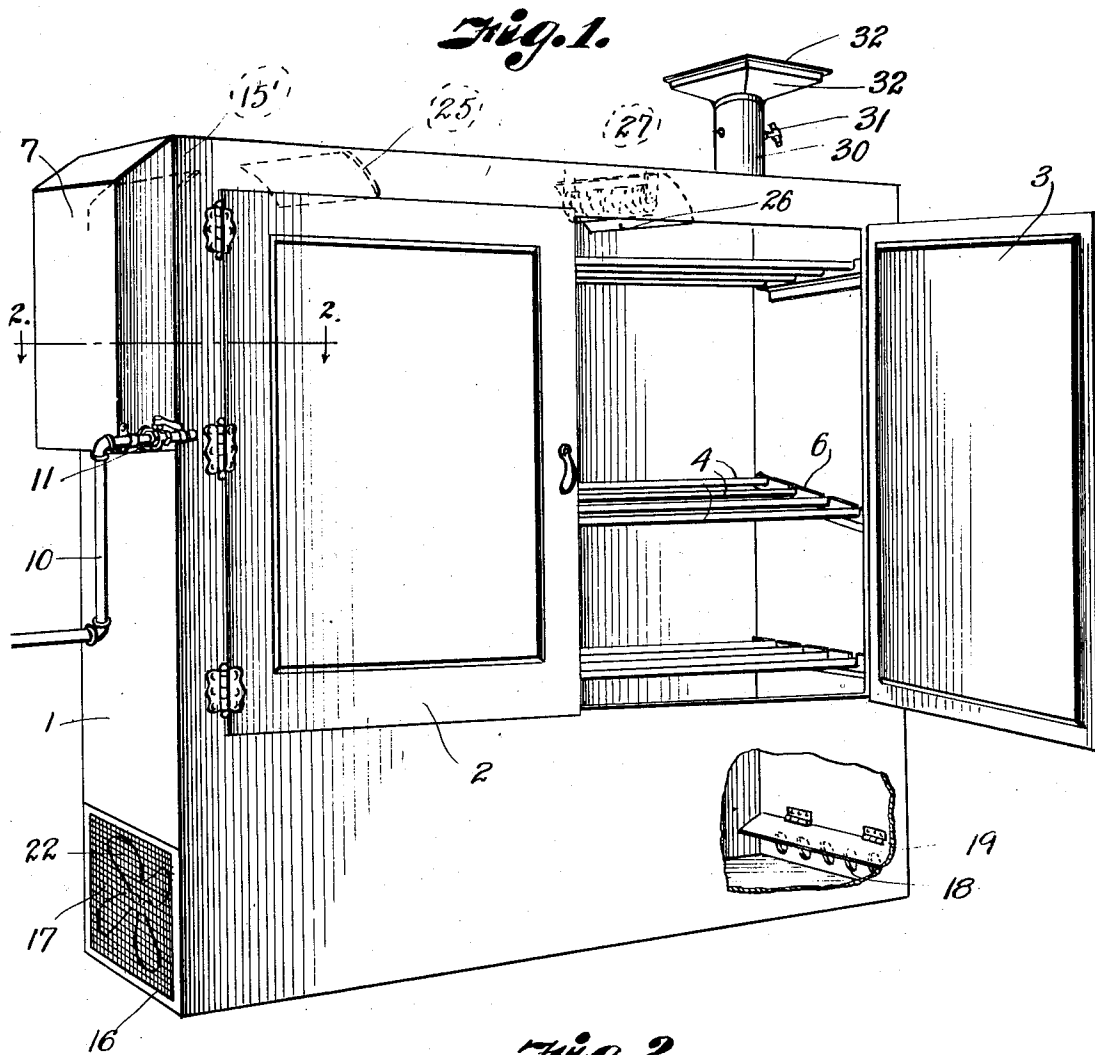
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H. SIEBEN

DRIER

Filed March 31 1924

2 Sheets-Sheet 1



INVENTOR

Henry Sieben

BY

Wurzburg

ATTORNEY

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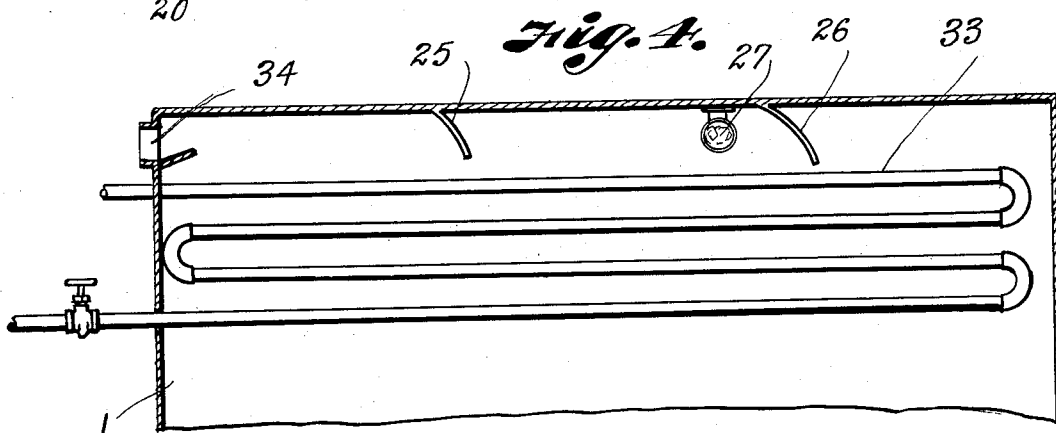
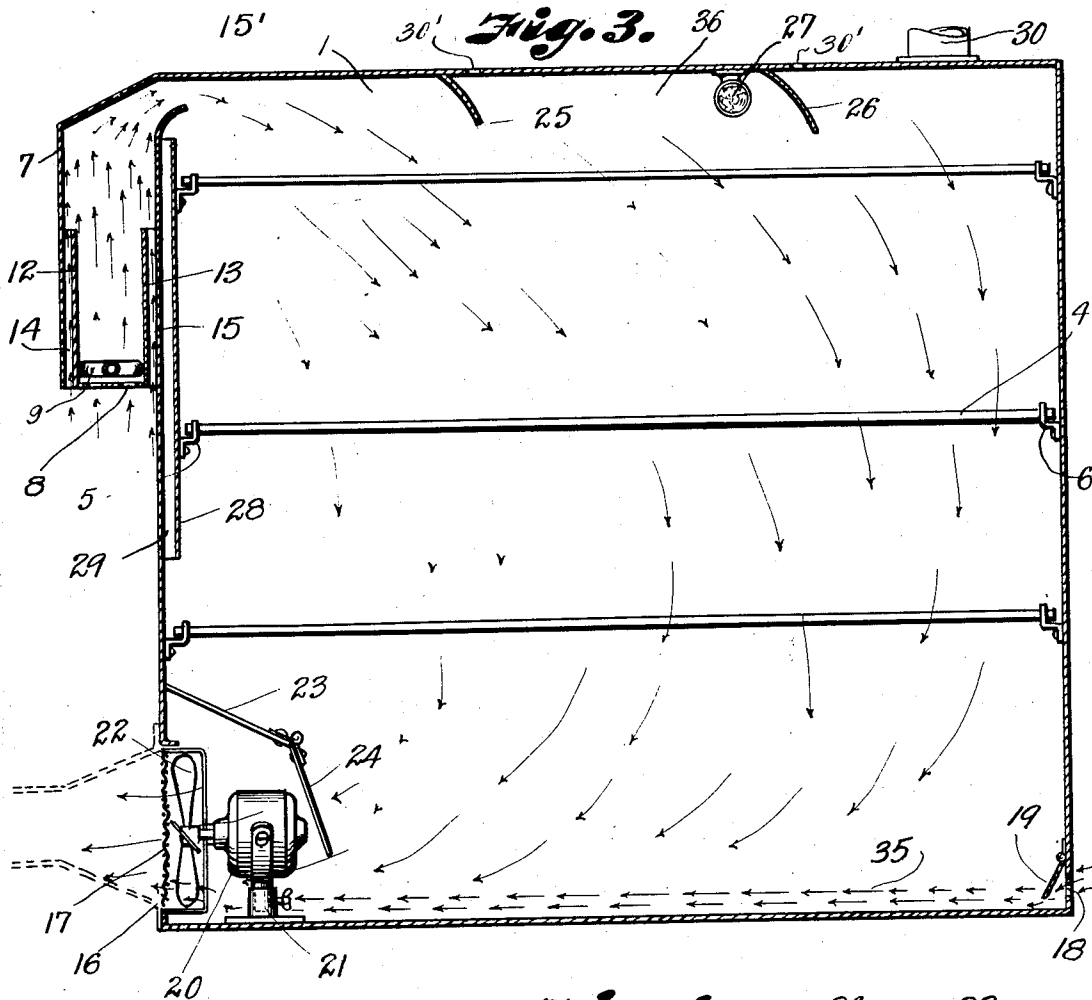
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H. SIEBEN

DRIER

Filed March 31 1924

2 Sheets-Sheet 2



INVENTOR
BY *Henry Sieben*
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UNITED STATES PATENT OFFICE.

HENRY SIEBEN, OF KANSAS CITY, MISSOURI.

DRIER.

Application filed March 31, 1924. Serial No. 703,254.

To all whom it may concern:

Be it known that I, HENRY SIEBEN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Driers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to driers and renovators and particularly to clothes driers in which air passes into the drier through a heating means outside the drier and at a temperature which under no condition will scorch the most delicate fabric. Driers are usually provided with heaters at the bottom of the casing and in order to evaporate the moisture considerable heat is generated which not infrequently scorches the clothes, but with my invention, warm dry air is provided outside the drier casing and it is preferably admitted into the upper portion of the casing with a down draft which permits the air to pass in descending stream lines through and about the clothes to dissipate the moisture without danger of setting the clothes afire, the precipitates such as water vapor and the like being caught by a transversely moving column of air passing along the bottom of the casing to eject the moisture and other precipitates from the casing before they can collect at the bottom of the casing and inasmuch as the air is drawn through the casing at considerable velocity, the drying operation as to time will be reduced to a minimum.

In known types of driers, where gas channels are provided at the bottom of the casing it not infrequently happens that the flame is extinguished without cutting off the gas supply. As a result the casing becomes filled with inflammable gas so that in the event that a flame such as a lighted match or the like is brought into proximity with the casing, the accumulative gas explodes with obvious attendant disastrous results, whereas according to the construction of my invention, a gas heater may be employed outside the casing and the construction is such that in the event that the gas continues to flow without combustion, air entering the

casing along with the gas will so impoverish the gas as to render it practically non-combustible and in view of the fact that the gases and air are admitted at the top of the casing, I may provide vertical openings in the top of the casing, so that the gas being lighter than the air will tend to ascend through the top of the casing so that under no condition can the casing of the drier become filled with explosive gases.

Besides the inclusion of means for passing relatively large volumes of air at an appreciable velocity over and through the clothes to take up the moisture and cause the clothes to quickly dry, I have provided means for disinfecting or renovating the clothes in the drier by the passage of air over a renovator containing a disinfecting material. Means is provided whereby hot air from the heater may be led off for heating purposes such as for heating a room or the like, this latter effect however is secondary to the real purposes of my invention.

The novel construction of the invention will be apparent by reference to the following description in connection with the accompanying drawings, in which—

Fig. 1 is a perspective view of a drier constructed in accordance with my invention, parts being broken away to show the air inlet for the ejecting column.

Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a vertical longitudinal sectional view through the drier, and

Fig. 4 is a sectional view of a slightly modified form of heating element.

The casing 1 is illustrated as substantially rectangular and it is provided at one side with doors 2 and 3 so access can be had to the hangers 4 which are supported by brackets 5 and 6 at the ends of the drier casing. Air is admitted to the upper portion of the casing through a hood 7 which has a perforate bottom 8 above which is a suitable heater element 9, preferably a gas heater, the openings in the bottom 8 being sufficient to furnish the necessary oxygen to support combustion. The burner is furnished with fuel through a pipe 10 controlled by a valve 11. The bottom 8 is of less width than the width of the hood and extending vertically from its longitudinal edges are two plates 12 and 13 to provide air ports or passageways 14 and 15 to admit air from atmosphere into the hood so that it can dis-

charge through the constricted neck 15' at the top of the hood into the casing. At the bottom of the casing is an air outlet 16 preferably covered by a screen 17. At the opposite end of the casing is a plurality of openings 18 adapted to be closed by a flap valve 19, the flap valve however tending to uncover the plurality of openings 18.

Adjacent to the opening 16 is an air impeller consisting of a fan 20 rotatably mounted in a base 21 so that the fan can be turned around, that is the fan blades 22 can cause the air to be directed through the opening 16 or the fan can be turned so the air can be directed through the plurality of openings 18 in which case the valve 19 will be held open by any suitable means.

Above the fan is a shield or baffle 23 having a hinged wing 24 which will be swung upwardly when the fan is turned to make the blades draw air through the opening 16. In order to direct the air in properly curved stream lines, I arrange the curved directing baffles 25 and 26 at the top of the casing and between the baffles 25 and 26 is a renovator or disinfectant carrier 27 which will impregnate the air with the disinfectant to disinfect the clothes. When the clothes are hung on the racks the heater is heated and the fan is turned on. In order to protect the clothes in the upper portion of the casing I provide a baffle 28. The baffle 28 is spaced away from one end wall of the casing to provide an air space 29 which will insulate the baffle 28 and thereby prevent the clothes scorching.

At the top of the casing is a flue 30 with a damper 31 so that under certain conditions the device can be used as a heater to supply hot air to a room by a suitable source for example a register 32 so that in the event the device is not being used as a drier, it may serve as a heater. In that event the fan will be turned around from the position shown in Fig. 3 so that the hot air will be blown up through the flue.

In Fig. 4 I have shown a slightly modified form of heater. Instead of using the heater including the hood shown in the preferred form, I may arrange longitudinal steam pipes in the top of the casing and admit air through the opening 34. In other respects the construction of the casing and fan will conform to the preferred embodiment.

Assuming the parts to be assembled and the heat generated in the hood, it will be apparent that air will pass into the casing and that it will be drawn down to the bottom between the column of air forced through the opening 16 and the column of atmospheric air passing through the plurality of openings 18. The column of air indicated at 35 passing along the bottom of the casing will draw the incoming air downwardly

from all parts of the casing and it together with the air which is passed over the clothes will be forced out of the opening 16 by means of the fan 20. Therefore the heated air will pass through and about the clothes taking out the moisture and pass out to atmosphere. The degree of heat, that is the temperature of the air may be controlled by the valve 11.

It will also be apparent that the horizontally moving column of air introduced through the openings 18 and passing out through the opening 16 will cause the precipitated moisture to float along the bottom of the casing without coming into contact therewith so that the horizontal column of air 35 will syphon out the moisture or precipitates keeping the interior of the casing dry and attention is also called to the fact that should the burner 9 become extinguished the gas passing through the hood 7 into the casing will be diluted or impoverished by the air passing through the spaces 14 and 15, so that its combustibility will be practically nil but the mixture of gas and air can be relieved from the casing through the openings 36.

When it is desired to use the device as a heater the fan can be turned in the opposite direction to that indicated in Fig. 3 so that the hot air will be blown through the flue 30. During this time the force of the air from the fan against the flap valve 19 will cause the valve to seal the plurality of openings 18 so that all air will be directed up through the flue, that is the heated air as well as the fresh air passing through the opening 16. The manner in which the air passes over the deodorizer and disinfectant 27 is well understood. Such devices have been previously used in various manner.

In Fig. 3 I have shown holes 30' in the top of the casing to permit any gas which enters the casing to pass out through the opening, thereby preventing the drier from becoming filled with explosive gases.

It will be apparent from the foregoing that the device can be inexpensively constructed, that it will operate in an efficient manner to dry the clothes and that air will be caused to circulate through the clothes from all parts of the casing, the siphoning column 35 preventing stratification of the air passing through the casing. While I have specifically described what appears to be the best form of my invention, I do not wish to be limited to the exact details of construction, for obviously changes in form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

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

1. A drier casing, a heater outside of the

casing through which atmospheric air may pass to have its temperature increased, means for conducting heated air from the heater to the top of the casing and an air circulating means at the bottom of the casing.

2. A drier comprising a casing having an air impeller at the lower end of one wall thereof for forcing air through the casing, the opposite wall of the casing having openings so that the air impeller will cause air to flow along the bottom of the casing in horizontal stream lines and means for admitting dry air to the top of the casing.

3. A drier comprising a casing having an air impeller at the lower end of one wall thereof for forcing air through the casing, the opposite wall of the casing having openings so that the air impeller will cause air to flow along the bottom of the casing in horizontal stream lines and means for admitting dry air to the top of the casing, said means comprising a hood communicating with the casing, and a heater in the lower portion of the hood the hood having air passages about the heater.

4. A drier comprising a casing, an air inlet at one end of the casing near the top, the inlet comprising a hood having a heater therein, the casing having an outlet opening, an impeller for causing air to flow through the outlet opening and a fresh air opening in the casing distant from the outlet to admit air along the bottom of the casing to create an ejector effect upon the air admitted through the hood.

5. A drier comprising a casing, an air inlet at one end of the casing near the top, the inlet comprising a hood having a heater therein, the casing having an outlet opening, an impeller for causing air to flow through the outlet opening, a fresh air open-

ing in the casing distant from the outlet to admit air along the bottom of the casing to create an ejector effect upon the air admitted through the hood, a flue at the top of the casing, a damper for controlling the effective port area of the flue, a flap valve for controlling the inlet at the bottom of the casing distant from the outlet and means for reversibly supporting the impeller.

6. A drier comprising a casing, a hooded inlet member at the top of the casing, a heater support spaced from the edges of the hooded inlet member but within the same, walls on the heater support to provide passageways between the walls and the hooded member for the passage of air into the casing, the ends of the casing being provided with diametrically oppositely located ports for the ingress and egress of air and a fan within the casing adjacent to the egress port for forcing air out of the casing and for drawing in air from the opposite ports along the bottom of the casing.

7. A drier comprising a casing, a hooded inlet member at one upper end of the casing, a heater within the hooded inlet member, the casing having an outlet port at one lower end and an inlet at the opposite lower end, the inlet communicating with atmosphere and an impeller for drawing air into the casing from atmosphere and discharging it through the outlet.

8. A drier comprising a casing having an inlet port at its upper portion, an outlet at the lower portion of one end and an inlet at the lower portion of the other end, direction baffles at the top of the casing and means for forcing air through the lower portion of the casing.

In testimony whereof I affix my signature.

HENRY SIEBEN.