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W. M. ESTERLY & J. E. MANNEN.

LAUNDRY CLOTHES DRIER.

APPLICATION FILED SEPT. 16, 1902.

NO MODEL.

FIG. 1.

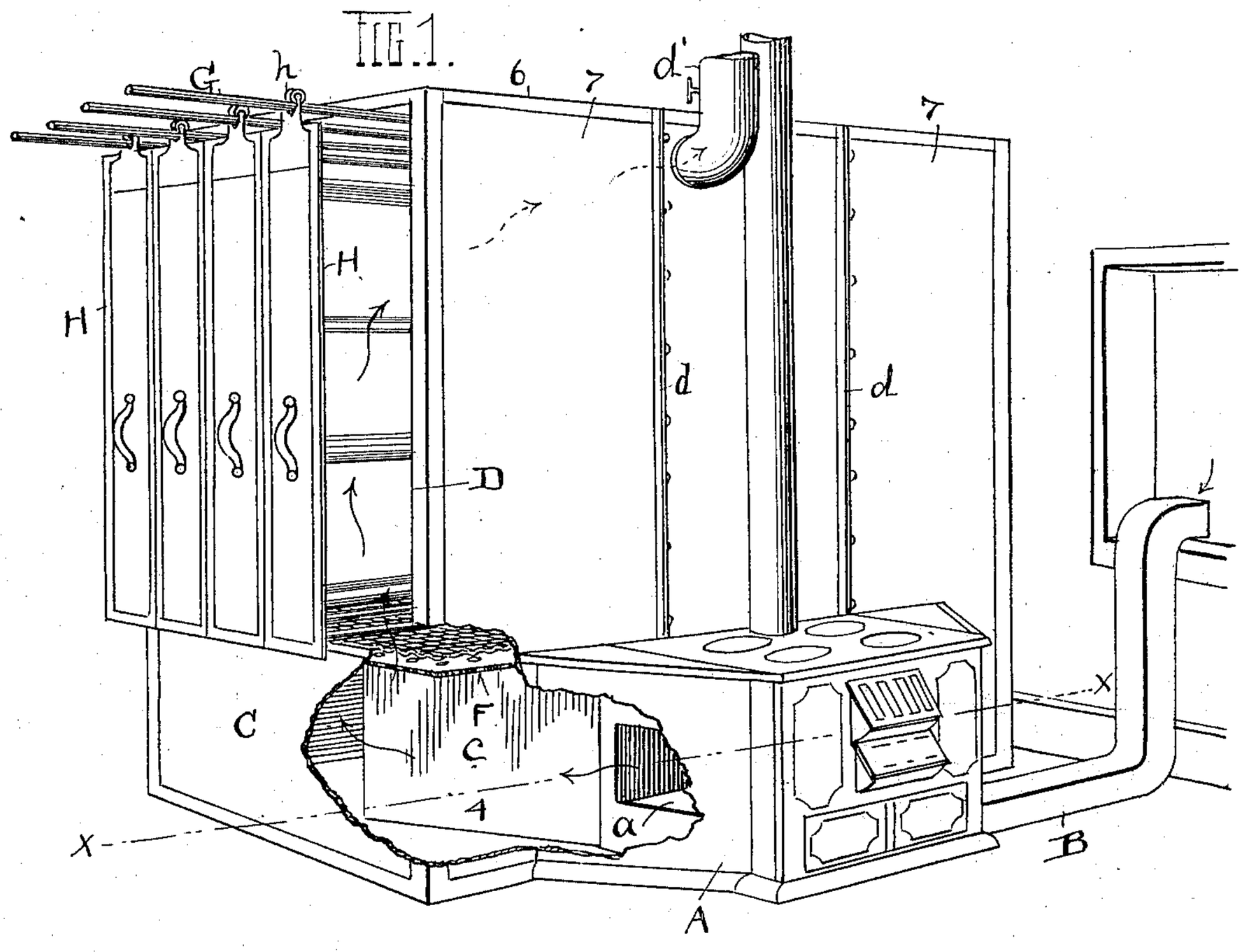


FIG. 3.

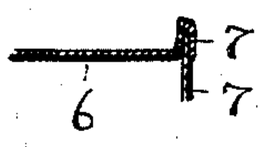


FIG. 4.

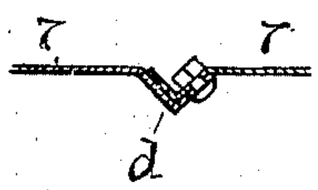
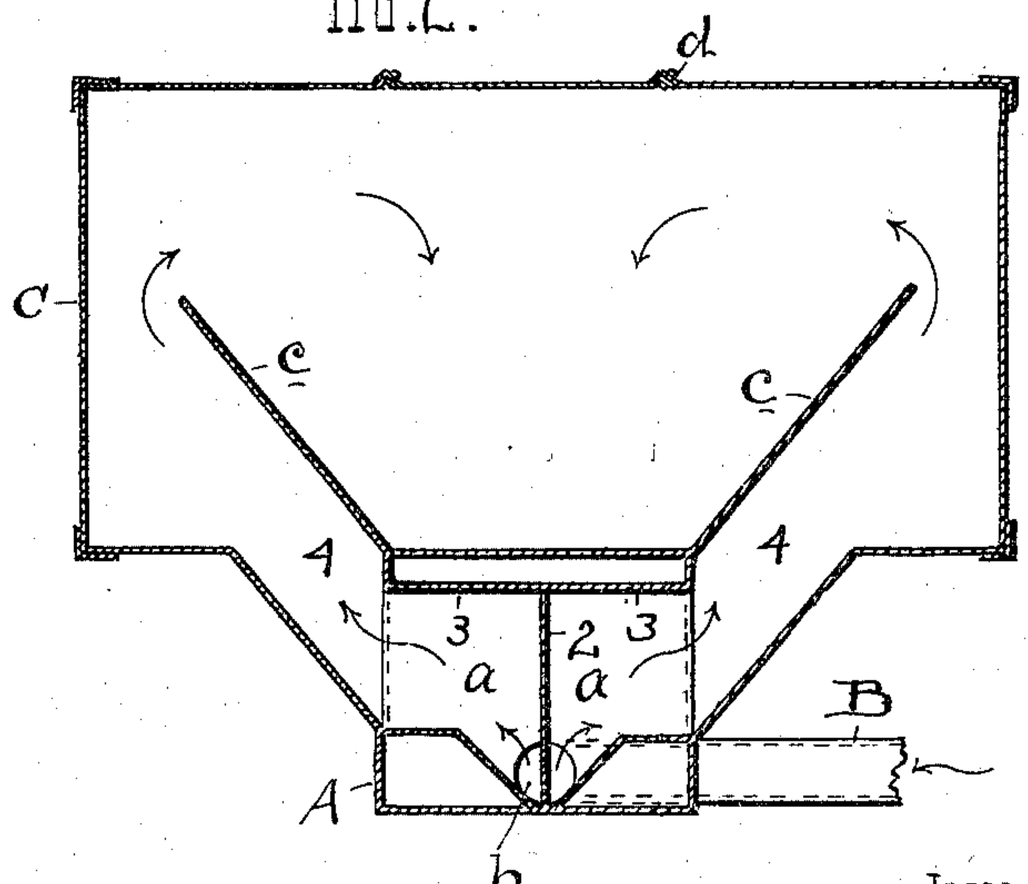


FIG. 2.



ATTEST

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UNITED STATES PATENT OFFICE.

WILLIS M. ESTERLY AND JOHN E. MANNEN, OF CLEVELAND, OHIO.

LAUNDRY CLOTHES-DRIER.

SPECIFICATION forming part of Letters Patent No. 731,445, dated June 23, 1903.

Application filed September 16, 1902. Serial No. 123,666. (No model.)

To all whom it may concern:

Be it known that we, WILLIS M. ESTERLY and JOHN E. MANNEN, citizens of the United States, residing at Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Laundry Clothes-Driers; and we do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to clothes-driers for laundry uses, and comprises a drying-chamber and movable racks therein and means for heating the chamber with clean air, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective elevation of a complete heating apparatus which embodies our invention and shown partly in section to disclose internal construction. Fig. 2 is a plan view in diagram of the stove or air-heater and of the air distributing or circulating chamber at the rear thereof and disclosing certain features of construction, which are hereinafter more fully described. Figs. 3 and 4 show the preferred methods of uniting the metallic plates which constitute the sides or wall of the drier and the top thereof to the side wall, as hereinafter fully described.

We are of course aware that in the broader sense clothes-driers of this kind are not in themselves new at this time and that such driers have been made and used with means for heating the air and establishing a circulation therein; but so far as we are aware all such driers or drying apparatus have received the air which comes in contact with the clothing directly from the room wherein the drying apparatus is located, and they have had the further limitation, as we understand the art, of heating the air indirectly, as by means of drums or other appliances through which the heat was carried from its source, and directly, as in this case, with a heater built practically into the drier. There is obvious objection to taking the air directly from the cellar, where apparatus of this kind is generally located, into the drier to dry the clothes, because usually the air in cellars is damp and more or less laden with coal-dust or the like, which when conveyed to the clothes must necessarily soil them more or less, and in such cases likewise the air so taken has generally been indirectly heated instead of directly, as by us.

We have overcome the objection to damp and dust-laden atmosphere from the cellar or drying-room by taking the air from the outside of the building through a pipe or draft-channel, which may be provided with gauze or other air-filtering medium at its mouth, so as to further promote cleanliness in the air, if such precaution be found necessary, and the air so taken is carried directly through the stove or heater, which is especially constructed to heat the same under the most favorable conditions and with the least possible expenditure of fuel for this purpose. To this end the stove or heater is equipped in that portion thereof which usually constitutes the oven with means for receiving and dividing the volume of air, so as to distribute the same in opposite directions and thence to the air-distributing base of the drying-chamber, while the products of combustion are conveyed by a pipe directly to the stack or chimney and are not utilized in the drying process.

Having thus generally outlined our invention, the specific features are found, first, in the construction of the stove or heater A, which may be of any suitable size and construction, except that it should be provided with an internal heating chamber or space, which for convenience of description will be referred to as the "oven" *a*, and to which a fresh-air pipe B leads from the outside of the building and discharges into the bottom of the oven at *b*, centrally thereof. A division-wall 2 bisects the air-inlet opening *b*, so that one half the volume of air enters on one side of said wall and the other half on the other side thereof, and rearwardly walls 3 at the back of the oven are set to direct the air into the channels 4 between the said oven and the air-distributing base C of the drier-chamber D. Within the said air-distributing chamber we arrange air-deflecting plates or wings *c*, which stand at an angle of inclination rearward from the heater, so as to carry the hot air back toward the rear wall of the chamber more or less and to distribute it as evenly as

practicable within said chamber. From this chamber the heated air rises into the drying-chamber D above through a perforated floor F, which also constitutes the cover of the air-distributing chamber. The wall of the drying-chamber is preferably constructed of sheet metal, though it may be of any other suitable material. When of sheet metal, such as galvanized iron or the like, we construct the joints of the sheets vertically with substantially V-crimps *d*, and the crimped meeting or overlapping edges of the plates are riveted or bolted in this crimp, and thus with the crimps doubled and riveted they serve as a strengthening and stiffening medium for the wall. It will be understood also that chamber D is suitably covered and is shown in this instance as provided with a flue *d'*, with a draft-regulating device, through which the waste air is conveyed to the chimney. We also employ the usual track bars or rods G, and sliding clothes-racks H are supported upon these bars by suitable hangers provided with sheaves *h*, which run on the rack-bars G, as usual.

Any suitable heater may be used in lieu of the stove shown, provided it have the oven or chamber or its equivalent *a*, and while we show a single divided inlet for the air to said oven there might be one inlet on each side of wall 2, with a divided air-supply pipe B leading thereto. We might also use pipes to convey the heated air to the air-distributing chamber instead of walled channels, as shown, as is obvious. The most essential thing, however, is to have a clean-air supply passing through a heating-chamber in the heater itself, where practically all the heat generated may be absorbed and utilized directly in the drier, rather than depending on drums or the like outside the heater and away therefrom, as most generally in apparatus of this kind heretofore with which we are familiar.

It will be understood that the external wall or cover of the drier is closed air-tight all around from top to bottom, so as to exclude surrounding air, and while we preferably use a perforated sheet-metal bottom F any equivalent and sufficient open-work bottom may be substituted.

The top or cover 6 of the drier is crimped, as seen in Fig. 3, to let in the side plates 7 and fasten the said parts firmly and strongly together.

What we claim is—

1. A clothes-drier having a hot-air-distributing chamber, in combination with a heater for the air having an internal air-heating space and a conduit B leading to the bottom of said space, and a wall dividing said space, and separate channels leading from said space to different portions of the said distributing-chamber, substantially as described.

2. The clothes-drier having an air-distributing chamber in its base closed about its sides, in combination with a heating-stove having an oven divided at its center, a fresh-air-supply pipe discharging into said oven and walled air-passages leading from the sides of said oven into the said distributing-chamber, substantially as described.

3. A laundry-stove having an oven with a fresh-air inlet to its bottom, a wall dividing said oven and inlet and separate air-conducting passages leading from opposite sides of said oven, in combination with a clothes-drying chamber having an air-distributing chamber in its bottom into which said conducting-passages discharge, substantially as described.

4. A clothes-drier chamber having an air-distributing chamber at its bottom and an open-work floor dividing said chambers horizontally, in combination with an air-heater connected directly with said drier, and having an oven with a fresh-air inlet in its bottom, a wall in said oven dividing the air and opposite walled passages open to the sides of said oven and to the said air-distributing chamber, substantially as described.

Witness our hands to the foregoing specification this 6th day of September, 1902.

WILLIS M. ESTERLY.
JOHN E. MANNEN.

Witnesses:
R. B. MOSER,
A. N. MOSER.