F. T. JOHNSON.

CLOTHES DRIER.

APPLICATION FILED APR. 20, 1907.

950,923.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

Fig. 4.

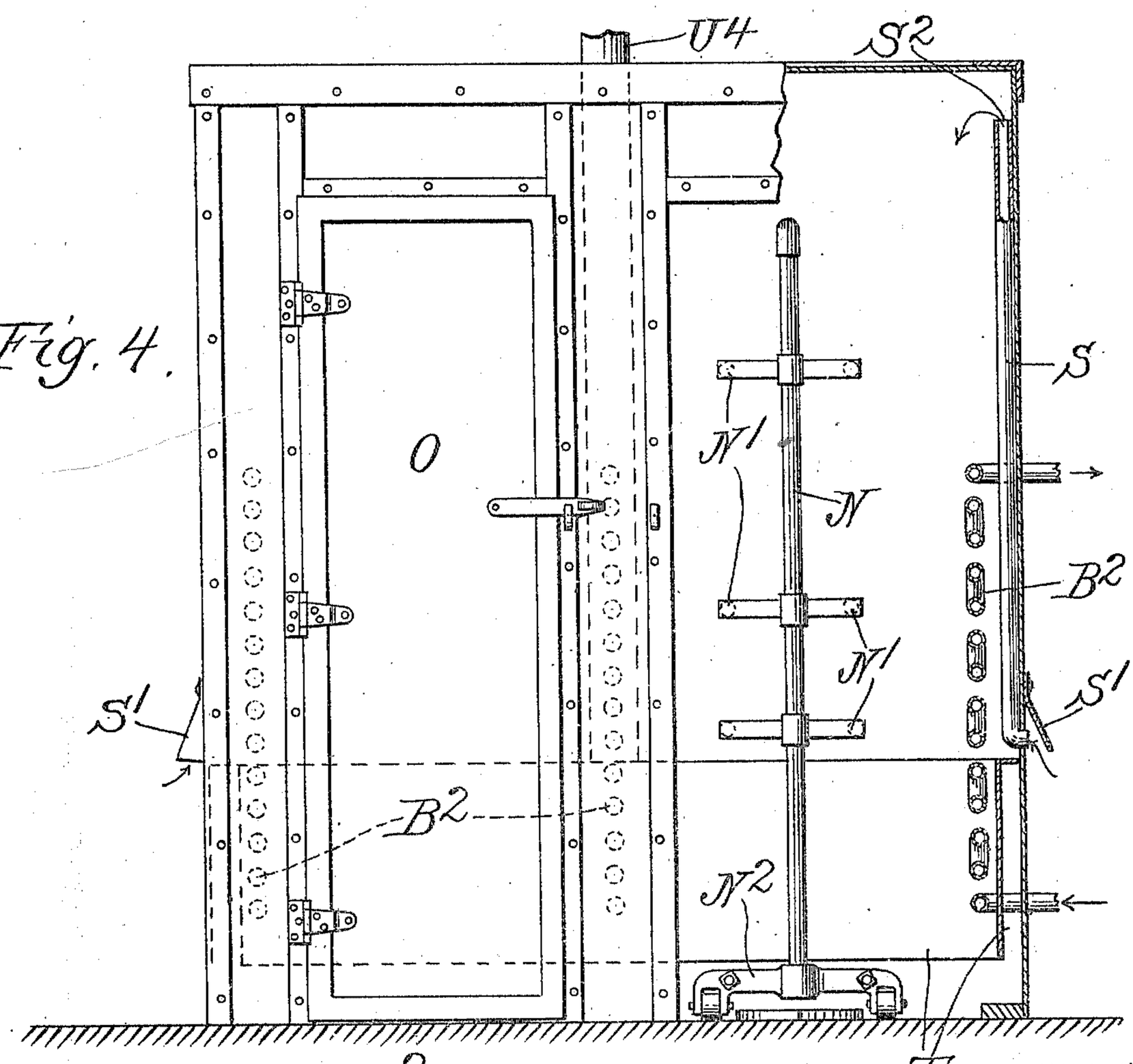
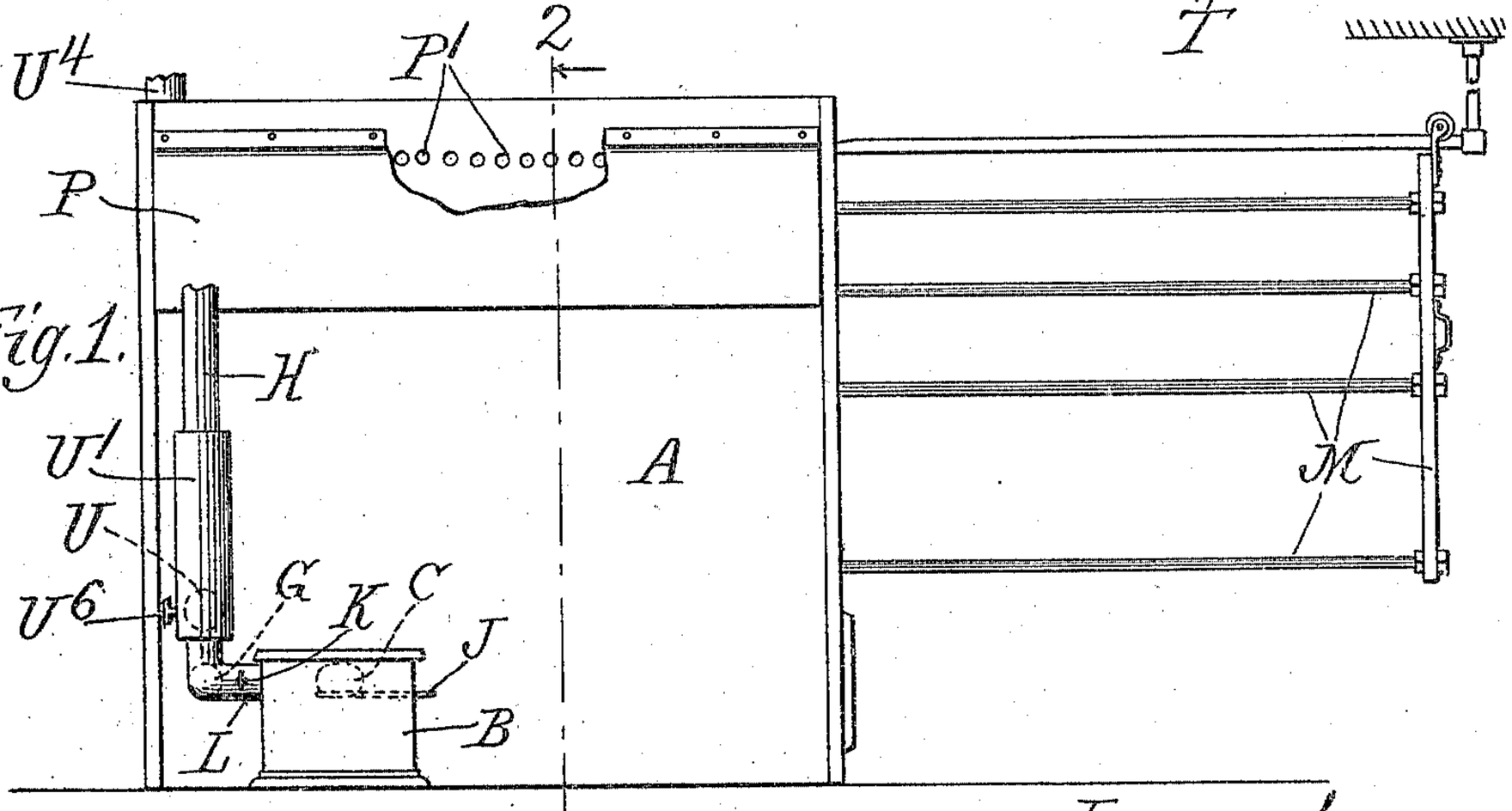


Fig. 1.



Witnesses.
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2 SHEETS—SHEET 2.

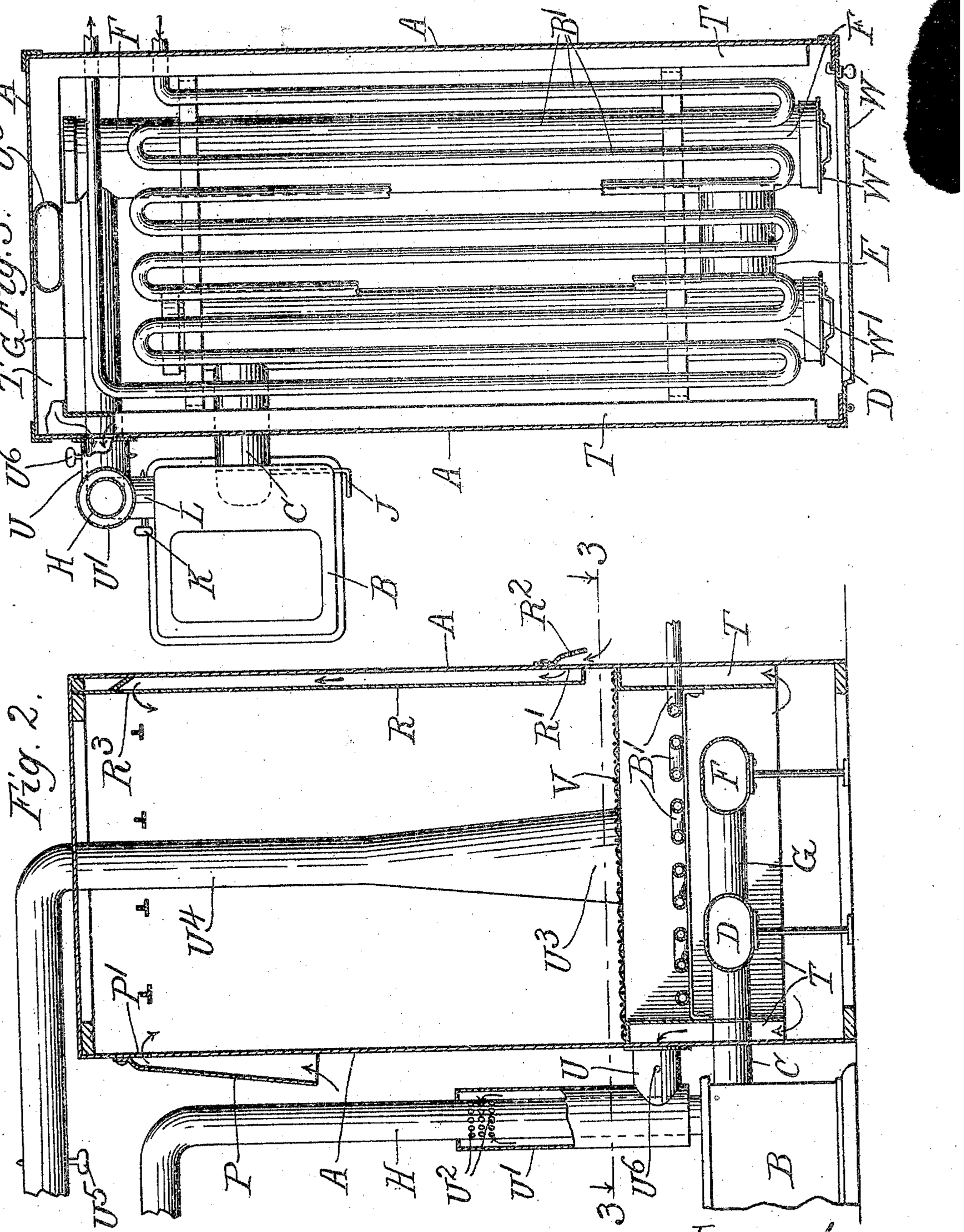

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANCIS T. JOHNSON, OF CHICAGO, ILLINOIS.

CLOTHES-DRIER.

950,923. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed April 20, 1907. Serial No. 369,327.

To all whom it may concern:

Be it known that I, FRANCIS T. JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Clothes-Driers, of which the following is a specification.

My invention relates to clothes drying machines, and is illustrated in the accompanying drawings wherein—

Figure 1 is a front elevation of a drier with parts broken away. Fig. 2 is a vertical part sectional view on the line 2—2 of Fig. 1. Fig. 3 is a horizontal part sectional view on the line 3—3 of Fig. 2, and Fig. 4 is a front elevation of a modification with parts broken away and others shown in dotted lines.

Like parts are indicated by like letters in all the figures.

A A are the exterior walls of the dry chamber, B a heating stove associated therewith, B^1 a steam coil placed horizontally in the lower part of the dry chamber, and B^2 similar coils placed vertically along the inner sides of the dry chamber.

The stove B has leading therefrom the pipe C which opens into the heating drum D, whence leads the pipe E to the heating drum F, whence leads the return pipe G to the smoke-stack H. This constitutes one form of the heating apparatus.

The products of combustion are passed through the drum, thence out through the smoke-stack.

J is a damper whereby the pipe C may be closed, so as to stop such circulation when this portion of the heating apparatus is not to be used, and K is a damper whereby the pipe L, leading directly from the stove to the smoke-stack H, may be controlled. The steam coil B may be used with or without the heating drums D F. The one system is supplemental to the other. The vertical heating coils B^1 and B^2 are required where the structure is as shown in Fig. 4.

The drying apparatus may consist of the usual dry frame M M, adapted to be drawn out or pushed in as occasion may require. Another dry rack form is shown in Fig. 4 where N is one of two vertical bars and N^1 N^1 are the cross bars on which the clothes are hung. N^2 is the truck on which the whole is mounted so that it can be drawn in or out through the bar O of the dry chamber.

I have shown three ways in which the introduction of fresh air may be effected. P P are hoods arranged about the top of the dry chamber and downwardly depending and associated with a series of holes P^1 P^1 at the top of the dry chamber. R is a double wall portion open at the bottom at R^1 and protected by the short hood R^2, and opening into the top of the dry chamber at R^3. S is a pipe opening into the outer air beneath the hood S^1 and opening into the upper part of the chamber at S^2. The arrows in connection with these several devices show how the air is taken below and introduced into the top of the dry chamber. Any one or all of these or other similar devices could be used for the purpose. The circulation of such air through the dry chamber is effected by means of its removal from the bottom. There is illustrated at T T an inner lower channel about the inside of the dry chamber, shut off from the chamber at the top and open at the bottom. It is connected at U by a pipe to the drum U^1 about the smoke-stack H, which is perforated at U^2 to let the air pass into the smoke-stack H. It is also connected at U^3 with the vertical stack U^4 controlled by the damper U^5. There is a damper U^6 near the pipe U. Thus the downwardly descending moisture charged air is drawn out at the bottom.

V is a diaphragm across the bottom of the dry chamber.

W is the door of the dry chamber and W^1 W^1 are removable covers on the ends of the heating drum.

The device for getting the heated and vapor charged air out of the bottom of the dry chamber comprises, as described, a chamber about the bottom of the dry chamber and connected with a drum about the smoke-stack of the stove. Any other device for heating and withdrawing the air could be employed.

I wish my drawing to be taken as diagrammatic and not as intended to display all the details or every form in which my invention can be realized.

I have not described or illustrated all of the details which might appear in such a

device because they will be understood to be those of the ordinary drying machines. There are also other attachments which might be used for distributing and directing the air and the currents thereof through the mechanism and I have not shown these as they are not essential to the understanding of my invention.

The use and operation of my invention are as follows: The fresh air is admitted at the top in any of the ways suggested. It descends through the articles to be dried hanging on their respective racks. In this process it should be heated and as nearly as possible by even distribution of heat. This is accomplished by the drums or the steam pipes, particularly in the structures of Figs. 1, 2 and 3. The moisture charged atmosphere is to be taken out at the bottom and this is done by allowing it to pass outwardly through a stack or by drawing it outwardly by means of the heated drum around the smoke-stack of the stove. In this latter case it is preferable to discharge it into the smoke-stack itself. None of the products of combustion and no vitiated air are admitted to the dry chamber.

I claim:

1. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into such chamber comprising a stove and heating drums connected therewith and placed in the bottom of said chamber to lead the products of combustion therethrough and a smoke stack with which they are connected, and means for removing relatively cool and vapor charged air from the lower part of such dry chamber comprising such smoke stack, a drum thereabout and a connection below said heating drums leading to such drum.

2. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into such chamber comprising a stove and heating drums connected therewith and placed in the bottom of said chamber to lead the products of combustion therethrough and a smoke stack with which the stove and the heating drums are connected, and means for removing relatively cool and vapor charged air from the lower part of such dry chamber comprising such smoke stack, a drum thereabout and a connection below said heating drums leading to said drum, and a chamber about the lower part of said dry chamber closed at the top, open at the bottom and into which such connection opens.

3. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into such chamber comprising a stove, heating drums connected therewith and placed in the bottom of the chamber and from which the products of combustion pass and a smoke stack into which they discharge, and means for removing relatively cool and vapor charged air from the lower part of said chamber comprising a drum about the smoke stack and a connecting pipe leading thereto and opening into the dry chamber below said heating drums.

4. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into such chamber comprising a stove, heating drums connected therewith and placed in the bottom of the chamber and from which the products of combustion pass and a smoke stack into which they discharge, and means for removing relatively cool and vapor charged air from the lower part of said chamber comprising a drum about the smoke stack and a connecting pipe leading thereto and opening into the lower part of the dry chamber, and a chamber about the lower part of the dry chamber closed at the top, open at the bottom and into which the connecting pipe opens.

5. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into said chamber, and means for removing relatively cool and vapor charged air from the lower part of such dry chamber comprising a pipe leading thence from below said heating drums, means for heating the air discharged by such pipe so as to produce an outward current from the lower part of the dry chamber.

6. The combination of a dry chamber closed below with means for introducing all the fresh air required at the top, means for heating said air without introducing the products of combustion into said chamber, means for removing relatively cool and vapor charged air from the lower part of such chamber, said means comprising a chamber about the lower part of the dry chamber closed at the top, and open at the bottom and a pipe with which it is connected, and means for heating the air as it leaves such pipe to cause it to flow outwardly from the bottom of the dry chamber.

7. A clothes drier comprising a dry chamber with means for introducing all of the fresh air at the top, means for heating said air without introducing the products of combustion into said chamber, a smoke stack which carries the products of combustion from the heating device, a pipe which sur-

rounds said smoke stack, means for removing all of the relatively cool and vapor charged air from the lower part of said chamber below the heating drums, said means comprising a chamber about the lower part of the dry chamber closed at the top and open at the bottom, with which it is connected below, a pipe leading from the upper part of such chamber to the pipe which surrounds the smoke stack which carries the products of combustion from the heating device.

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