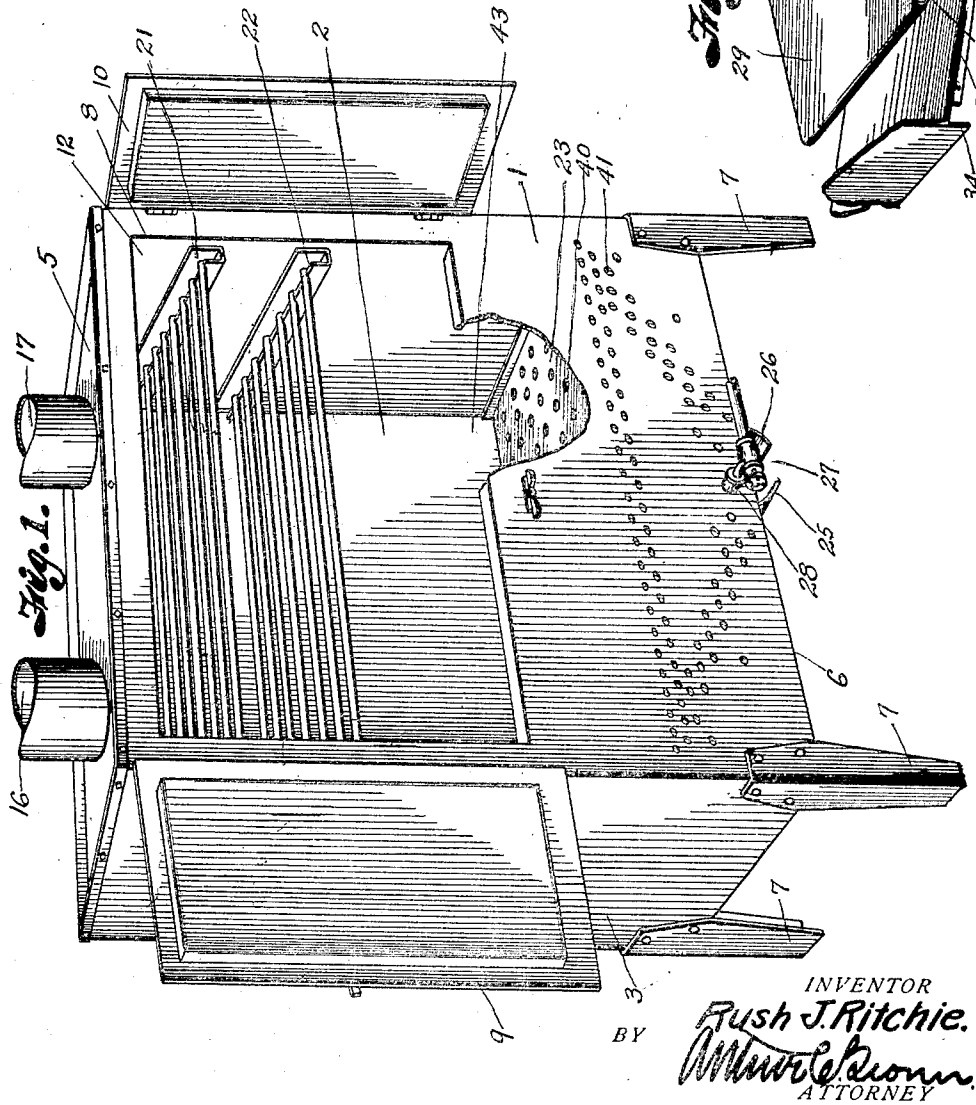
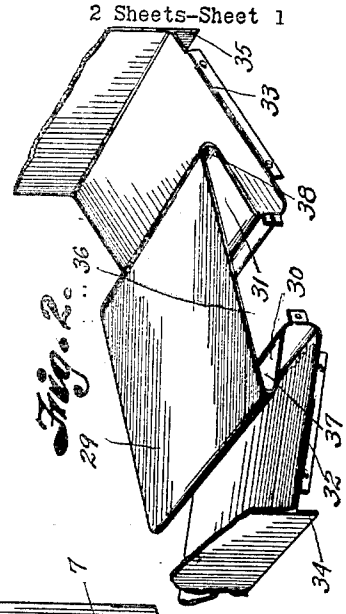
Feb. 16, 1926. 1,573,453

R. J. RITCHIE

DRIER

Filed May 18, 1923 2 Sheets-Sheet 1





INVENTOR
Rush J. Ritchie.
BY Arthur C. Brown
ATTORNEY

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DRIER

Filed May 18, 1923 2 Sheets-Sheet 2

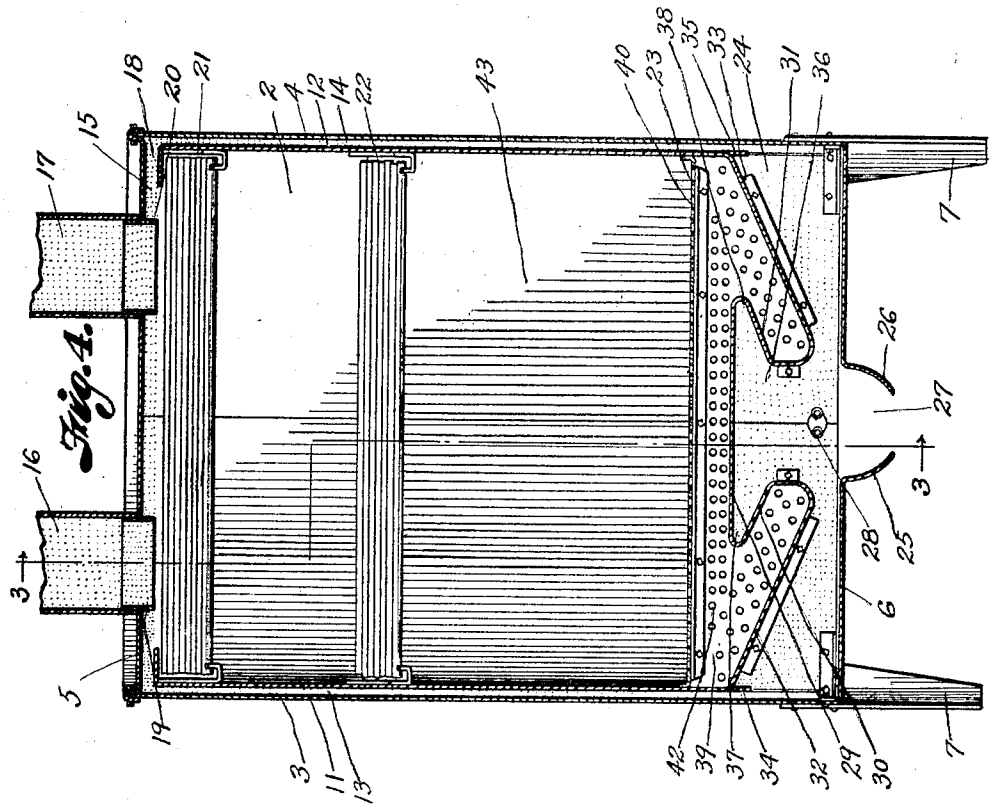


Fig. 4.

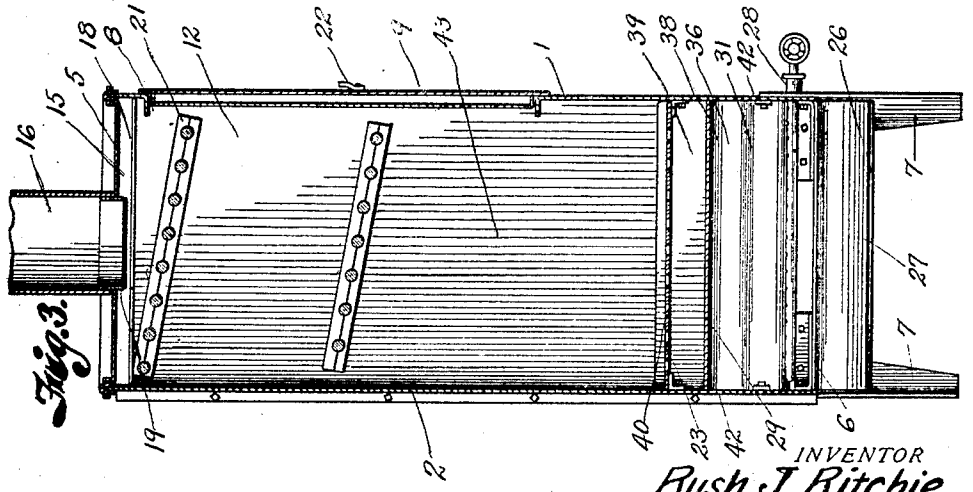


Fig. 3.

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UNITED STATES PATENT OFFICE.

RUSH J. RITCHIE, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO FRANK SPIEKERMAN, OF GREENWICH, CONNECTICUT.

DRIER.

Application filed May 18, 1923. Serial No. 639,314.

To all whom it may concern:

Be it known that I, RUSH J. RITCHIE, 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 it contemplates a device in which moisture may be evaporated. It is adapted for a multiplicity of uses, for example, it may be used as a fruit drier, a tobacco drier, a clothes drier or in fact, wherever it is desirable to dissipate moisture, so I would have it understood that I do not wish to be limited to any particular use of the invention, the novelty residing rather in the construction than the use to which the invention is to be put.

The novel construction of the device 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.

Fig. 2 is a perspective view of the hot air trap and distributor.

Fig. 3 is a vertical, sectional view on the line 3—3 of Fig. 4, and

Fig. 4 is a sectional view taken at right angles to Fig. 3.

The drier is shown as comprising a casing having a vertical front wall 1, a parallel rear wall 2, two side walls 3 and 4, a top 5 and a bottom 6. The outer casing thus formed is preferably supported upon the legs 7. The front wall is provided with an inlet opening 8 adapted to be closed by the hinged doors 9 and 10. Within the casing is a drier chamber formed by the side walls 11 and 12 which extend from the front wall 1 to the rear wall 2, being spaced away from the walls 3 and 4 to provide ducts 13 and 14.

The top of the drier chamber 8 is open as at 15 so that the open portion may communicate with the outlet ducts 16 and 17, shown as pipes which extend into and bridge the space 18 between the top of the drier chamber and the top 5 so that the extended portions 19 and 20 constitute hot air baffles, as will be explained hereinafter.

Suitable racks 21 and 22 may be provided in the drier chamber but the particular form of these is not important since they may partake of various forms dependent upon the service to which the invention is to be employed.

The bottom 23 of the drier chamber is spaced from the bottom 6 to provide a heater space 24. The bottom 6 is provided with central downwardly and inwardly curved air baffles or walls 25 and 26 surrounding a central opening 27 through which air may be admitted. The opening 27 will be only large enough to allow enough air to pass to support combustion, it being apparent that the burner 28 is just above the opening 27. The burner 28 may be of any preferred construction but I prefer to employ an ordinary gas burner controlled in the usual way.

Between the bottom 23 and the bottom 6 is a heat distributor and trap which may consist of a sheet having a flat central portion 29 and downwardly and inwardly curved portions 30 and 31 which are bent back outwardly and upwardly as indicated at 32 and 33 with their ends secured to the walls 11 and 12 just above their bottom edges to provide depending baffles 34 and 35.

The hot air space 36 formed by the sheet communicates with recesses 37 and 38 which, in effect, trap the products of combustion to allow the effective heat to be transferred to the air heating space 39 formed between the sheet portion 29 and the bottom wall 23.

It will be noted that the bottom wall 23 of the drier chamber is provided with perforations 40 and that the front and back walls 1 and 2 are provided with aligning perforations 41 and 42 so that air can pass from the front and back of the casing in aligning stream lines, the aligning stream lines meeting at substantially the center of the casing and then passing through the openings 40 into the drier chamber. The products of combustion, while retarded in their flow, will pass out of the space 36 up through the ducts 13 and 14 to the top of the drier. Since the flow will be arrested in the heat distributing chamber or space 36 and since the depending portions 34 and 35 will further arrest their flow, they will pass slowly so that there will be a time element

provided to permit the air in the drier chamber to absorb the effective heat units of the products of combustion before they pass out through the ducts 16 and 17. Since the depending portions 19 and 20 bridge the space between the top of the drier chamber and the top 5, the products of combustion will be retarded in their flow at these points so that the top of the chamber may also be heated, the purpose being to provide a uniform heat throughout the entire heating chamber and to permit the incoming fresh air which passes through the openings 41 and 42 to absorb as much heat as is practicable and thereby maintain a high efficiency.

The shape of the central recess 36 including the recessed portions 37 and 38 tends to direct the products of combustion toward the opposite side walls of the drier chamber so that there will be a relatively wide radiating surface over which the fresh air may pass. This will prevent localizing the heat and tend to spread the hot air over the entire bottom of the drier so that uniform heat throughout the drier chamber 43 will be provided. By providing the constricted opening 27, only enough air passes into the space above the bottom 6 to support combustion; therefore, the tendency of the products of combustion to flow rapidly will be reduced to a minimum.

In actual practice I have found that a device constructed in accordance with my invention provides a high degree of efficiency and since the products of combustion do not come into contact with the contents of the drier chamber and the articles treated in the drier chamber will not be subjected to the obnoxious fumes of the products of combustion. On the contrary, the fresh air passing in and about the articles to be treated will evaporate the moisture while leaving the products sweet and clean. This is an important feature in devices of this class.

I have specifically defined the best construction known to me for carrying out my invention but I do not wish to be limited to the exact details of construction shown as 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. In a drier, a casing having a constricted opening in its bottom to admit air to support combustion, a heater above the opening, and a drier chamber above the heater having a bottom provided with a trap chamber extending from the front to the back of the casing and having a constricted inlet in line with the burner.

2. In a drier, a casing having a constricted opening in its bottom to admit air to support combustion, a heater above the opening, and a drier chamber above the heater having a bottom provided with a trap chamber having a constricted inlet in line with the burner, the drying chamber having diametrically opposite air inlets communicating with atmosphere near the bottom and an outlet at the top.

3. In a drier, a casing having a constricted air inlet in its bottom, a drying chamber within the casing having vertical walls and horizontal walls spaced from the casing, a heater between the lower horizontal wall of the drying chamber and the air inlet, and outlet pipes in the top of the casing having their lower ends extending below the top of the casing.

4. In a drier, a casing having a constricted opening in its bottom to admit air to support combustion, a drier chamber above the bottom and within the casing, the bottom of the drier chamber being formed to provide a horizontal heat trap with a constricted inlet intermediate its ends in line with the opening in the bottom of the casing, and a burner between the inlet and the opening.

5. In a drier, a casing, a drier chamber within the casing spaced therefrom to provide side passageways, the bottom of the drier chamber comprising a sheet having portions bent downwardly and inwardly and then outwardly and upwardly to the side walls of the chamber to provide a heat trap with a constricted inlet opening, a bottom wall below the heat trap to provide a heat chamber with which the trap communicates, the heat chamber communicating with with the side passageways.

6. In a drier, a casing, a heat chamber spaced within the casing having an open top communicating with the top of the casing, outlet pipes in the top of the casing having depending portions extending into the casing substantially a distance equal to the space formed by the top of the drier chamber and the casing, and means for applying heat to the bottom of the drier chamber.

In testimony whereof I affix my signature.

RUSH J. RITCHIE.