H. BENTZ.

CABINET DRIER.

APPLICATION FILED APR. 6, 1921.

1,425,314. Patented Aug. 8, 1922.

Fig.1.

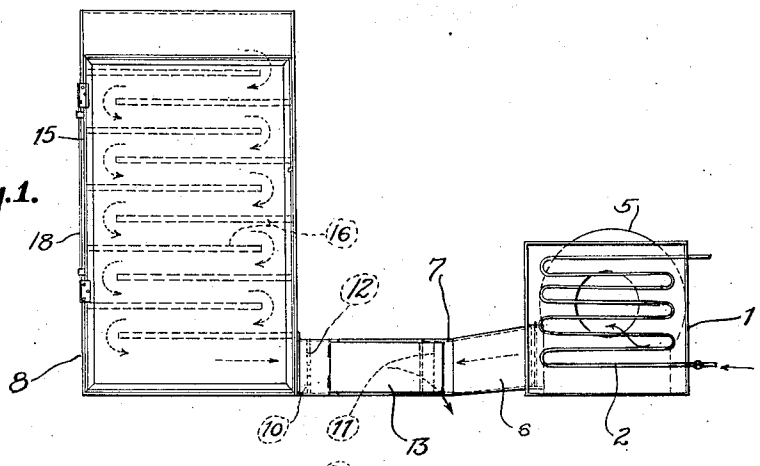


Fig.2.

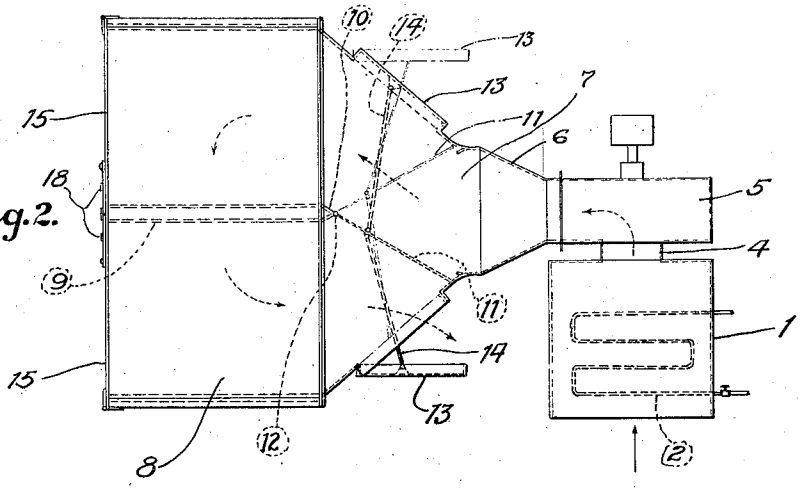
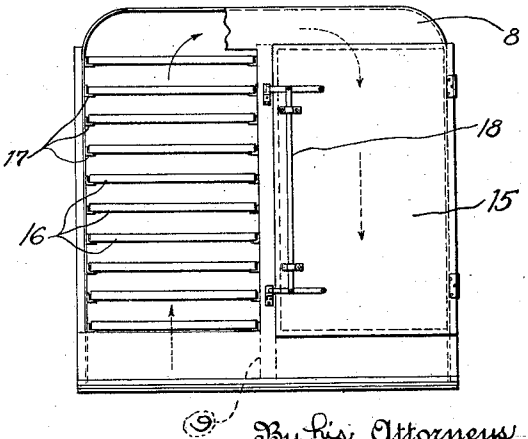


Fig.3.



Inventor
HARRY BENTZ

By his Attorneys
Sheffield & Bette.

UNITED STATES PATENT OFFICE.

HARRY BENTZ, OF MONTCLAIR, NEW JERSEY.

CABINET DRIER.

1,425,314. Specification of Letters Patent. Patented Aug. 8, 1922.

Application filed April 6, 1921. Serial No. 458,933.

To all whom it may concern:

Be it known that I, HARRY BENTZ, a citizen of the United States, residing in the city of Montclair, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Cabinet Driers, of which the following is a full, clear, and complete description.

My invention relates to the art of drying materials and has as its principal object the provision of an apparatus of great compactness in proportion to its output capacity of dried material.

Further objects and advantages in the apparatus according to my invention will be evident to those skilled in the art from the following description taken in connection with the accompanying drawing in which—

Fig. 1 is an elevational view of an apparatus according to my invention.

Fig. 2 is a plan view of the apparatus according to Fig. 1.

Fig. 3 is an elevational view taken from the left of Fig. 1, part being broken away.

In the drawing, 1 is an intake chamber for air and contains heating elements or members 2 of any desired type. From chamber 1 air is drawn through a pipe 4 into a fan casing 5 and thence discharged by the fan in casing 5 into a throat 6. Throat 6 is at the lower level of the apparatus and enlarges in the direction of flow of the air into a combined inlet and outlet chamber 7. Chamber 7 also enlarges in the direction of flow of the air, the larger or wider end of chamber 7 extending across one side of cabinet 8 along the base of the cabinet. Cabinet 8 has a central vertical partition 9 therein, the lower portion of which projects into the chamber 7 at 10. The interior of cabinet 8 communicates with chamber 7 on both sides, the projection 10 and a gate 11 being hinged to said projection at 12. Gate 11 is sufficiently long so that it contacts with the walls of chamber 7 when thrown in either direction from the middle of the chamber, gate 11 striking the walls of chamber 7 near the inlet end of the chamber. As illustrated in Fig. 2, if gate 11 is thrown so as to contact with the left hand vertical wall of chamber 7, it is then roughly parallel with the right hand wall of the chamber, forming therewith a passage for air leading directly from the throat 6 to the right hand side of cabinet 8 at the bottom of the cabinet.

Each of the vertical walls of chamber 7 has an opening therein and I provide doors 13, 13 for said openings, doors 13 being connected to gate 11 by links 14, 14, so that, as the gate 11 is thrown to one side or the other of chamber 7, the door 13 on the side toward which the gate moves is thrown open, the other of doors 13 being closed at the same time.

The gate 11 being thrown, for instance, to the left, air passes to the cabinet along the right of gate 11, the right hand door 13 being closed. After passing through chamber 7, air passes upward through cabinet 8 at the right of the partition 9, over the top of partition 9 and down within cabinet 8 on the left side of partition 9. From the bottom of cabinet 8 air passes into chamber 7 again, but on the left of the gate 11, and thence escapes through the left hand doorway, the left hand door 13 being open.

On the side farther from the fan 5 and chamber 7, the cabinet 8 is provided with two doors, such as 15, through which trays 16 for carrying material to be dried may be introduced into and removed from the cabinet 8. Angles 17 are provided within cabinet 8 on which trays 16 are supported. Trays 16 may be of the perforated type, but when drying certain material, such as crystals, it is preferable that the trays have non-perforated bottoms. In this case, I make the trays 16 of somewhat less length than that of the cabinet 8 and when placing the trays in the cabinet alternate trays are pushed into the cabinet as far as possible, and alternate trays kept as close to doors 15 as possible. The air current rising and descending in the cabinet on opposite sides of partition 9 must then flow around the trays, as indicated by the arrows in Fig. 1.

In the operation of the apparatus according to my invention, the material in the trays is first subjected to the cooler and more humid air of the down flowing current in cabinet 8. When the material in contact with the warmer and drier rising current of air is sufficiently dry, the trays containing the dried material may be removed, trays containing material to be treated substituted for those removed, and the gate 11 swung to reverse the flow of air in cabinet

8. However, I do not limit myself to the manner of inserting and removing trays just described.

Doors 15 are provided with suitable latch means, such as illustrated at 18.

It will be seen that an apparatus according to my present invention is compact, economical of manufacture, and has a high output of dried materials. It is particularly well adapted to drying crystals, precipitates or other chemicals, although not limited to such uses.

Having thus described my invention, I claim:

1. A drying apparatus comprising in combination a cabinet having a partition forming two adjacent passage ways within the cabinet connected in series, means for supporting material to be dried within said passageways, means for forcing drying gas through said cabinet, and means for reversing the flow of gas in said passageways, said means comprising a chamber communicating with both said passageways at the same end, said chamber having outlet apertures therein, closures for said apertures, and valve means within said chamber for changing the passageway into which the air flows.

2. A drying apparatus comprising in combination a cabinet having a partition forming two connected passageways within the cabinet, means for supporting material to be dried within said passageways, means for forcing drying gas through said cabinet, and means for reversing the flow of gas in said passageways, said means comprising a chamber communicating with both said passageways at the same end, said chamber having outlet apertures therein, closures for said apertures, valve means within said chamber for changing the passageway into which the air flows, and means connecting said closures whereby one is held open when another is closed.

3. A drying apparatus comprising in combination a cabinet having two vertical passageways therein connected at the top, means for supporting trays in said passageways, means for forcing drying gas in at the bottom of one and out at the bottom of the other of said passageways, means whereby the flow of gas may be reversed, said last means comprising a chamber communicating with both said passageways at the same end and having two apertured walls, a hinged gate within said chamber, the free end of which is adapted to contact with the walls of the chamber having apertures therein, closures for said apertures, and connections between said gate and said closures whereby one closure is opened as another is closed.

4. A drying apparatus comprising in combination a cabinet having a vertical partition therein forming two passageways, said passageways being connected at the top, a chamber connecting with said passageways at the bottom, said partition projecting into said chamber, a gate hinged to said projecting portion and adapted to swing into contact with the walls of the chamber whereby air is directed into one or the other of said passageways, said chamber having apertures therein, closures for said apertures, and connections between said gate and said closures whereby the closures are moved by said gate to open one aperture as the other one is closed.

HARRY BENTZ.