

(No Model.)

2 Sheets—Sheet 1.

L. J. WING.

APPARATUS FOR CIRCULATING AND ATTEMPERING AIR IN MALT
HOUSES AND OTHER BUILDINGS.

No. 312,597.

Patented Feb. 17, 1885.

Fig. 1.

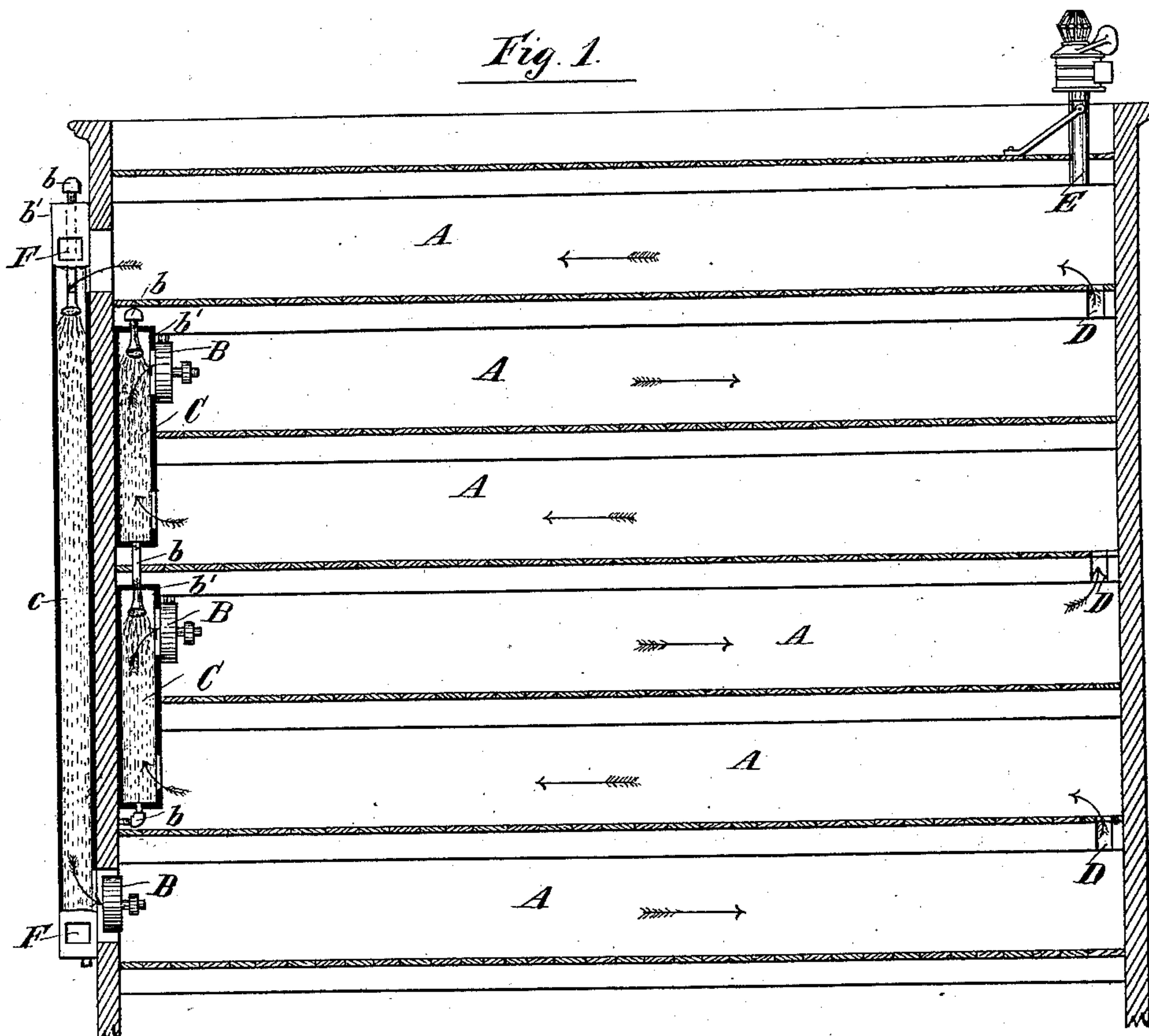
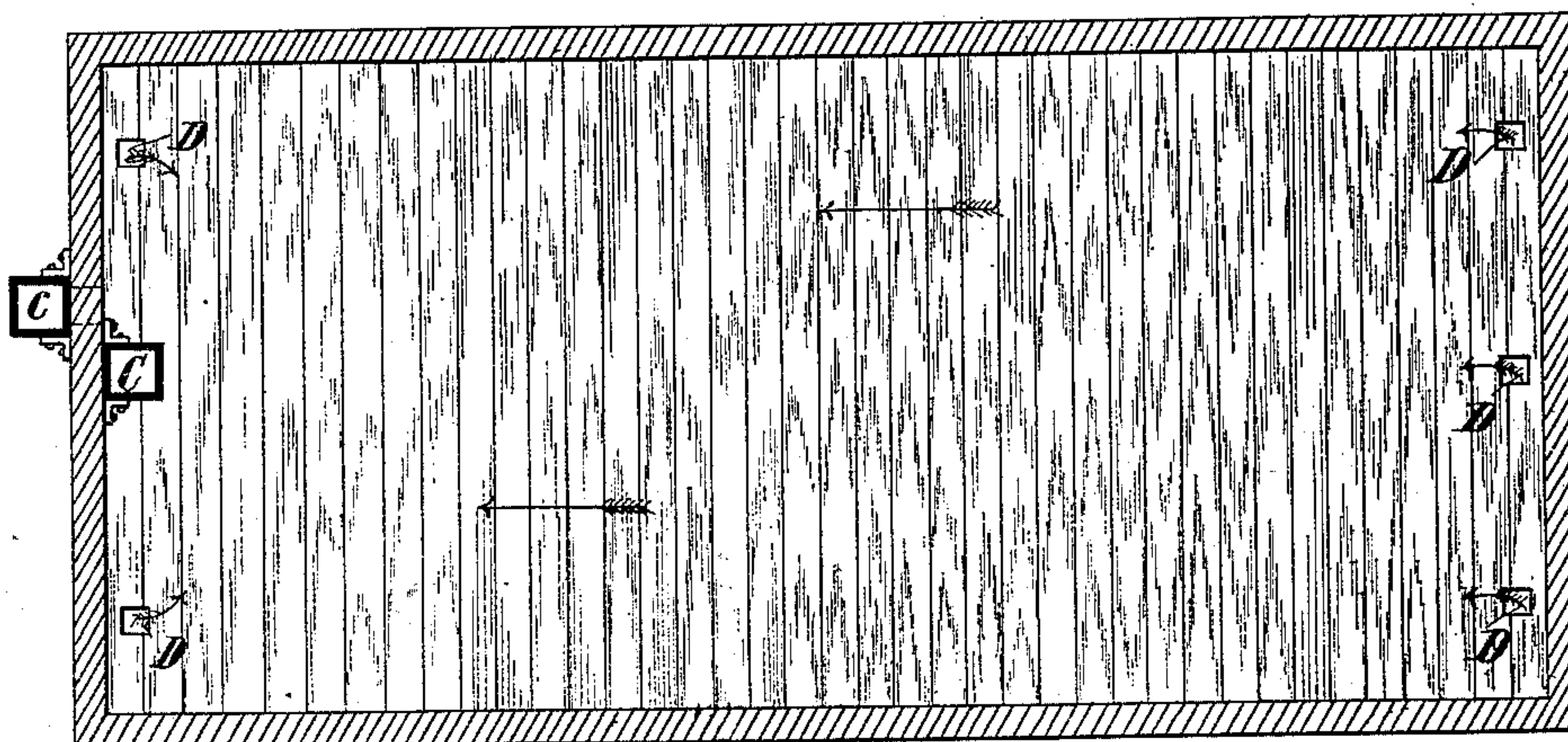


Fig. 2.



Witnesses:

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Inventor:

Levi J. Wing

(No Model.)

2 Sheets—Sheet 2.

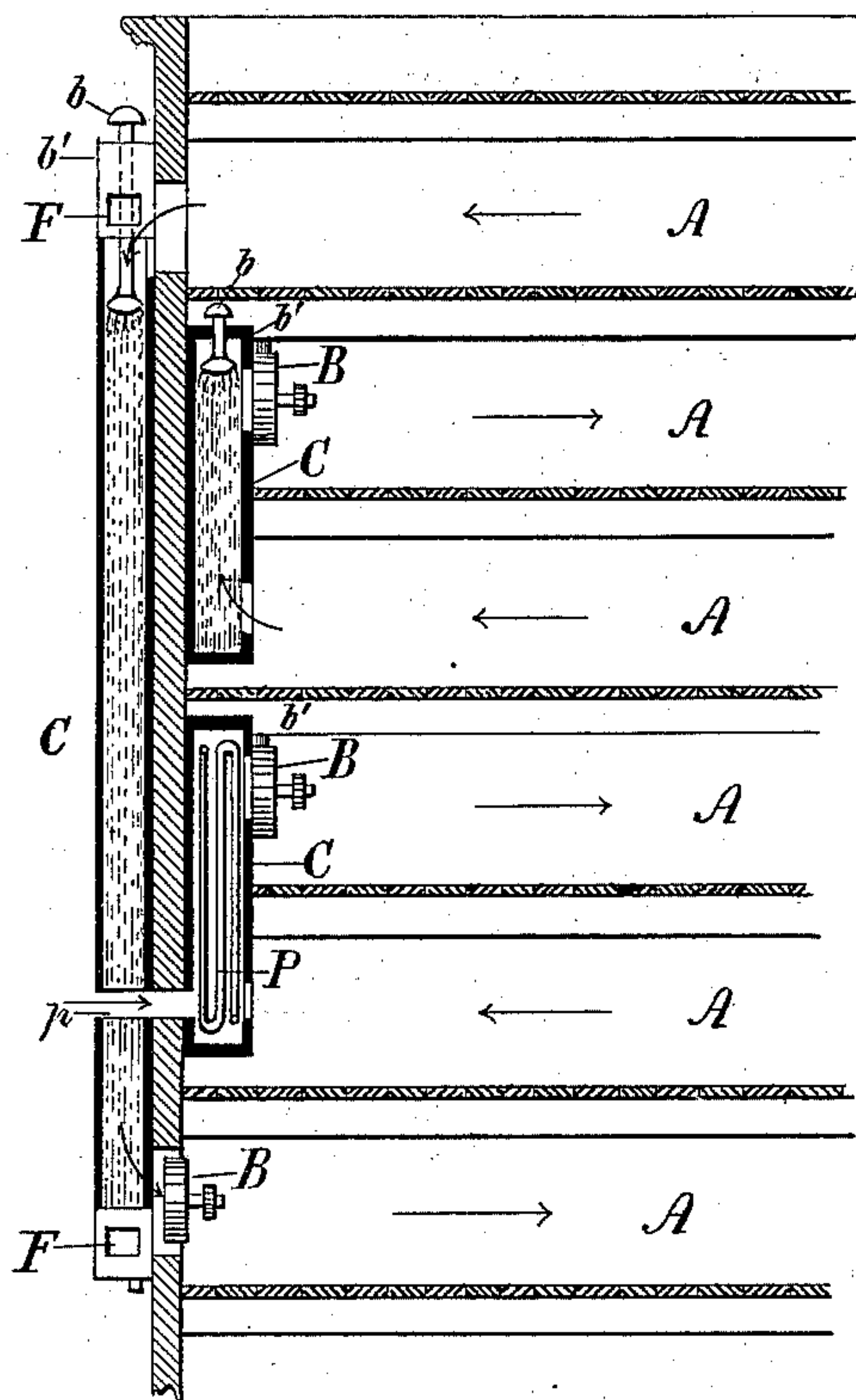
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Fig. 3.



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APPARATUS FOR CIRCULATING AND ATTEMPERING AIR IN MALT-HOUSES AND OTHER BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 312,597, dated February 17, 1885.

Application filed January 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEVI J. WING, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Apparatus for Circulating and Attempering Air in Malt-Houses and other Buildings, of which the following is a specification.

This invention relates more particularly to the growing of malt in malt-houses, and drying of articles of manufacture where two or more floors or spaces are used.

The object of this invention is to prepare buildings or rooms for keeping an even temperature in a simple and effectual manner without the use of pipes or flues for carrying the air back and forth, and yet to obtain a rapid thoroughly-distributed current of tempered air.

My invention is shown by the drawings as follows, viz:

Figure I is a side elevation in section of a malt-house, showing location of fans, cooling apparatus, and directions of currents of air. Fig. II is a plan view of the fourth floor, showing currents of air and openings in floor for the air to pass up or down from one floor to another. Fig. III shows an arrangement of heating and ventilating apparatus.

Similar letters indicate corresponding parts.

In Fig. I letter A represents floors or spaces.

B designates my disk-fans, located in the window or flue, drawing the air from tempering-pipes and forcing the same into the room.

C is a tempering-pipe leading from one floor to the other, thus making a suction on one floor and supplying-duct for the other, thereby making a connection between the two floors. Into this pipe I carry a water-pipe, *b*, at the top, from which water of any desired temperature may be supplied. This water is thrown upon a perforated horizontal partition or scattering-plate, *b'*, near the top of the pipe, which separates the water into fine drops or spray, and allows it to drop down through the current of air to the bottom of the shaft or pipe, where it is again collected and passed to next pipe, as shown. The air passing through this water becomes of about the same temperature as that of the water.

When dry hot air is desired, steam-coils P, or other heating apparatus, will be used in place of cold water, as shown in Fig. III, and in that event cold air may be admitted to the proper chamber C through a flue, *p*, having an inlet exterior of the building.

c designates the return-pipe, between the extreme floors or spaces, and is similarly fitted so that four, six, or more floors can be ventilated or tempered, and the same air be used over and over without the expense or obstruction of pipes or ducts reaching to the opposite end to bring back the air forced forward by the blower.

D represents openings in the floors, as shown, to allow the air to pass from one floor to the other, these openings making the opposite connection to pipes for the different floors. It will be observed that I make these openings in such a manner as to thoroughly distribute the air over each floor by dividing up the currents.

E is a ventilating-pipe with a door or slide, and capped with one of my fan-ventilators for removing a given quantity of air.

F is a slide or opening for admitting fresh air as may be desired.

The operation is as follows: The rooms or spaces being prepared in any of the usual ways to protect them from the outside temperature, the fan or fans are set in motion by any convenient power. The current is started simultaneously in each and every floor or space by the fans drawing from one and forcing into the other, the air passing through the opening in the floors, thus making a complete circuit of all the floors. At the end of each second floor or space the air passes through the tempering-pipes, and these rapid passages through the spaces and then through the tempering-pipes will soon reduce the air and everything in the rooms to an equal temperature, and keep them so as long as desired.

By the use of foul-air pipe E and fresh-air opening F, I am enabled to keep the air pure without affecting the temperature.

It is evident that rooms located side by side can be arranged in similar form to those over each other.

I am aware that tempering-pipes have heretofore been used in connection with fan-blow-

ers for creating an artificial current of air in buildings, and I do not claim such as my invention.

What I claim as new, and desire to secure
5 by Letters Patent, is—

1. In combination, the floors or spaces A, having openings D, fan-blowers B, tempering-pipes C and c, foul-air duct E, and fresh-air opening F, substantially as shown and de-
10 scribed.

2. The combination of the floors A, having openings D for the passage of currents of air, the fans B for producing said currents, and the pipes or boxes C c, having openings for
15 the passage of currents of air through sprays

of water falling through said pipes, in order to cool or moisten said currents of air, as herein shown and described.

3. The combination of the floors A, having the openings D for the passage of currents of 20 air, the fans B for producing said currents, and the pipes or boxes C c, having openings for the passage of currents of air through steam-coils or other heating apparatus, in order to heat said currents of air, as herein 25 shown and described.

LEVI J. WING. [L. S.]

Witnesses:

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