

(No Model.)

W. H. DOUGHTY.

REFRIGERATING APPARATUS FOR CARS, &c.

No. 294,209.

Patented Feb. 26, 1884.

Fig. 1

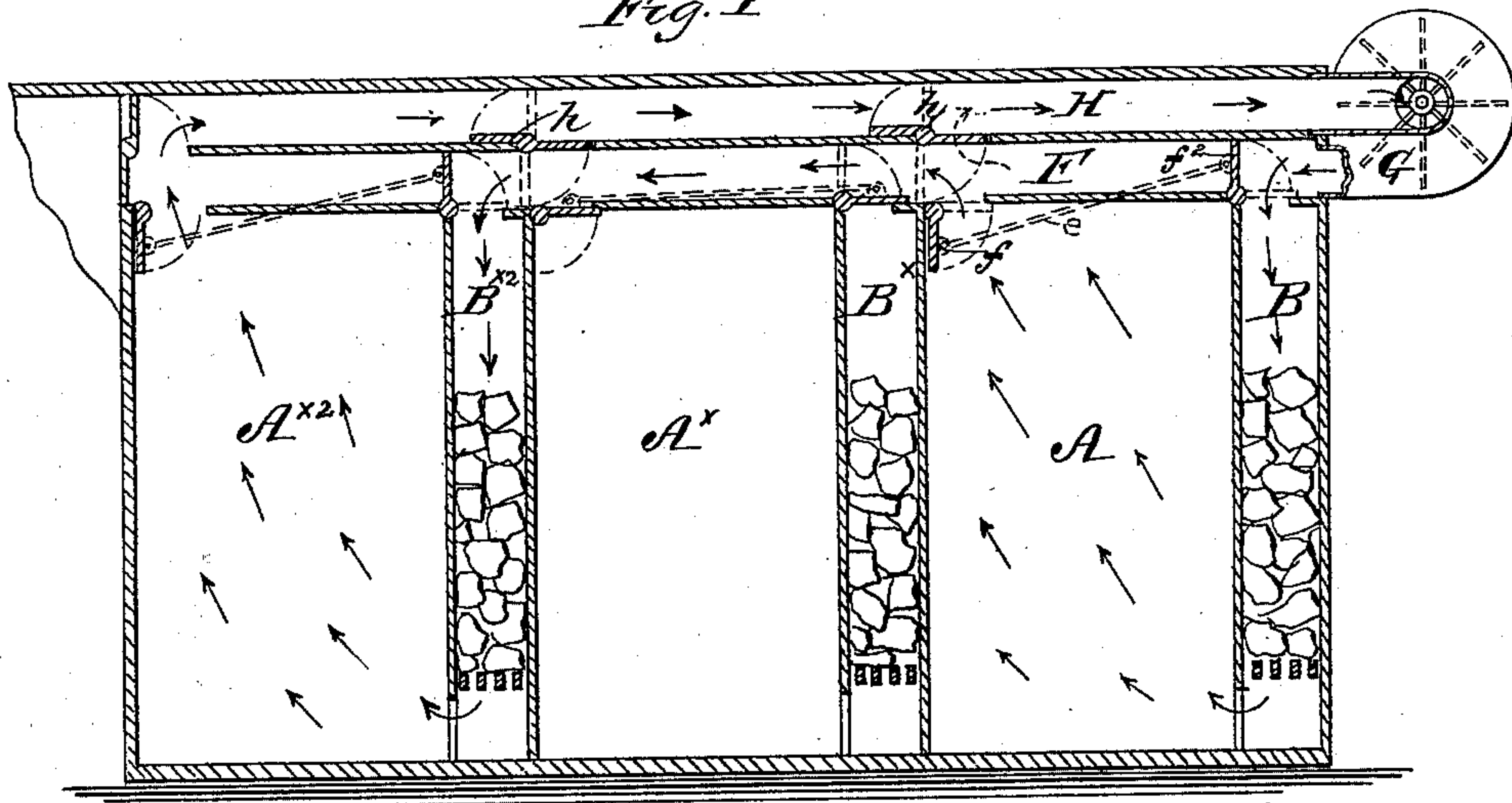
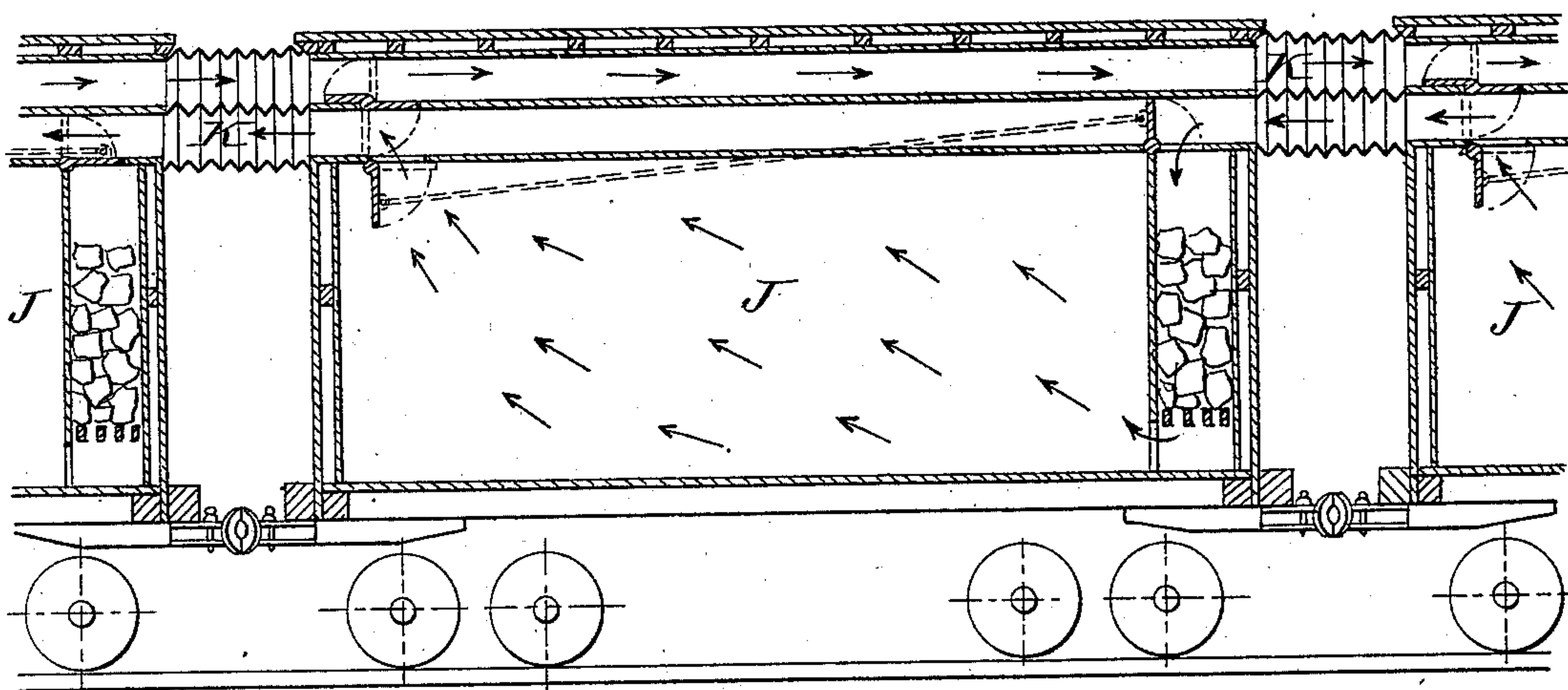


Fig. 2.



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REFRIGERATING APPARATUS FOR CARS, &c.

SPECIFICATION forming part of Letters Patent No. 294,209, dated February 26, 1884.

Application filed October 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DOUGHTY, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Refrigerating Apparatus, of which the following is a specification.

My invention relates to a refrigerating apparatus in which a fan or blower is employed to produce a current of air, which, after passing through an ice-chamber, is carried through a provision-chamber, and again conducted through the ice-chamber, in order to reduce its temperature so that the same volume of air may be used over again for refrigerating purposes.

The invention consists, essentially, in a novel construction and combination of devices whereby a series of refrigerating-chambers may be connected with each other, so as to be operated by a single fan, and whereby two or more of such refrigerating-chambers may receive the benefit of said current of air, while provision is made for affording access to any desired one of such chambers without interfering with any of the others.

The invention is applicable to either stationary refrigerating-chambers where provisions are stored, or to railway-cars where provisions are transported from place to place, or to barges or other vessels used for purposes of transportation.

In the accompanying drawings, Figure 1 is a longitudinal vertical sectional view of a series of chambers or compartments embodying my improvements. Fig. 2 is a longitudinal sectional view, showing the application of my invention to railway-cars.

In Fig. 1, A represents a chamber or compartment, in the front end of which is an ice-chamber, B, and in the upper front corner of which is a fan or blower, G, of any suitable description. The fan-chamber communicates with the upper end of the ice-chamber B, and the lower portion of said ice-chamber B communicates with the interior of the chamber A.

In the top of the chamber A is a flue, F, provided with valves ff^2 connected to each other by a rod, e, and another flue, H, pro-

vided with valves h. The valves ff^2 are of the form known as "damper-valves," and the valves h are what may be called a "double-leaf damper." The flues F and H are here shown as arranged one above another in the top of the chamber; but they may be arranged at the bottom, or on either side, either inside or outside, or in any position which may be found suitable or convenient.

A^x and A^{x2} represent additional chambers or compartments similar in form and construction to the first-named, except that they are not provided with fans or blowers, and they adjoin each other, so that the flues F and H of each chamber communicate with the corresponding flues in the adjoining chambers.

It will be seen that the arrangement above described may be extended indefinitely, so as to include any desired number of compartments or chambers.

When all the chambers or compartments are closed and in use, the air-current generated by the blower passes through the ice-chamber B, thence through the compartment A to the flue F, thence down through the ice-chamber B^x , through the compartment A^x to the flue F, and so on to the end of the flue F, from whence it passes to the flue H and returns to the fan-chamber. By this arrangement the same volume of air is used over and over again for refrigerating purposes.

When access is desired to any one of the compartments without interfering with any of the others, the valves ff^2 are arranged so as to close communication between it and the others, and thus prevent the admission of warm air to either of the flues, and thence to the compartments, while the valves h are turned so as to close communication with one flue and open communication with the other.

Referring to Fig. 2, J J J represent three cars of a railway-train, each of which is provided with an ice-chamber, flues, and valves or dampers similar to those above described, and communicating with a fan or blower located at any suitable point.

In order to provide for communication between the cars, flexible connections of any suitable form are provided. As here shown they consist of bellows-like tubes or flues K, which

allow for the passage of a train around a curve and for any differences which may exist in the height of different cars.

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

In a refrigerating apparatus having a series of ice-receptacles and provision-chambers, and provided with means for forcing a current of air through said receptacles and chambers, the
10 combination, with flues and passages arranged substantially as described, of valves connected

together in pairs, whereby the opening of one passage closes another, and a circulation can be conveniently obtained in either or all of the compartments, as set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of October, A. D. 1883.

WILLIAM H. DOUGHTY.

Witnesses:

ALBERT P. MORIARTY,
JOHN INNES.