B. ROSE.
Refrigerator.

No. 213,530. Patented Mar. 25, 1879.

Fig 1

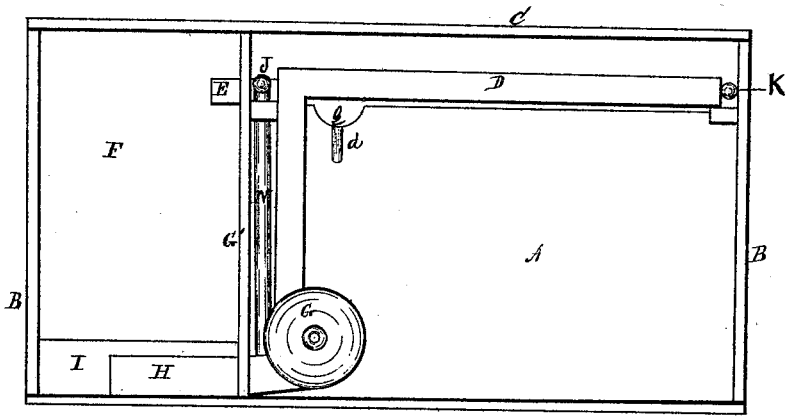


Fig 2

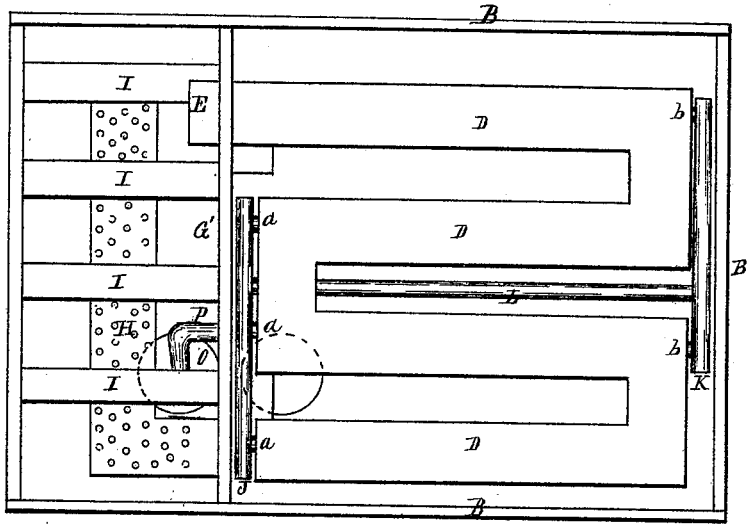
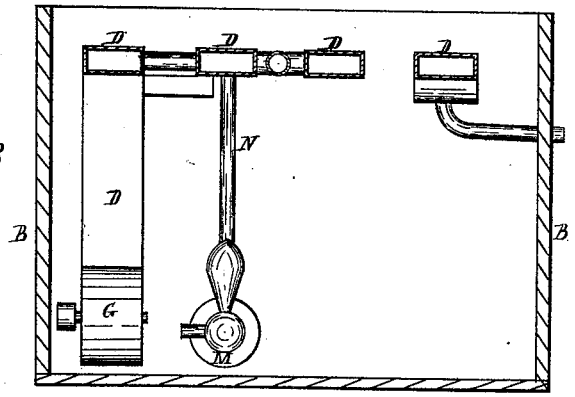


Fig 3



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UNITED STATES PATENT OFFICE.

BENJAMIN ROSE, OF CLEVELAND, OHIO.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **213,530**, dated March 25, 1879; application filed September 23, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN ROSE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Refrigerator; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

Figure 1 is a side view of the refrigerator. Fig. 2 is a plan view. Fig. 3 is a vertical section.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to certain devices for keeping the room in which pork and other meats are cured and packed at a low degree of temperature, so that said meats shall be cool and in proper condition for curing and packing. The special object in view, however, is to economize in the use of ice for cooling the room in which is conducted the above-said curing and packing of meats; also, to economize in the extent of room for the said purpose.

To this end is arranged a system of flues in the curing-room, through which is conducted a current of cold air from an ice chamber or house. One end of said flues terminates in the ice-chamber above the ice therein, whereas the opposite end of the flues terminates in a blower or fan having an immediate communication with the ice-chamber below the ice. By means of said blower a current of air is induced to flow from the bottom of the ice-chamber through the blower; thence along the flues, from which it is discharged into the ice-chamber above the ice, through and around which it passes again to the blower; thence through the flues to the ice-chamber above the ice, thereby establishing a circuit of cold air through the flues and body of ice, repeatedly using the same air without fresh air from the outside of the ice-chamber further than that which naturally finds its way through the building.

The above induced current of air cools the flues, which, in turn, cools the curing-room to the degree required.

In connection with the air is used a current of cold water, taken from a cistern, into which flows the water from the melting ice. Said water is forced through the air-flues along with the air by a force-pump.

A more full description of the invention is as follows: The curing-room alluded to is represented in the drawings at A, of which B represents the walls, and C the ceiling. Practically the walls and ceiling are made hollow, and filled with some suitable non-heat-conducting material. Near the ceiling, or so high from the floor as to be out of the way of the workmen, is arranged a system of metal flues, D, covering the ceiling. Said flues are of a flat rectangular shape, but may, however, be of other shape than that specified.

The end E of the flues terminates in the upper part of the ice-chamber F above the ice when stored therein. The opposite end of the flue terminates in a blower or fan, G, put in communication with the ice-chamber by a conduit, H, having a perforated top. The sides also may be perforated. Said conduit lies upon the floor of the ice-chamber under the ice, the ice block being supported on the beams I I. The blower alluded to is an ordinary revolving fan; hence a description thereof will not be necessary in this place.

J, Fig. 2, is a water-pipe, attached to and communicating with the flues at the points *a* by cross-pipes. On the opposite end of the flues is a similar pipe, K, also attached to the flues, and communicating with them by cross-pipes at the points *b*. The two pipes J and K are connected to each other by a pipe, L. The pipes are also attached to a force-pump, M, Fig. 3, by a pipe, N. Said pump is an ordinary revolving force-pump. Other force-pumps of different construction may be used in lieu of the one referred to.

O, Fig. 2, is a cistern, in which is received the waste-water from the ice, and from which it is drawn by the pump and forced into the flues.

The practical operation of the above-described invention is as follows: As aforesaid, the object of the invention is for cooling the room in which the process of curing and packing meats is conducted. To this end the cold air is carried through the room by the flues, above described, which, in consequence of their number and ramifications, and their being made of metal, the cold air made to pass

through them imparts its coldness to the room, lowering its temperature sufficiently for conducting the process of curing and packing.

The air is impelled through the flues by the blower, and discharged therefrom into the ice-chamber above the ice, down through and around which the air is discharged. By this means the cold imparted to the room by the flues keeps it cool, and at the same time free from dust and from currents of air, which, if allowed to come directly in contact with the meat, would turn it yellow, and cause it to lose its bright and healthful appearance—the inevitable result when the curing-room is cooled by cold drafts of air admitted at once into the room. The room is also free from moisture and dampness, there being no droppings from melting ice which is placed there for cooling the same.

In adopting the system of flues herein described for conducting cold currents of air through the curing-room the ice can be stored close to the room, it being separated therefrom only by a partition, G', in view of which a large saving is made in the use of ice, as the ice has not to be removed from the ice-house to be used in cooling the curing-room, it being left undisturbed; hence there is no waste of ice by exposure to the air and by handling; also, it saves the expense of a separate building in which to store the ice, as the curing-room and ice-chamber are under one roof, the two constituting but one structure. In connection with the current of air through the flues, a current of cold water from the cistern is forced by the pump into and through the flues along with the air.

The water is conveyed into the flues by the pipes J, L, and K, and made to pass through them by the impelling action of the pumps, which injects the water into the flues in small streams or sprays.

The water flowing along in the flues is not discharged with the air into the ice-chamber, but is caught in a catch-basin, Q, Fig. 1, (practically provided with a trap,) and conducted therefrom by a pipe, *d*, to the outside of the building; or it may be conveyed back into the cistern. The presence of the ice-water in the flues gives stability and uniformity to the temperature of the air passing through them, rendering the flues less liable to changes of temperature from exposure to the outside air on opening and closing the doors of the curing-room. It also utilizes the icy-cold water in cooling the room, which ordinarily is allowed to run off and be wasted.

The perforations in the conduit H are to permit the air to enter therein at various points exposed to the ice above. The small quantity of water that may percolate through the perforations will be carried with the air through the flues, and discharged therefrom through the catch-basin alluded to.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the flues D, provided with a catch-basin, water-pipes J, L, K, and N, and pump M, with the ice-chamber F and refrigerating-room A, for curing and preserving purposes, substantially as described, and for the purpose specified.

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