2 Sheets--Sheet 1.

F. A. HYATT.

Air-Cooling Apparatus.

No. 161,515. Patented March 30, 1875.

Fig 1

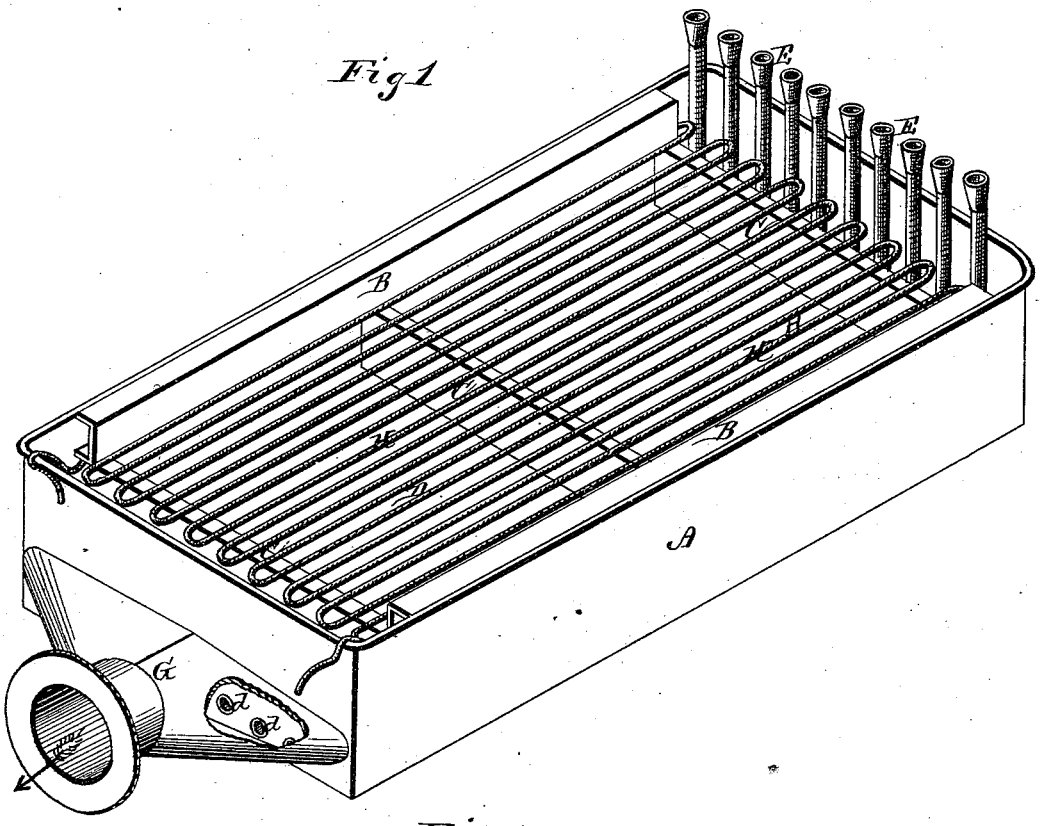
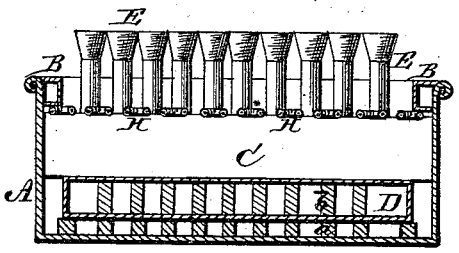


Fig 2



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2 Sheets--Sheet 2.

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Fig 3

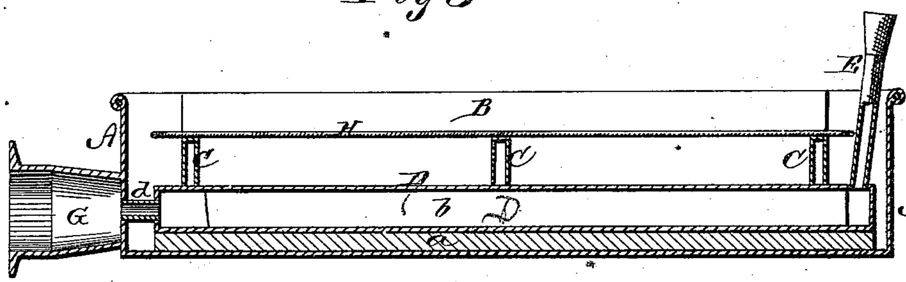
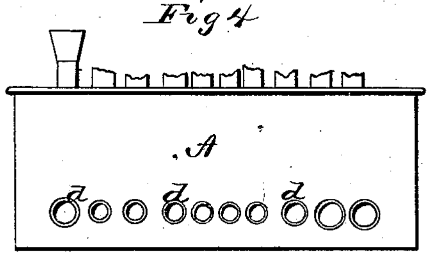


Fig 4



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UNITED STATES PATENT OFFICE.

FRANK A. HYATT, OF DENISON, TEXAS.

IMPROVEMENT IN AIR-COOLING APPARATUS.

Specification forming part of Letters Patent No. **161,515**, dated March 30, 1875; application filed October 13, 1874.

To all whom it may concern:

Be it known that I, F. A. HYATT, of Denison, in the county of Grayson and in the State of Texas, have invented certain new and useful Improvements in Refrigerators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a refrigerator for the purpose of cooling and maintaining a low and dry temperature, for preserving fresh meats and vegetables, and for cooling rooms for any purpose, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective view of my refrigerator. Fig. 2 is a transverse vertical section, and Fig. 3 a longitudinal vertical section, of the same. Fig. 4 is an end view of the outside box, with the nozzle removed.

A represents the outside box or tank, which I prefer to make ten feet six inches wide, thirty-six feet long, and one foot eight inches high, open on top. It may be made of wood or metal; when of wood, it should be made of two-inch plank, matched and put together with white lead. The ends and middle of the box will then be secured at top and bottom with five-eighth-inch bolts and four-by-six pieces, B, of wood will be bolted onto the inside of the box at the top, and extending the entire length of the box. These pieces are for the purpose of giving strength to the box, and to secure certain pieces, C, that run cross-piece above the air-box to hold it down. On the bottom of the box or tank A are placed eleven bars, *a*, which extend to within three inches of the ends of the box. The outside ones of these bars are placed three inches from the sides of the box, and the ten spaces divided equally by the other bars to furnish supports for the air-box D. This box will be made of galvanized iron, and will be ten feet wide, thirty-five feet six inches long, and four inches high. The bottom of the box D is laid on the supports or bars *a* in the bottom of the tank, and similar bars *b* are laid upon this bottom, directly over those underneath, and extending to within three inches of the end where the air enters, and to within about five inches at the end next to the blower. The top sheet of the air-box D will rest upon the bars *b*.

Great care must be taken in the construction of this box, and it must be made before the sides and ends of the tank are set up.

Ten pipes, E, six inches in diameter, are inserted at the end of the air-box D, in the center of the spaces made by the bars *b*, and extending a little higher than the edges of the tank. At the other end of the air-box ten short tubes, *d*, are inserted, and pass through the outside box or tank A. These tubes vary in size from four inches at the sides to two and a half inches in the center, to prevent too much air from being drawn from the center holes which are nearest to the blower. Care must be taken to prevent leakage where the tubes *d* pass through the end of the tank A. G is an iron nozzle, fastened to the end of the tank A. This nozzle is four inches in the depth at the base, and nine feet six inches wide at the base, so as to cover the ends of the pipes *d*, and tapers to a point from its width six inches in diameter. A Root's six-inch blower will be attached to the end of the nozzle G, so as to draw the air out of the box; but any blower with suction-pipe will answer. The tank A is filled with brine, heavily salted, and a pump, with the capacity of about three hundred and fifty gallons per minute, will be used to circulate the brine.

This cooler is designed to be attached to a Boyle's or other suitable ice-machine, and cold is produced in the tank by means of the evaporating-pipe H of the ice-machine, which pipe is two thousand feet in length, and is placed in the tank upon the braces C, over the air-box. Wood is preferably used in constructing the outside tank, to prevent moisture from condensation upon the outside, as well as for its cheapness. Where iron is used, a drip-floor of wood underneath will be necessary.

This refrigerator should be suspended near the ceiling, or, what is better, in an elevated

portion of the building, in the center; and where used for curing fresh meats, the end of the box where the entrance-pipes E for air are placed should be toward and on the side of the building where the fresh meat enters, and the end where the blower is attached at the opposite end, so that the current of air will be from the cold meat toward the warm, to prevent the deposit of moisture from the fresh meat upon that which is colder. This refrigerator must be placed in a room well constructed, and as near air-tight as possible. The air of the room is passed constantly through the air-box by means of the blower, and all moisture is condensed, and the air is kept cold and free from moisture. If the air is drawn equally from all the spaces of the air-box, the result will be as good as a single pipe three hundred and fifty feet in length would produce, and the friction is much less. A slight inclination is given to the whole tank toward the end where the blower is attached, and the air-box will have sufficient inclination to the center, so that all condensed moisture inside of the air-box will pass off through a pipe attached through the bottom of the tank to the air-box at the center of the end next to the blower.

This cooler is intended to be attached to an ice-machine of a capacity of five tons per day, but may be used with a much larger machine, by simply adding another tank for an additional evaporating-pipe, and increasing the size of the blower.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with the tortuous pipe H and box or tank A, having longitudinal bars *a* on its bottom, the air-box D, divided by bars *b* into longitudinal spaces, the air-inlet pipes E, exit-pipes D of varying size, and the nozzle G, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of September, 1874.

F. A. HYATT.

Witnesses:
R. A. HAYES,
HUGH MACDONALD.