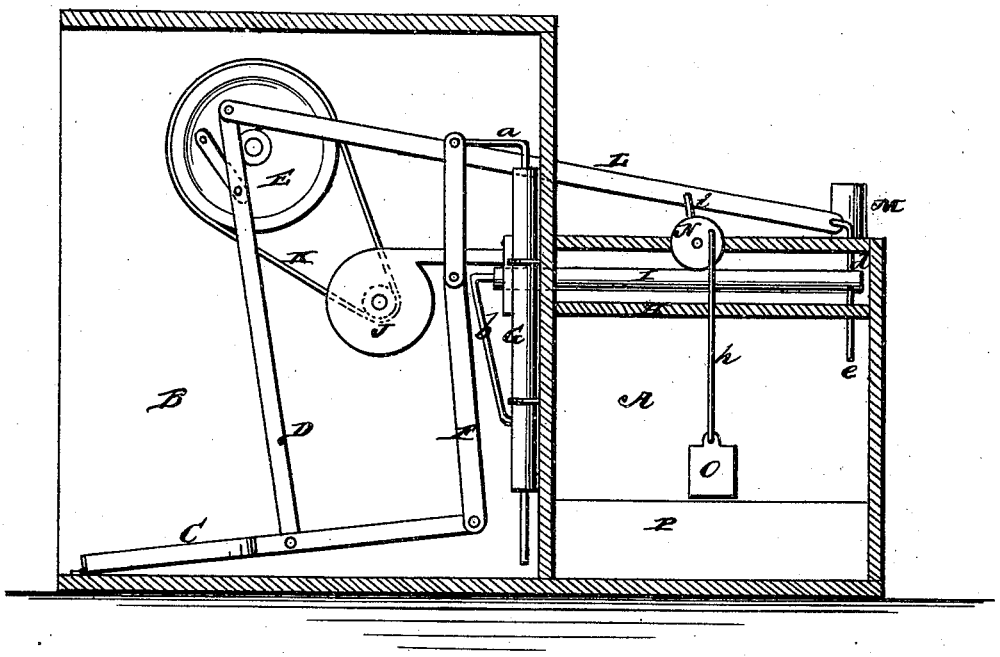
T. B. CARR.

Refrigerating Apparatus.

No. 211,700. Patented Jan. 28, 1879.



WITNESSES

Robert Ewett,

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THOMAS B. CARR, OF WILMINGTON, NORTH CAROLINA.

IMPROVEMENT IN REFRIGERATING APPARATUS.

Specification forming part of Letters Patent No. **211,700**, dated January 28, 1879; application filed June 1, 1878.

To all whom it may concern:

Be it known that I, THOMAS B. CARR, of Wilmington, in the county of New Hanover and State of North Carolina, have invented a new and valuable Improvement in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, and to the letters of reference marked thereon.

The figure of the drawing is a vertical sectional view of my refrigerator, showing the working mechanism.

The nature of my invention relates to refrigerators; and it consists in the construction and arrangement of devices for drawing out the air from the cooling-chamber, compressing and cooling the same, and allowing it to return into the cooling-chamber, and for other purposes, as will be hereinafter more fully set forth.

The annexed drawing, to which reference is made, fully illustrates my invention.

A represents the refrigerating or cooling chamber, on the outside of which is formed a chamber, B, as shown. In this latter chamber B is arranged a foot-treadle, C, which, by means of a pitman, D, is connected with a band-wheel, E. The treadle C is further provided with an arm, F, which connects with the piston-rod *a* of an air-pump, G. This air-pump is placed in the chamber B, and connects by a pipe, *b*, with the freezing or cooling chamber A, so that by the working of the treadle the pump G will pump the air from the refrigerating-chamber A, and force the same into a condensing pipe or tank, I, which is placed in a box, H, as shown. In this box is a constant current of air, blown into it at one end by a fan, J, which fan is operated from the band-wheel E by a belt, K, as shown.

The air being compressed in the pipe I generates heat, which is radiated and carried off by the current of air passing through the box H and out through the chimney M, so that the air in said pipe I will be rapidly cooled, and thus dispelling the superfluous heat of the condensed air.

The pitman D extends above the wrist-pin of the band-wheel E, and to its upper end is pivoted a lever, L, which connects with a faucet or stop-cock, *d*, above the box H, at the end of the condensing-pipe I, to open and close the same at every revolution of the band-wheel, and thus intermittingly discharge the condensed or compressed and cooled air into the refrigerating-chamber at *e*. This operates simultaneously with the air-pump.

The lever L is, by a crank-rod, *i*, connected with a pivoted wheel or disk, N, and to said wheel or disk is attached a rod, *h*, with a plate, O, at its lower end. This plate is, by the motion of the wheel N, imparted to it by by the lever L and crank-rod *i*, alternately raised and lowered from and into a water tank or trough, P, in the refrigerating-chamber, so as to expose the moistened surface of the plate to the current of air passing through said chamber. To do this more effectually the pipe *e* should be carried down so that the condensed air can strike the plate O as it rises from the water, whereby the greatest force of refrigeration will be obtained, as sheets of ice will be formed around the plate as it successively arises from the water.

The rod *h* may be connected to the dasher of a churn or ice-cream freezer, if desired, so as to operate such machines at the same time.

I am aware that it is not new to allow compressed air to be suddenly expanded within a refrigerating-chamber, and then compressing the same and passing it thus continuously from a compressed to an expanded state, and depriving the air of its caloric while compressed, and utilizing its absorbing qualities for caloric when expanded, and this process simply I do not claim; but

What I do claim is—

1. The combination of the treadle C, pitman D, band-wheel E, belt K, and fan J with arm F, air-pump G, condenser I, and box H, substantially as and for the purposes set forth.

2. The combination, with the band-wheel E and pitman D, of the lever L, stop-cock *d*, and condenser I, as and for the purposes set forth.

3. The combination of the lever L, crank *i*, wheel N, and rod *h* with plate O and the water-trough P, substantially as and for the purposes set forth.

4. The combination, in a refrigerating ap-

paratus, of the motive power, as described, with a fan-blower to supply cool air around the condenser, and an air-pump to condense the air taken from the refrigerating-chamber, a lever to open and close the condenser outlet-valve, whereby intermittently the condensed air by its exit absorbs caloric from the air in the refrigerating-chamber, and thus cools the same, and a refrigerating-plate to intermittently enter and leave a tank of water within the refrigerating-chamber, whereby ice is formed upon the plate, substantially as and for the purpose described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS BEALS CARR.

Witnesses:
W. W. MANISS,
W. H. GERKEN.