

(No Model.)

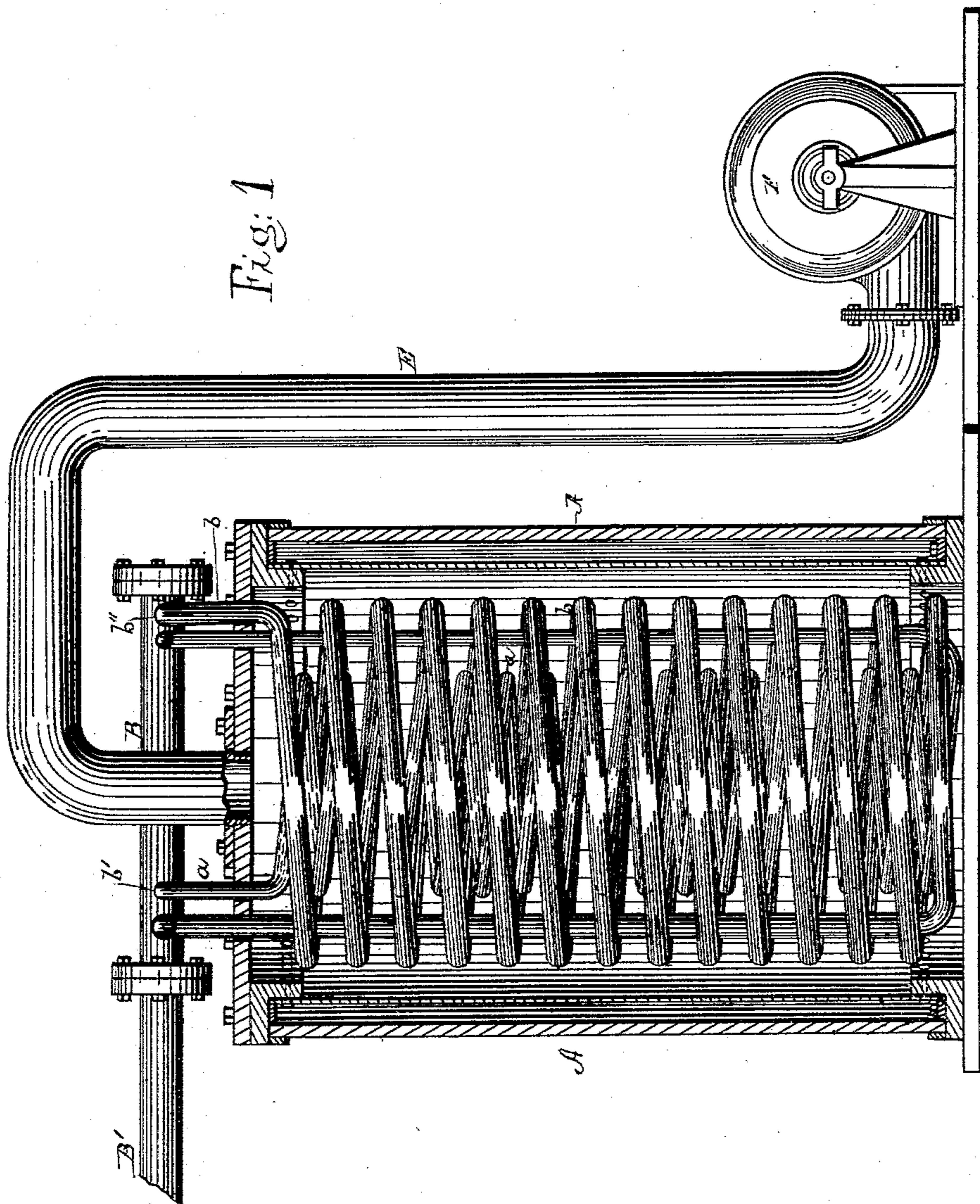
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H. F. HODGES.

APPARATUS FOR COOLING AIR FOR REFRIGERATING AND OTHER PURPOSES.

No. 331,881.

Patented Dec. 8, 1885.



WITNESSES  
P. H. Hale,  
H. C. James.

INVENTOR  
Horace F. Hodges  
by R. K. Evans  
Attorney

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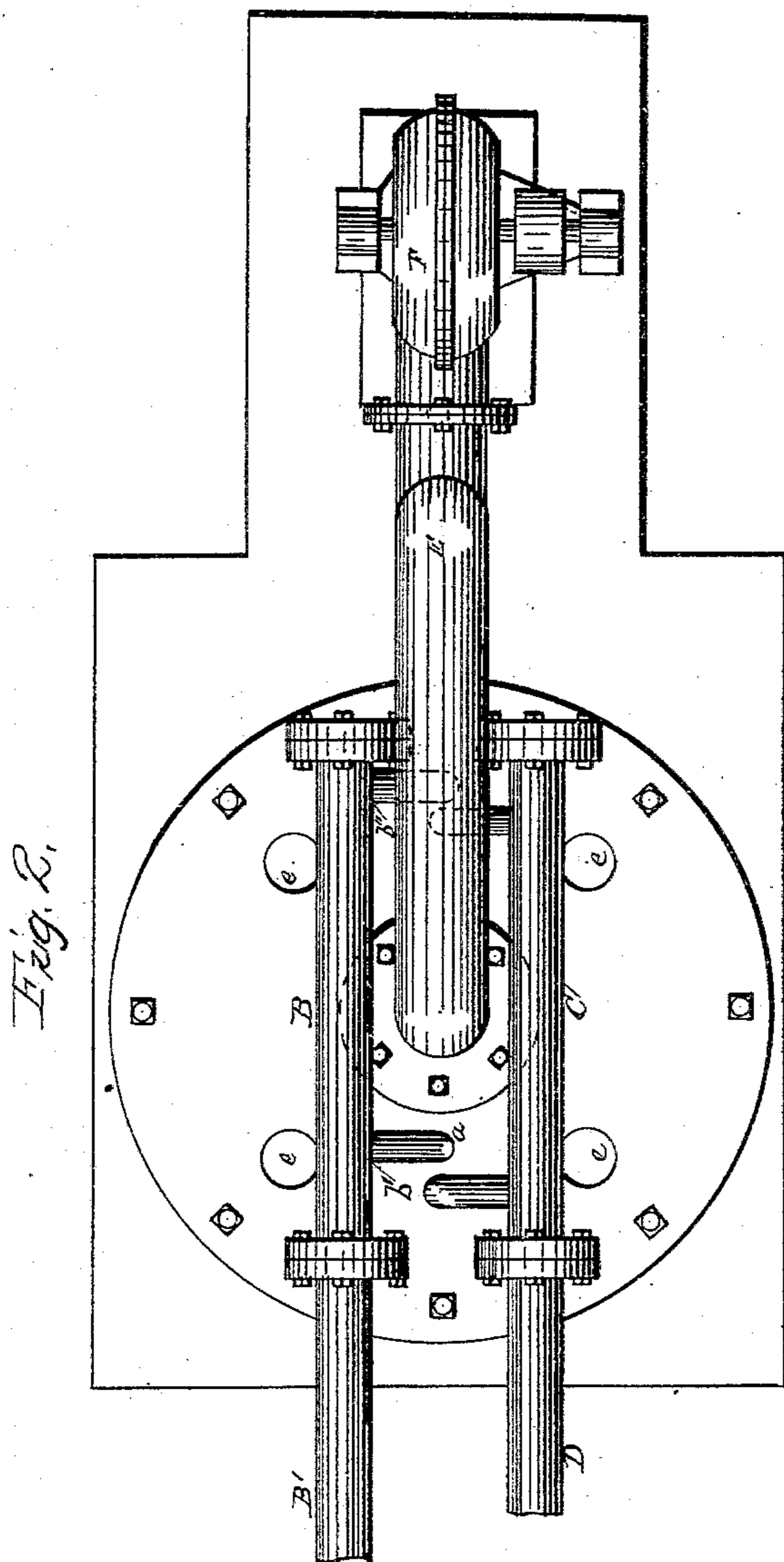
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# UNITED STATES PATENT OFFICE.

HORACE F. HODGES, OF FITCHBURG, MASSACHUSETTS.

APPARATUS FOR COOLING AIR FOR REFRIGERATING AND OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 331,881, dated December 8, 1885.

Application filed July 7, 1885. Serial No. 170,830. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE F. HODGES, of Fitchburg, county of Worcester, and State of Massachusetts, have invented a new and Improved Apparatus for Cooling Air for Refrigerating and other Purposes; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the apparatus, showing cooling-coils in elevation and their surrounding casing in section. Fig. 2 is a plan view of the apparatus.

My invention relates to that class of cooling apparatus wherein ammonia or other highly-volatile gas is vaporized to absorb heat from a passing current of air to cool it for refrigerating and other purposes.

My invention consists in certain details of construction and arrangement of apparatus, as is hereinafter fully described, and specifically pointed out in the claim, whereby a high degree of rapid absorption of caloric from the passing current of air is attained.

In order that those skilled in the art may make and use my invention, I will proceed to describe the manner in which I have carried it out.

In said drawings, A is an iron or other casing, containing within its wall proper insulated media, and in which are arranged one or more coils, *a b*, each having an end connected at *b' b''* to a manifold, B, which forms the termination of a gas-supply pipe, B', from which the liquid gas is fed to the coils. The coils *a b* are pitched in opposite directions and have their exit ends connected with a manifold, C, forming the termination of pipe D. The gas is supplied and vaporized through the coils after the manner well known in such apparatus. From the opening in the center of the top of the casing A passes an air-supply pipe, E, having its outer end terminating in a

fan-blower, F. At desired distances from the center of the top or bottom of the casing there are openings *e e*, at which points are to be connected, if desired, pipes to conduct the cool air to required points.

The fan-blower forces the air through the air-supply pipe E, down through the center of the coils, whence it turns and passes upward approximately near the sides of the casing and escapes through openings *e e* to the points or point of utilization.

A serious difficulty heretofore existing in machines of the class herein described has been that the moisture in the air forced into the casing would be deposited as frost or ice on the cooling-coils *a b*, and then interpose, as it were, an insulating medium between the passing air and the surface of the pipes. To avoid this trouble, I coat or cover the exterior surfaces of the cooling-pipes *a b* with a non-congealable material, which will not interfere with the rapid absorption of caloric from the air, and upon which the frozen moisture will not be deposited.

I prefer to cover the pipes with a non-congealable mixture consisting of petrolina, one pint; salt, one pint; glycerine, one pint.

It may be desirable to take the air from the bottom of the condenser, instead of from the top, as shown in the drawings.

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

The casing A, provided with the outlet-openings *e e* and a central opening, gas-supply pipe B B, coil-pipes *a b*, and outlet-pipe C D, in combination with the pipe E and the blower F, all constructed, arranged, and operated substantially as and for the purpose set forth.

HORACE F. HODGES.

Witnesses:

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M. F. JONES.