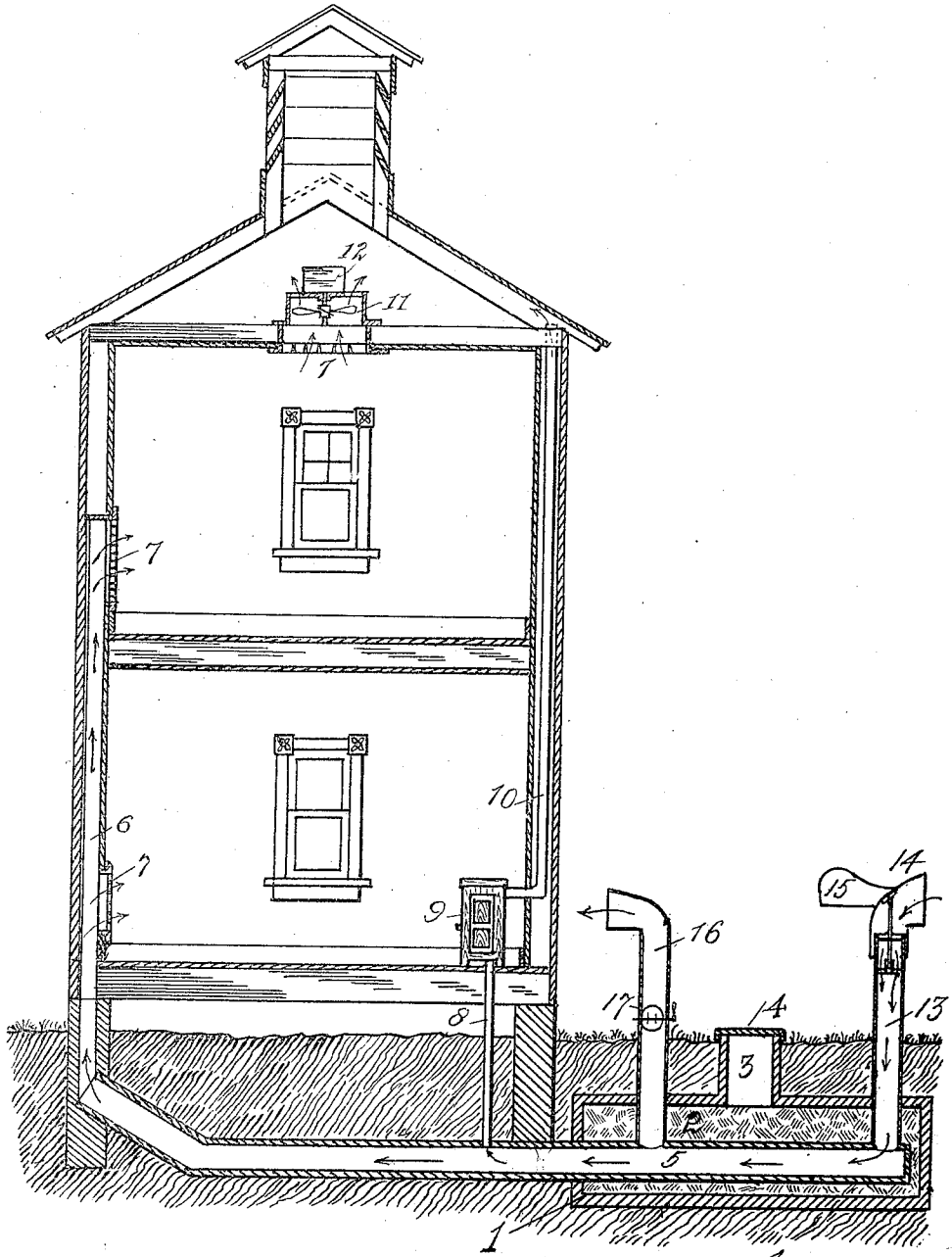
C. S. ASHLEY.

COOLING AND VENTILATING METHOD.

APPLICATION FILED NOV. 7, 1917.

1,297,633. Patented Mar. 18, 1919.



INVENTOR:

Charles S. Ashley

By Munn & Hall Attys.

UNITED STATES PATENT OFFICE.

CHARLES S. ASHLEY, OF TOLEDO, OHIO.

COOLING AND VENTILATING METHOD.

1,297,633. Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed November 7, 1917. Serial No. 200,660.

To all whom it may concern:

Be it known that I, CHARLES S. ASHLEY, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Cooling and Ventilating Methods; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a method for providing refrigeration and for cooling and ventilating the interior of dwellings or other structures or places, and more particularly, to that manner of cooling in which, heretofore, a current of air has been caused to flow through pipes submerged in or covered by a stream or well or cool earth or an artificial body of ice, the air being discharged into the places to be cooled. In the efforts heretofore made to cool the inflowing air by employing the earth or bodies of water as the cooling medium, the temperature of the cooling medium has not been found sufficiently low to materially affect the temperature of the air passing through the pipes. Where the air has been passed through pipes artificially covered by ice, the effect has, of course, been more pronounced, but the expense and care incident to this method have prevented its general adoption.

My invention is designed to overcome the difficulties here indicated, and, to this end, to provide as a cooling medium for the currents of air employed, a body of ice which in severe winter weather is by the action of the elements allowed to form in a suitable receptacle adequately protected against heat absorption, and to then utilize the ice thus formed,—and while in place,—as a cooling medium, thus dispensing with the handling, storing and transportation of ice. In the severest part of the winter the apparatus may be used to introduce fresh air into houses, tempered by passing the air through the water of higher temperature in the trench or tank. Should winter ventilation be an important end sought, two or more trenches of water may be provided through which the air pipes may be utilized one by one, for the purpose of passing fresh air into the building, while the water in the trenches is being frozen. In this way comparatively warmer air may be provided for ventilating purposes instead of air of outside temperature, thus conserving the heat of the building.

The single figure of the accompanying drawing represents in central vertical section an illustrative example of a dwelling and an ordinary ice-box operatively connected with a cooling device, constructed in accordance with the principle here indicated.

In the drawings, 1 is an elongated tank which, for illustration, may be, say, six feet deep, five feet wide and twenty feet long. This tank should be buried several feet below the surface of the ground and should be located in some exposed place where the winter wind and air can have access to its chamber. While I have indicated a tank, which may be of wood or concrete or such other material as may be desired, a simple trench of proper dimensions covered with boards and protected by a sufficient depth of earth, as has been described, will, in proper soils, be found sufficient and more economical.

The chamber 2 of the tank is provided with a manhole 3 having a tight cover 4. 5 is a pipe, of which there may be as many as may be desired, leading through the length of the chamber 2 and into one or more air ducts 6, provided with suitable registers 7, by means of which air passing through the pipe 5 is distributed in the house as indicated by the arrows. A branch pipe 8, leading from the pipe 5 into a refrigerator 9, conducts air to the refrigerator from which it flows through pipe 10 to the top of the building. At the top of the building is a ventilator through which air may escape. If, in addition to the upward current caused by the rarefaction of the air as it becomes warmed or heated, additional current is required, fan 11 driven by an electric motor 12, located as may be desired in the path of the air current, may be employed to cause the air to traverse the building and to flow upwardly and outwardly. It will be understood that while the cooling apparatus is in operation the doors and windows of the house should remain closed in order that the draft through the cooling pipes be not broken.

The pipe 5 is provided with an inlet-pipe 13 having a rotatable mouth-piece 14 which is automatically held presented to the wind

by means of an attached vane 15. 16 is an outlet-pipe connected with pipe 5 at or near the end opposite the inlet-pipe 13 and is provided with a suitable valve 17 by which the opening through the pipe is controlled.

The operation of my device is as follows: The chamber 2 being partly filled with water, the manhole 3 is left uncovered, and winter air is allowed to flow through the pipes 13 and 16. Ice is now rapidly formed in the chamber of the tank or trench. As the freezing proceeds water is added until the chamber is filled with a solid block of ice. Now the manhole is covered and protected, the valve in the outlet pipe is closed, access of warm air is prevented and the ice is conserved until its use is required in the hot weather of the succeeding summer.

It will be seen that so large a block of solid ice will last much longer than would smaller pieces; that the filling of the chamber with ice by the method proposed overcomes the trouble, waste and expense necessarily attendant upon the introduction of ice brought from a distance, and that the method here described is also available for an adequate ice supply for the purpose indicated even where no ice house or ice dealers are available.

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

The cooling method herein described which consists in supplying a subterranean chamber with a suitable body of water, then by passing through such body of water natural currents of air of freezing temperature, and then,—while the ice thus formed in said chamber remains in place,—passing a current of air through suitable conduits invested in such ice into the place to be cooled.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. ASHLEY.

Witnesses:

GERTRUDE BRA

JOHN H. JAME