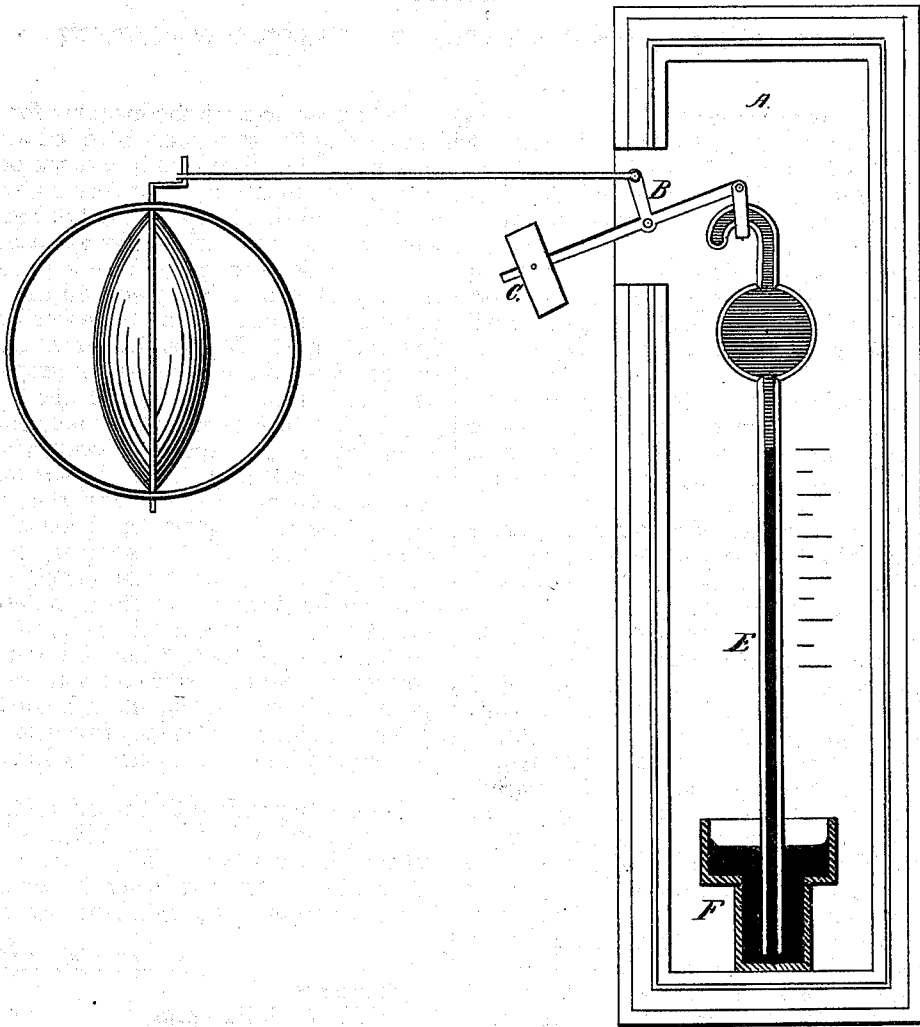


J. N. ADAMS.

Thermo-Machine for Regulating Dampers and Ventilators.

No. 130,002.

Patented July 30, 1872.



Witnesses
W. V. B. Parker
W. J. Shaw
R. M. Lovell

Inventor:
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Book

UNITED STATES PATENT OFFICE.

JAMES N. ADAMS, OF OLATHE, KANSAS.

IMPROVEMENT IN THERMO-MACHINES FOR REGULATING DAMPERS AND VENTILATORS.

Specification forming part of Letters Patent No. 130,002, dated July 30, 1872.

To all whom it may concern:

Be it known that I, JAMES N. ADAMS, of Olathe, Johnson county, State of Kansas, have invented a new and Improved Machine to Obtain Power from Heat, or a "Thermo-Machine;" and I do hereby declare the following is a clear, full, and exact description of it, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to a machine operated by changes of temperature of a room or surrounding atmosphere, thereby opening or closing a common stove-pipe damper or ventilator to govern the draft and heat of stoves or rooms; and consists of a frame, A, Figure 1, which should be substantially made to support the various parts of the machine, and is connected to an oscillating lever or crank, B, of three arms by a screw acting as a fulcrum to the same, on which it should move freely. On one of these arms is attached a weight, C. To the vertical arm is attached the rod that moves the damper or ventilator. To the other arm of the lever is hung, by a metallic strip, a glass tube, E. This tube is bent at the upper end and hermetically sealed. Near this end is a bulb sufficiently large to contain the required weight of mercury to move the damper or ventilator. The lower end of the tube is immersed in mercury contained in the vat F, as shown in the drawing. The length of the tube must correspond to the temperature it is required to keep. It should be fifteen inches or more to maintain a temperature of 68° Fahrenheit when using ether.

To further prepare the machine for use, the bent end of the tube must be filled with ether or some easily-volatilized liquid, the other portion of the tube to be filled with mercury, and in that condition immerse the open end in the mercury-vat F to exclude the atmosphere.

To describe its operation, should the temperature be cold the mercury will fill the space in the tube not occupied by the ether by atmospheric pressure. The weight of mercury lowers the boiling-point of the ether in proportion to its height of column. Should the surrounding temperature be raised to that point or degree, the ether vaporizes, occupying more space; the mercury runs into the vat. The weight C, being heavier than the tube and vapor, falls and moves the vertical arm, to which is attached the machinery or damper to be moved. Should the temperature become cooler than is required, the ether condenses, and the mercury takes its place by atmospheric pressure, raising the weight and moving the lever B and its attachments to the vertical arm, and so on, as before.

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

The combination with the frame A and the lever B, weight C, with tube E and mercury-vat F; also, the combination and use of the ether and mercury or other fluid boiling at low temperature, all substantially as specified.

JAMES N. ADAMS.

Witnesses:

M. V. B. PARKER,
WM. J. SHAW,
R. M. LOVELL.