

P. I. SCHOPP.
Hot Air Furnace.

No. 95,734.

Patented Oct. 12, 1869.

Fig. 1

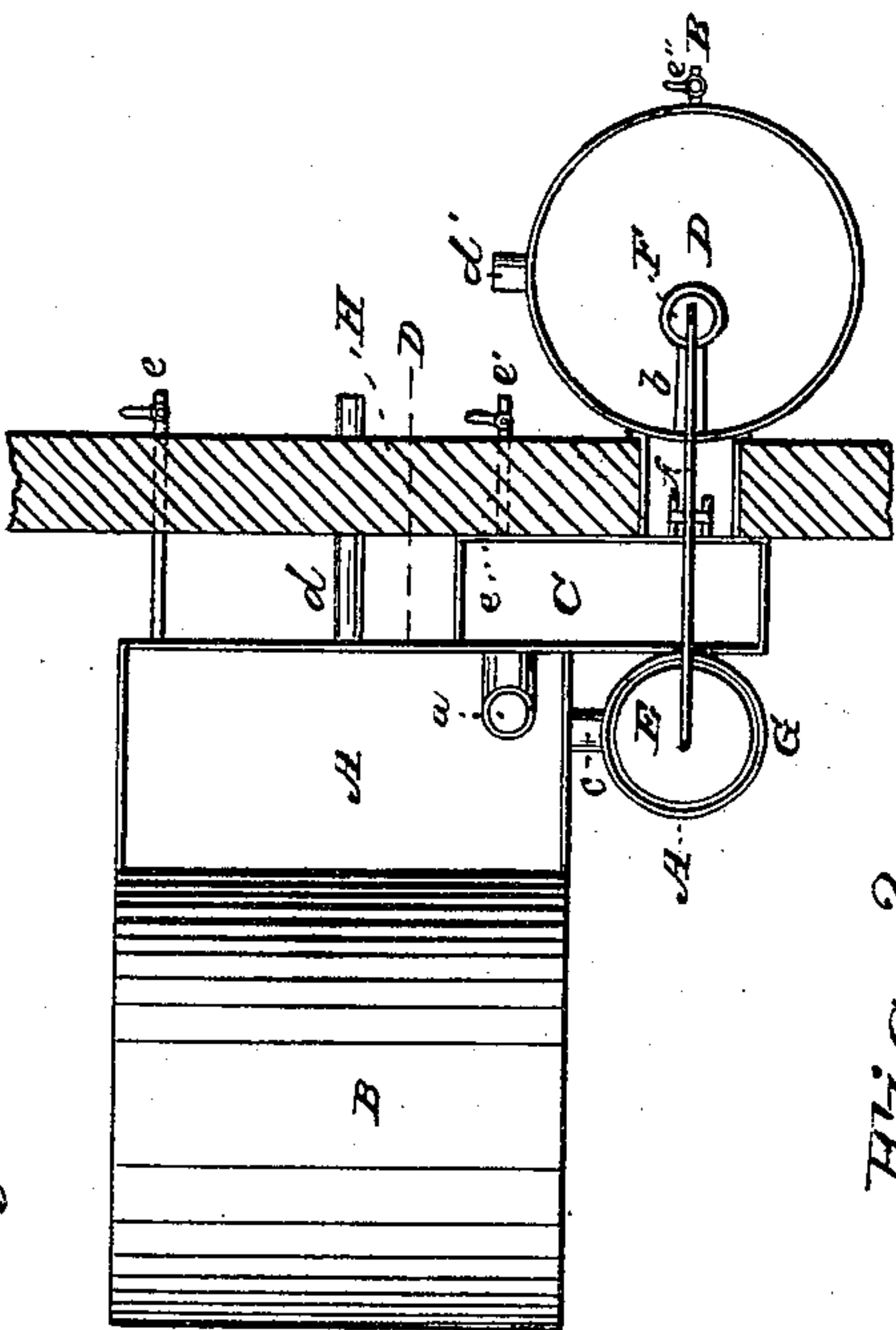


Fig. 2

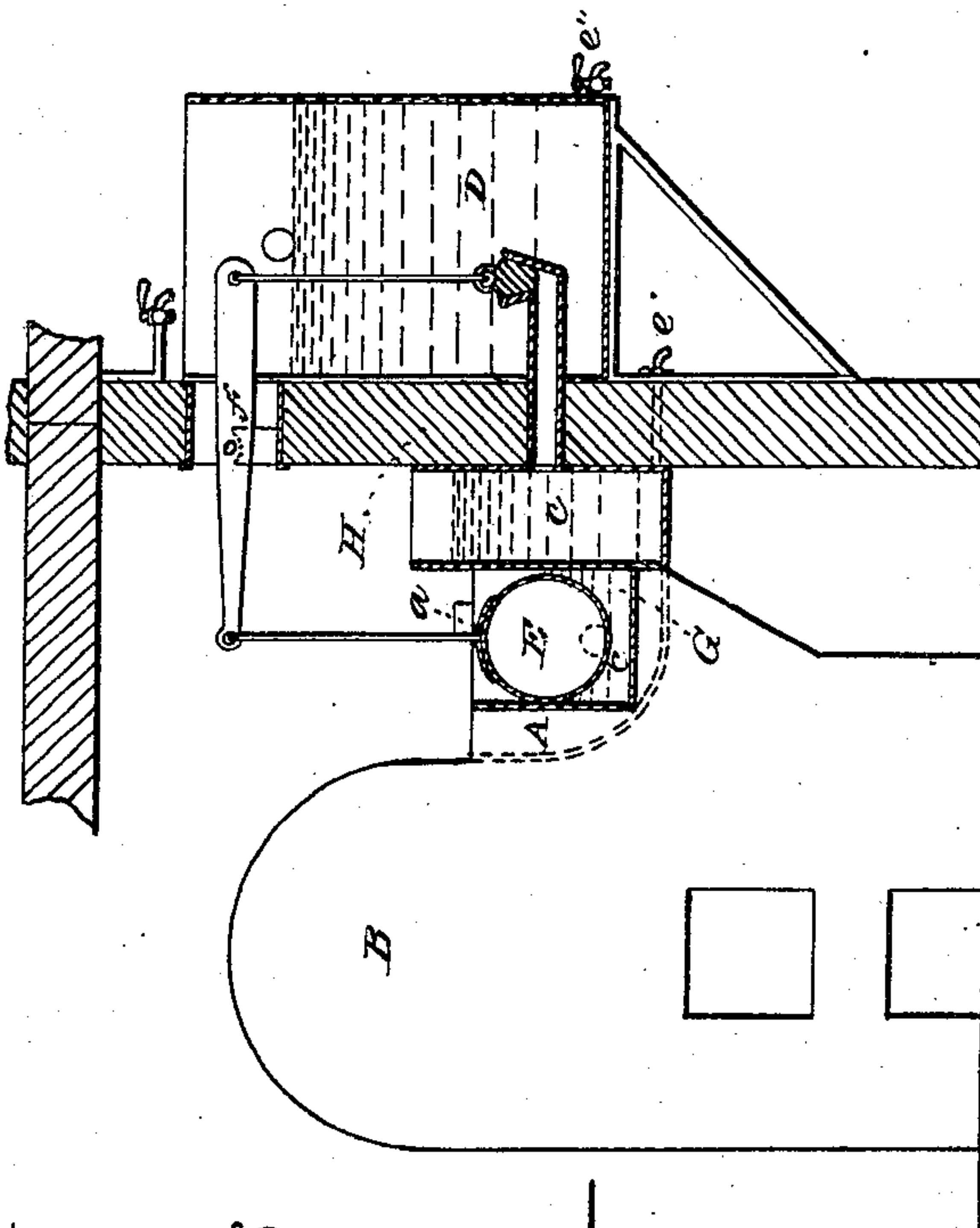
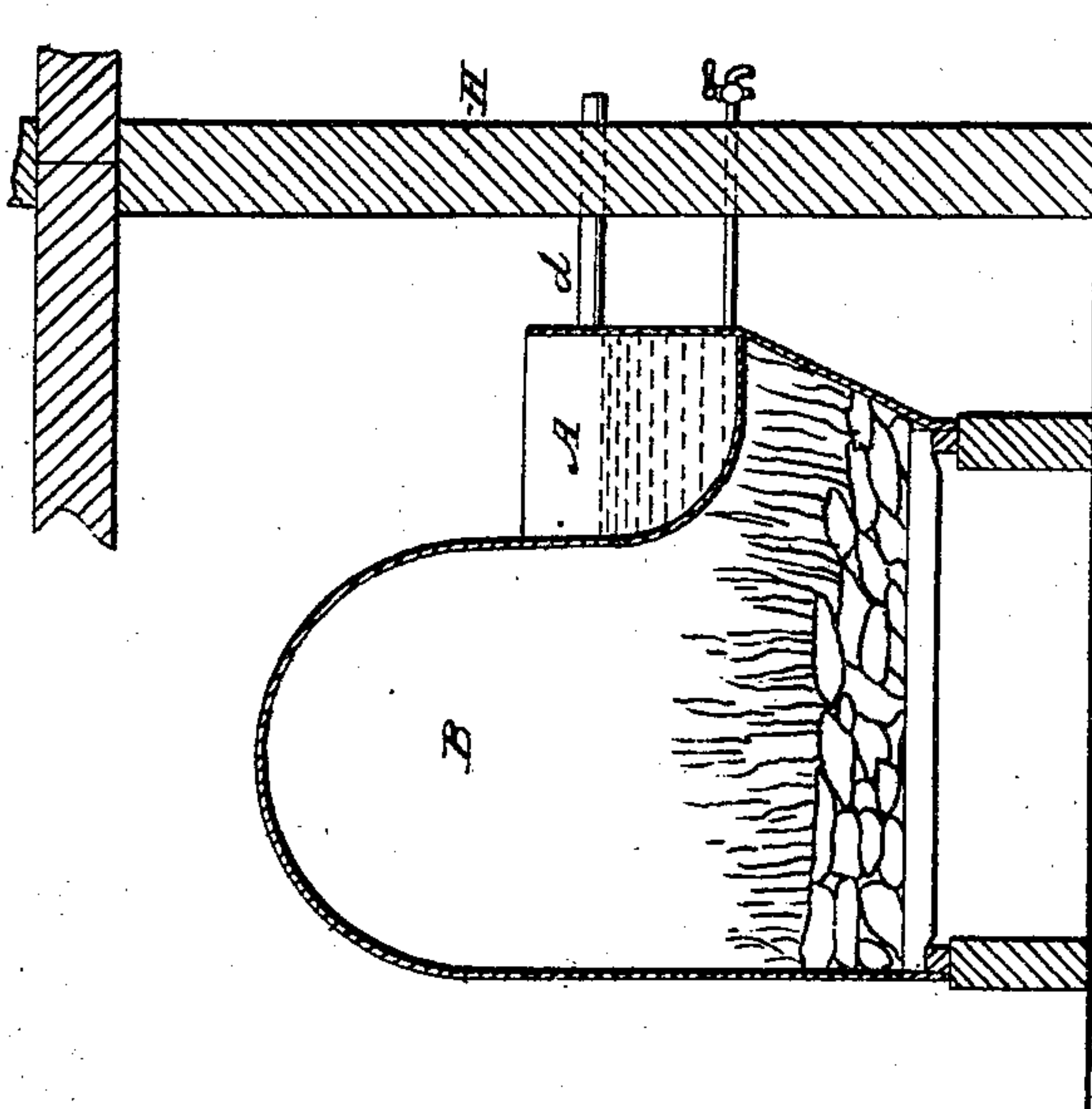


Fig. 3



Witnesses
Thos D. Ziegler
Geo. R. Eckbaum

Inventor
P. I. Schopp

United States Patent Office.

PH. I. SCHOPP, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 95,734, dated October 12, 1869.

HOT-AIR FURNACE.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, PH. I. SCHOPP, of the city of Louisville, county of Jefferson, and State of Kentucky, have invented a new and useful "Improvement for a Hot-Air Furnace;" 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 drawings, making a part of this specification, in which—

Figure 1 is a ground plan.

Figure 2, a transverse section.

Figure 3, also a transverse section.

The improvement is intended to effect the hydration of air heated by a hot-air furnace.

The improvement is composed of the following parts:

Pan A, forming a part of the furnace proper B, as shown in fig. 3.

By this arrangement, the entire bottom of the pan is exposed to the direct action of the fire in the furnace, and the water in the pan is kept in constant ebullition and evaporation.

The pan in its proportion ought to be constructed with a view to the amount of steam desired in a building to make the air moist.

In my improvement, the pan A forms a whole with the furnace B.

In cases where a furnace is already built, the pan may be attached to one of the sides of the furnace; in both cases it may be carried around the entire oven, if it should be desirable to obtain a larger water-surface for evaporation.

Connected with the pan by pipe *c* is cylinder G, in which the float E is placed. This is done to keep the float steady, and not exposed to the rapid ebullition going on in the pan.

Connected with the pan by pipe *a* is the forebay C, and with the forebay, by pipe *b*, the reservoir D, outside the brick enclosure.

The conical valve F is connected by wires *w w'* and balance-beam *f* with the float E.

H, brick wall, part of the enclosure.

d d', waste-pipes.

e e e', discharge-pipes.

g, supply-pipe.

Pan A, forebay C, and cylinder G should be constructed of sheet-iron. The various connecting and discharge-pipes may be of cast-iron. The reservoir may be of wood or sheet-iron.

Float E is a hollow ball of thin copper-plate, or any suitable material; the balance-beam *f* of cast-iron,

and the connecting-wires of brass or copper or galvanized iron; the valve F to be of brass.

The weight on the side of the float E must be slightly heavier than the weight on the side of the valve F, or the weight of the valve F, pressure of water on it, wire *w*, and part of balance-beam, combined. This is effected by moving the pivot from the point of equilibrium toward the side of the valve.

The pivot on the balance-beam is to be edge-shaped, to reduce friction, and obey the slightest motion of the float E.

The mode of operation is as follows:

When the pan A, and consequently the cylinder G, is empty, the float E will sink, and the valve F be open. Reservoir D is then filled with water, which will enter through pipe *b* into the forebay C, and from there through pipe *a* into cylinder G. The float is then raised, the valve F shut, and the flow of water into the hot-air chamber arrested. As soon as evaporation takes place in pan A, the water-level in it and cylinder G will be lowered, and with it float E. The valve F will then open again, and admit a fresh supply of water. By this automatic method, the pan is constantly supplied with water, and the evaporation or production of steam may go on without interruption. All that is needed is the filling of the reservoir from time to time.

The apparatus, if properly adjusted, will work with the regularity of clock-work.

To prevent the sudden interruption of boiling by the introduction of cold water is the object of the forebay C. Cold water from the reservoir D will first enter the forebay, and be truly warmed before entering the pan A through the vertical pipe *a*.

The advantages gained by my improvement are—

First, it is simple in its arrangement, and can be well understood and worked by anybody of ordinary capacity and intelligence.

Second, constant ebullition and evaporation going on, it will provide hot air with the required humidity so necessary to the health of men.

What I claim as my invention and improvement in hot-air furnaces, is—

Connecting the pan A with the furnace B, cylinder G, forebay C, and reservoir D, in combination with float E and valve F, when arranged to operate as herein described.

Witnesses:

GEO. R. EICHBAUM,
THOS. D. SEDGWICK.

PH. I. SCHOPP.