

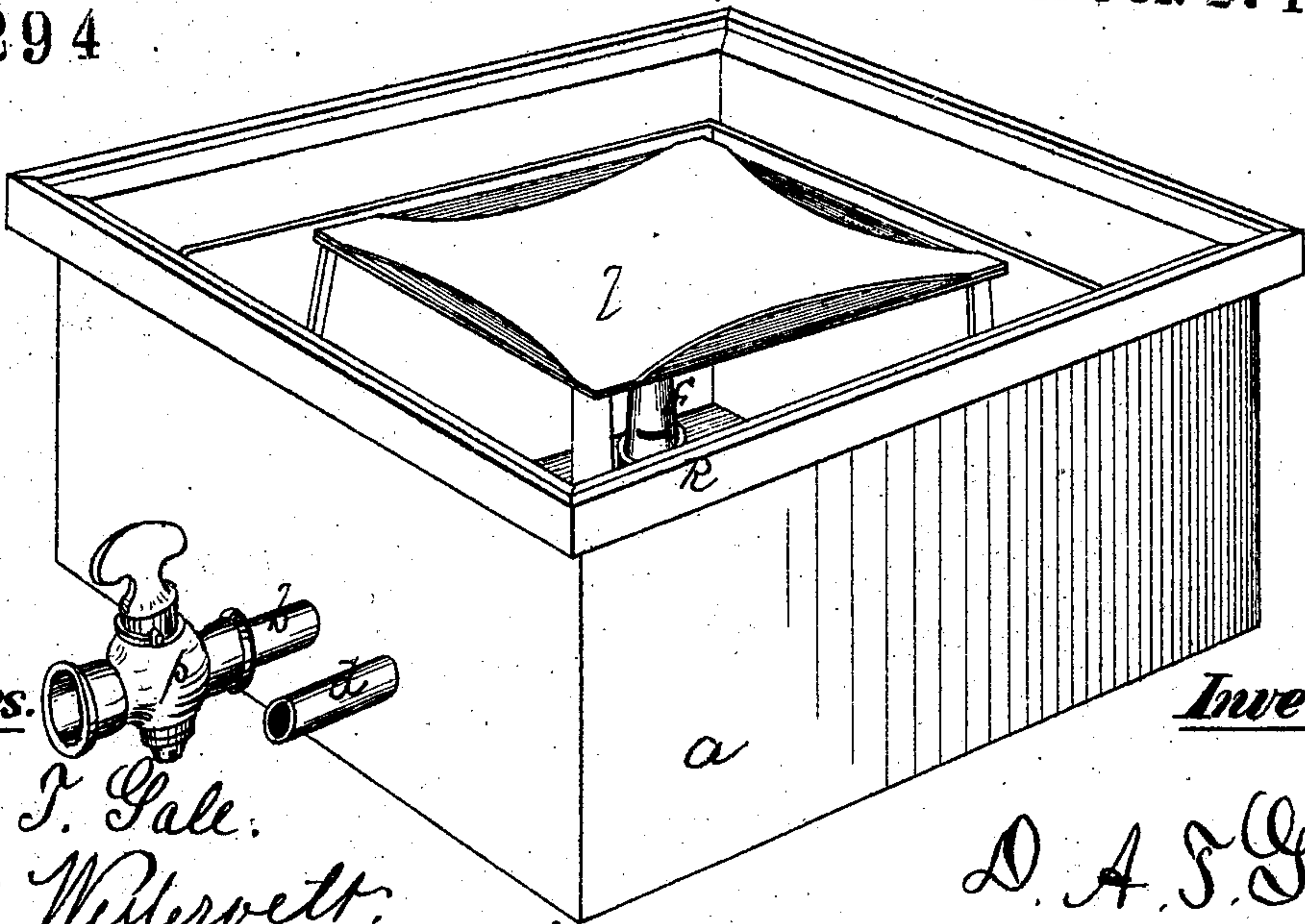
*D.A.T. Gale's*

*Heating Register.*

116294

*Fig. 1.*

PATENTED JUN 27 1871



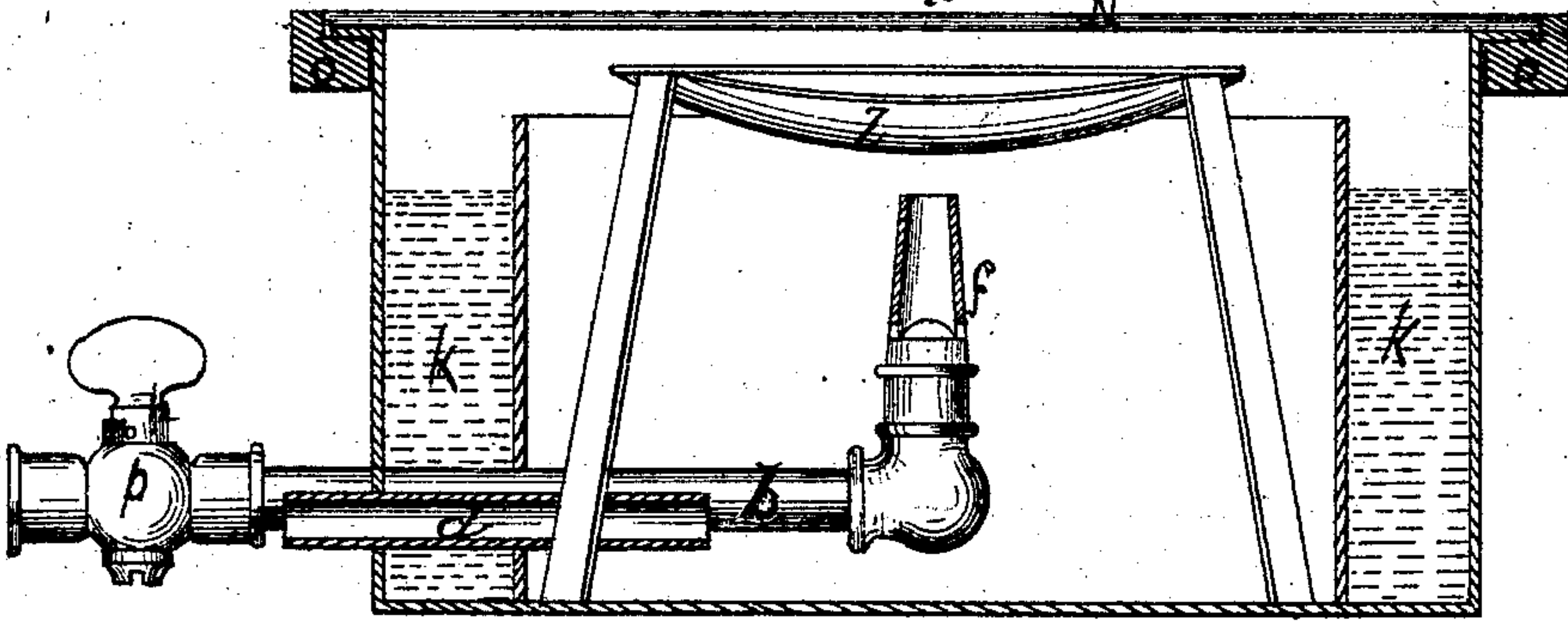
Witnesses.

Edwin J. Gale.  
Edward M. Mervett.

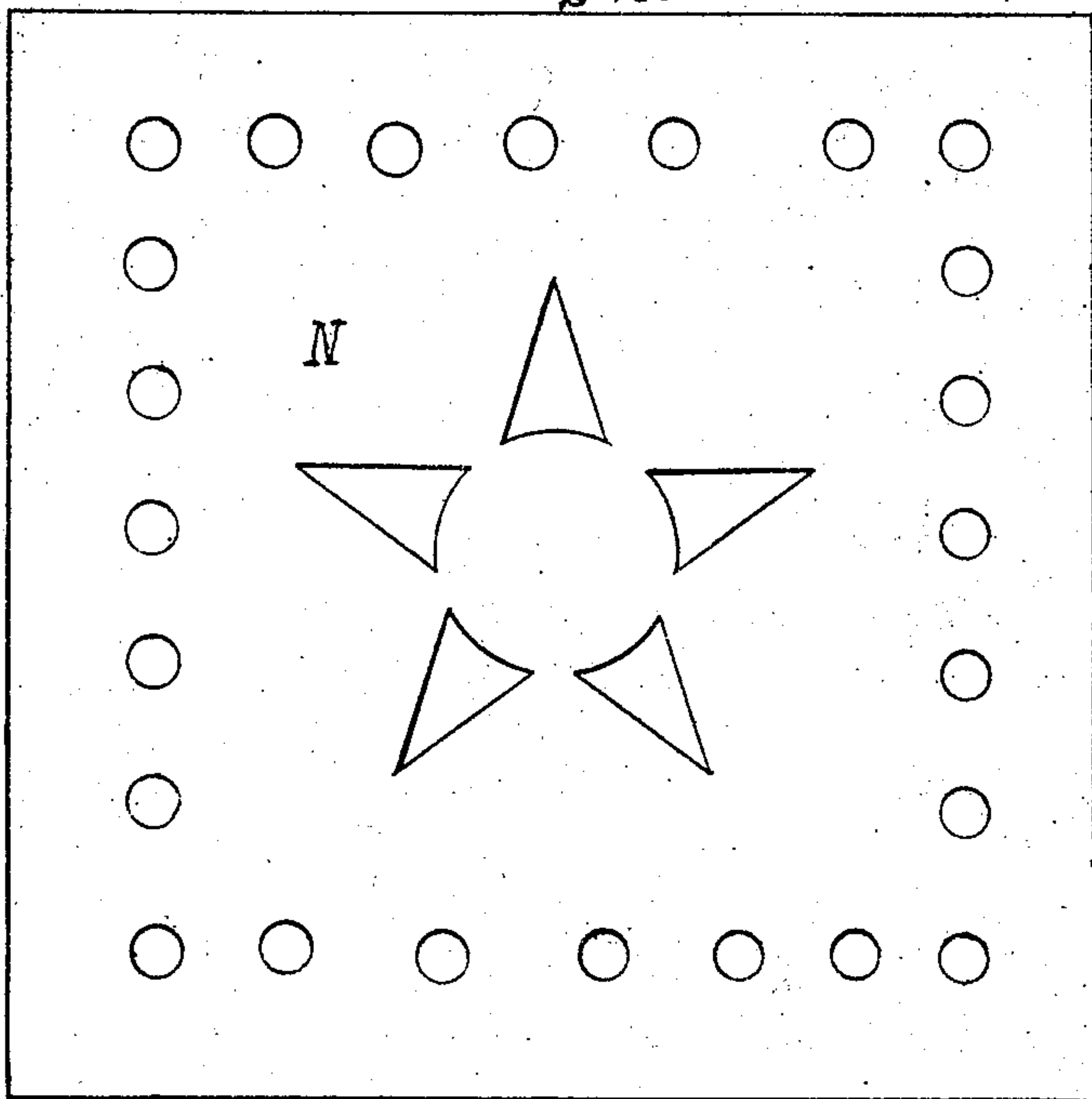
Inventor.

D. A. T. Gale.

*Fig. 3.*



*Fig. 2.*





# UNITED STATES PATENT OFFICE.

D'ALEMBERT T. GALE, OF FORT WAYNE, INDIANA.

## IMPROVEMENT IN HOT-AIR REGISTERS.

Specification forming part of Letters Patent No. 116,294, dated June 27, 1871.

*To all whom it may concern:*

Be it known that I, D'ALEMBERT T. GALE, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Device for Heating Rooms, Cars, &c., by means of a Heating-Register.

This invention consists in the construction of registers suitably arranged in the floor or otherwise in such a manner that heat may be generated therein by the agency of gas or gasoline, or other suitable heating agent—preferably gas—thereby obviating the expense of stoves or cellar-heaters, and the labor and care of fires of coal or wood fuel. This I accomplish by fitting in the floor a metallic box of size adapted to the surface to be heated, similar to those used in connection with cellar-heaters, with the difference that the heat is generated in the register direct by providing the register-box with pipes and burners. The register-box is also provided with a water-reservoir, which protects damage from overheating, and supplies the air in the room with a desirable moisture. The burner-pipes may connect with pipes in the house, or they may have a separate retort; or, for heating cars, they may attach to the gasoline-retort, which would supply both light and heat. The pipes and burners are provided with cocks to regulate the volume of the heating agent. The register-box is also supplied with an air-pipe to supply air in combustion of the fuel. The burners are provided with a shield of metal or other suitable material. This shield receives the direct blaze, and it serves as a retainer. It also radiates and modifies the rankness of the heat. It also serves as an auxiliary in making a perfect combustion of the fuel. This shield may be made solid, flat, or double, or concave—preferably concave—and forming a vacuum. It is made portable, and can be removed to inspect the burners, or, when necessary, for cooking purposes. The water-reservoir may be cast stationary with the register-box, or separate, which is preferable. When thus arranged it warms a room effectually and economically. It makes an even, pleasant heat, perfectly inodorous.

To enable others skilled in the art to make

and use my invention, I will proceed to explain more fully how I construct it.

Figure 1 is a view of the register-box with the top bearings removed, showing the pipes, burners water-reservoir, and the shield. Fig. 2 is a view of the top or surface plate which covers the register-box, and is provided with openings to allow the heat to radiate. Fig. 3 is a view of the frame upon which the register-box rests, having a raised margin into which the top or surface plate rests.

In the construction of my invention I make a box of sheet-iron or any suitable material, with an open top, and with a margin for a rest. I then introduce the gas and air-pipes, burners, and water-reservoir, as follows: Box *a* being adjusted, it is placed in the floor, and rests on the frame *R*, which is cast to fit with margin *o*. The gas-pipes *b* and air-pipes *d* are placed through perforations made in one side of box *a* at a convenient point for attachment. I then attach burner *f*—any gas-burner—which takes in with the gas a proper proportion of air to make a perfect combustion without smoke. I then place the reservoir *k*, which may be of any shape or material desirable. I fill this reservoir with plain water or lime-water in order to moisten the atmosphere in the room, and to make it odorless. It also protects the register from overheating. I then place my shield *l* over the burner *f*. This I form, in this case, of sheet metal, one side concave and double, so as to make a vacuum, and I shape offsets thereon so as to allow the bottom surface of shield *e* to come within about one inch of burner *f*. The air-pipe *d* may extend just to the outside surface of box *a*; or it may extend to the outside of the building, the object being to supply the burner and room with a continued supply of fresh air. The cocks *p* I place at any point requisite to regulate the flow of the heating agent. The register being thus completed, I place the surface or top plate *N*, which is of cast-iron, to fit with openings, as seen in Fig. 2. I then apply a taper to the burner, and the heat flows immediately.

This is a device long needed, especially for sick rooms, where an even temperature of heat is de-

sirable. It is very pleasant, also, inasmuch as it dispenses with wood, coal, shavings, ashes, and smoke, and is also available at any moment for cooking, heating, &c.

Having thus described my invention, what I wish patented is—

1. Air-pipe *d*, in combination with register-box *a*, as described, and for the purposes set forth.
2. Register-box *a*, pipes *b* and *d*, cocks *p*,

burner *f*, reservoir *k*, shield *l*, and surface plate *N*, in the manner described, and their adaptation for heating rooms, cars, &c., substantially as set forth.

D'ALEMBERT T. GALE.

Witnesses:

EDWIN T. GALE,

EDWARD WESTERVELT.