G. WILLISTON.

Heating Stove.

No. 8,435. Patented Oct. 14, 1851.

Fig. 5

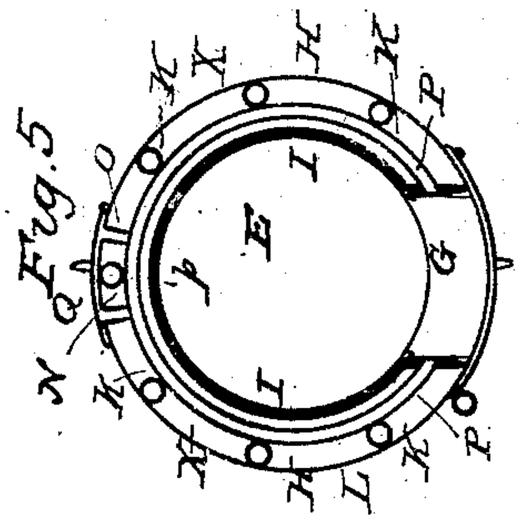


Fig. 2

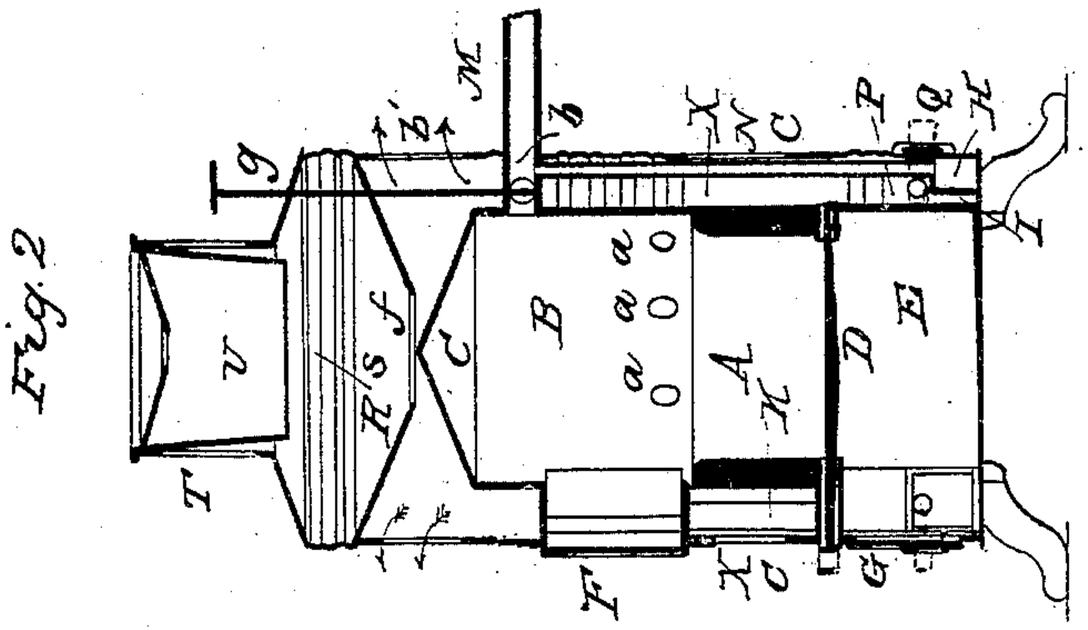


Fig. 4

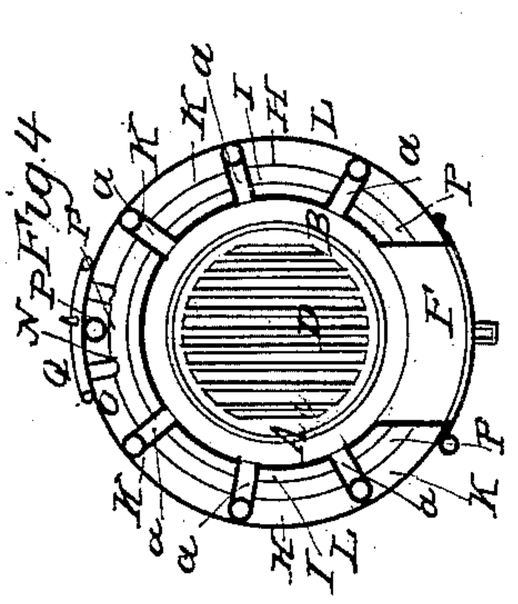


Fig. 3

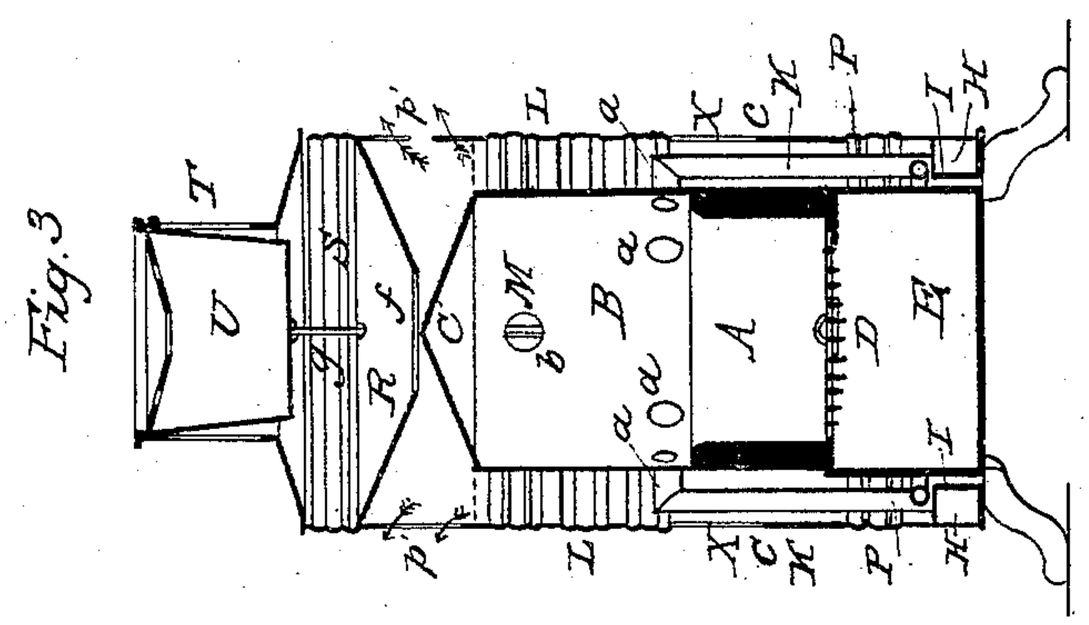


Fig. 6.

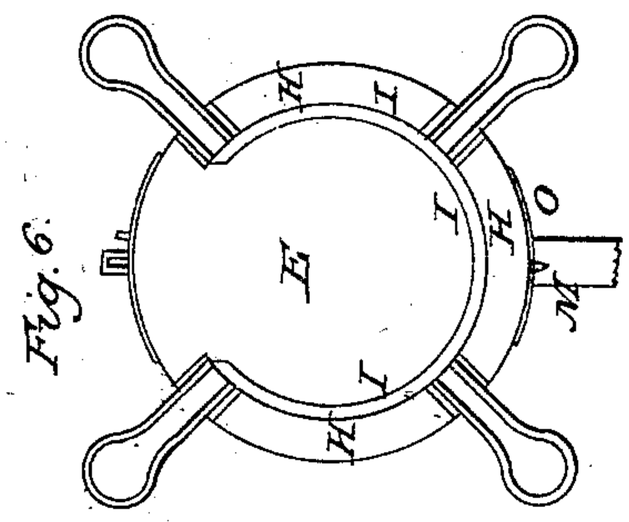
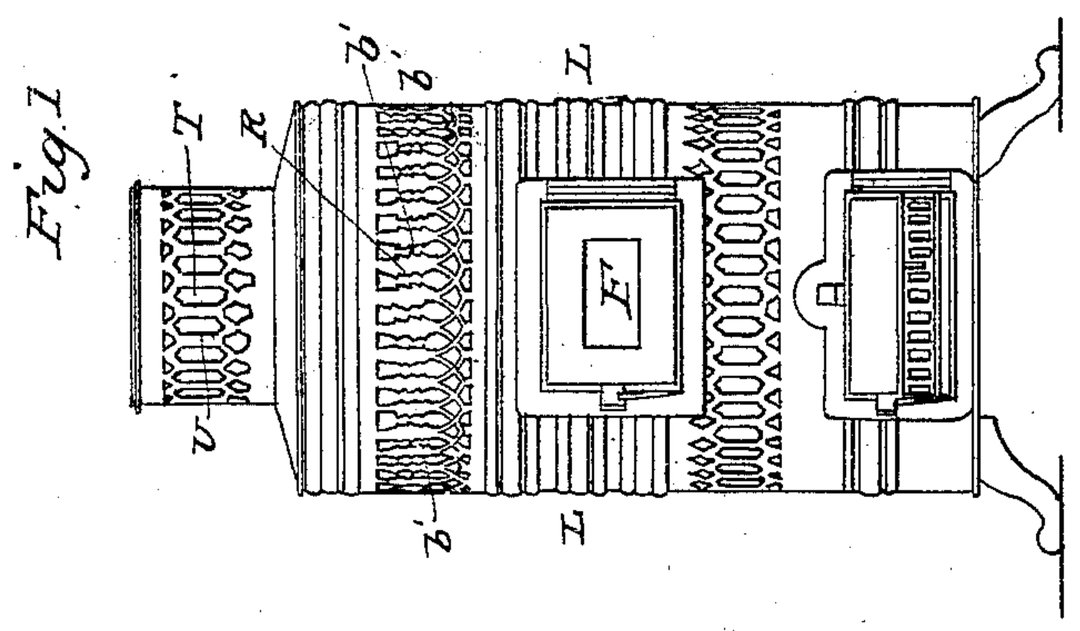


Fig. 1



UNITED STATES PATENT OFFICE.

GORDIN WILLISTON, OF CHARLESTOWN, MASSACHUSETTS.

AIR-HEATING STOVE.

Specification of Letters Patent No. 8,435, dated October 14, 1851.

To all whom it may concern:

Be it known I, GORDIN WILLISTON, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new or Improved Stove for Warming Apartments of Dwellings; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawing Figure 1 denotes an external elevation of the said stove. Fig. 2, a central vertical and transverse section of it, taken through the fire place and ash pit doors. Fig. 3, is a central vertical and transverse section of it taken in a plane supposed to be at right angles to that in which Fig. 2 is drawn. Fig. 4, is a horizontal section of it taken through the upper parts or mouths, of the descending pipes leading out of the fire place or chamber of combustion. Fig. 5, is a horizontal section of the stove taken through the ash pit or ash chamber. Fig. 6, is an underside or bottom view of it.

In the said drawings A represents the fire pot or place for the reception and combustion of the fuel, the same having above it a flame and smoke chamber B made with a conical or dome shaped top C.

The grate D is situated in the bottom of the fire pot and has an ash pit or chamber E for the reception of the ash box placed directly underneath it. The fire place door and its opening are seen at F, while the ash-pit door and its opening are denoted at G.

Partially surrounding the ash pit is a curved box or chamber H between which and the outer side of the ash pit there is an open space I, I, through which air from below the stove can readily pass, and in rising upward to pass in contact with the external surfaces of the fire pot and smoke chamber as to receive radiated heat therefrom.

A series of pipes K, K, &c., extends upward from the chamber H and opens out of the same, and by means of elbows *a*, *a*, are made to open into the smoke chamber just above the top of the fire pot, as seen in Figs. 3 and 4. An external casing L is made to concentrically surround the fire pot and series of tubes K, K, &c., and to extend upward from the top of the chamber H, and terminate above the top of the dome of the smoke chamber as seen in the drawings, there being an air space X, between such casing and the fire chamber.

A discharge pipe M, is carried horizontally out of the upper part of the smoke chamber and provided with a damper *b*, as seen in Fig. 2, and into this pipe M and out of the box H, a discharge pipe N is carried so as to convey the volatile products of combustion from the box H, into the pipe M. The damper is placed between the discharge pipe N, and the smoke chamber.

Two or any other suitable number of air pipes O, O, are carried through the back part of the outer casing and just above the chamber H, and made to lead into a tube P, P, made to partially surround the ash pit chamber and to open into the same on its front part or in the wall of the door opening of the said ash pit. A slide gate or valve Q is applied to the mouth of the pipes O, O, so as to enable a person either to close, open or partially open or close them, and this for the purpose of regulating the admission of air into the tube P, P, which can be made to pass through the same and into the ash chamber. As the said tube P, P, is exposed to the heat radiated from the external surface of the chamber H it becomes heated and consequently will impart heat to the air passing through it when the stove is in operation, and the smoke is passing through the box or chamber H. By such means it will readily be seen that the air to be supplied to the fuel for its combustion, can be heated before it comes in contact with the same. By supplying the fuel with heated air, combustion may not only be maintained to better advantage, but a saving in fuel effected.

The outer case L, is perforated ornamentally or otherwise with openings as seen at *b*, *b*, &c., *c*, *c*, &c., the lower range of them being made to surround the upper part of the fire pot, so as to let heat radiate therefrom and pass through the casing. The upper range of openings, (via *b′*, *b′*, *b′*,) is made to surround the dome of the smoke chamber and an inverted conic frustum reflector R, which is placed just above the dome and receives the heat from the top of the dome as well as the heated air, which ascends between the external casing and the fire pot and reflects it through the range of openings *b′*, *b′*, *b′*. It will be observed that

the reflector is open at its lower end as seen at *f*, and constitutes the bottom of a chamber or space S, from the top of which a perforated cylindrical case T, rises and sustains a water evaporating vessel U, which is set thereon as seen in the drawings.

When a fire is made in the fire pot, if we close the damper *b*, (whose handle is seen at *g*, as extended upward and entirely through the top plate of the chamber S,) the smoke and volatile products of combustion will pass into and down through the pipes K, K, K, &c., and into the chamber H, through which they will circulate, and thence pass into or through the pipe N, and into the discharge flue M. By opening the damper the smoke can be made to pass off directly into the discharge flue M, without first going through the pipes K K, and the chamber H. In my stove the heat is thrown out near the lower part of it, as well as at, and near the top part.

What I claim as my invention is as follows that is to say:

I claim the air space I, I, the curved chamber H, the series of descending pipes K, K, and the ascending pipe N, in combination with the air space X, the chamber of combustion and ash pit or chamber, all essentially in manner as specified.

In testimony whereof I have hereto set my signature this thirteenth day of February A. D. 1851.

GORDIN WILLISTON.

Witnesses:

BENJAMIN EDDY,

R. H. EDDY.