

T. WATTERS.

Gas Stove.

No. 17,771.

Patented July 7, 1857.

Fig. 2.

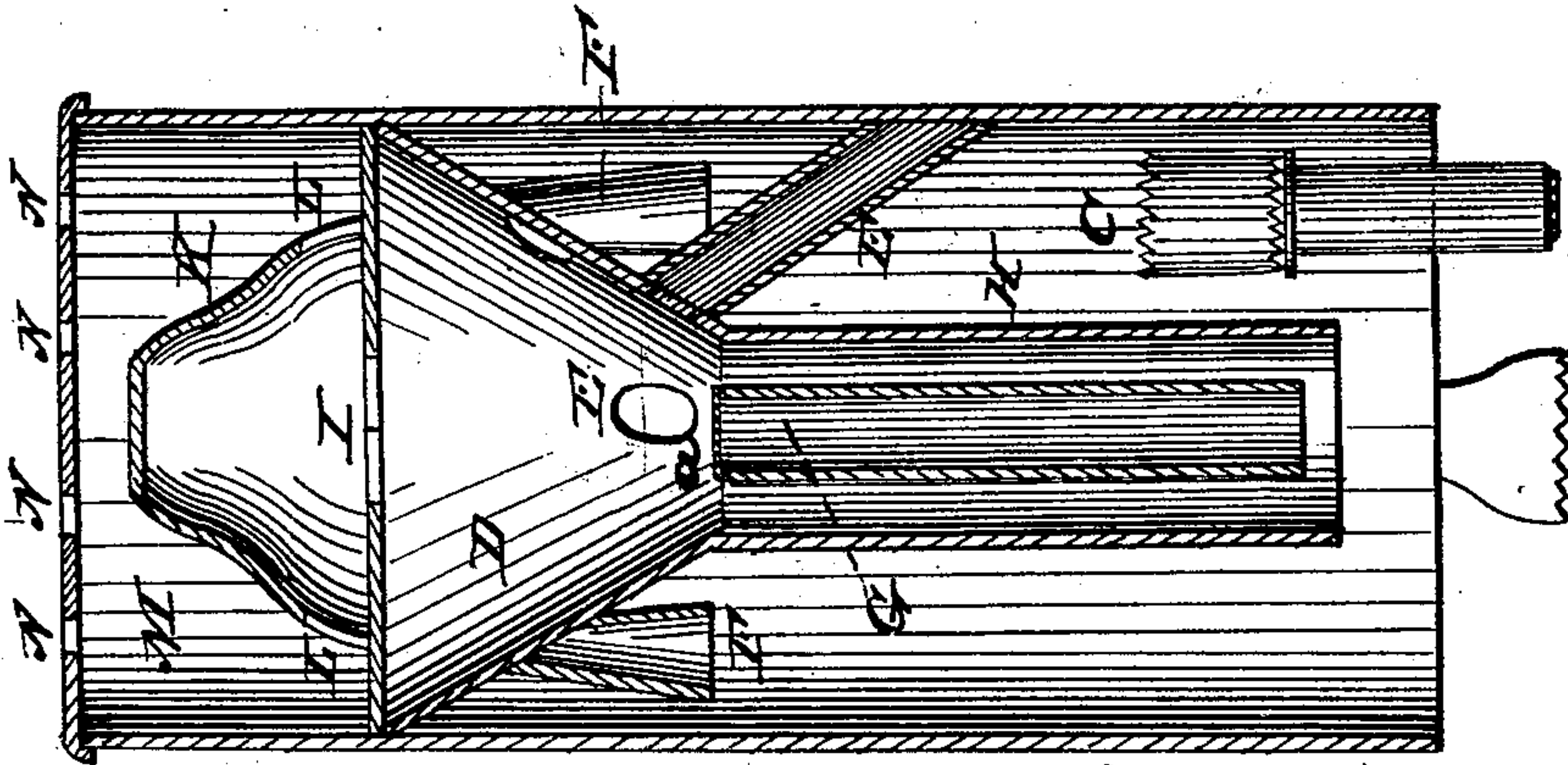


Fig. 3.

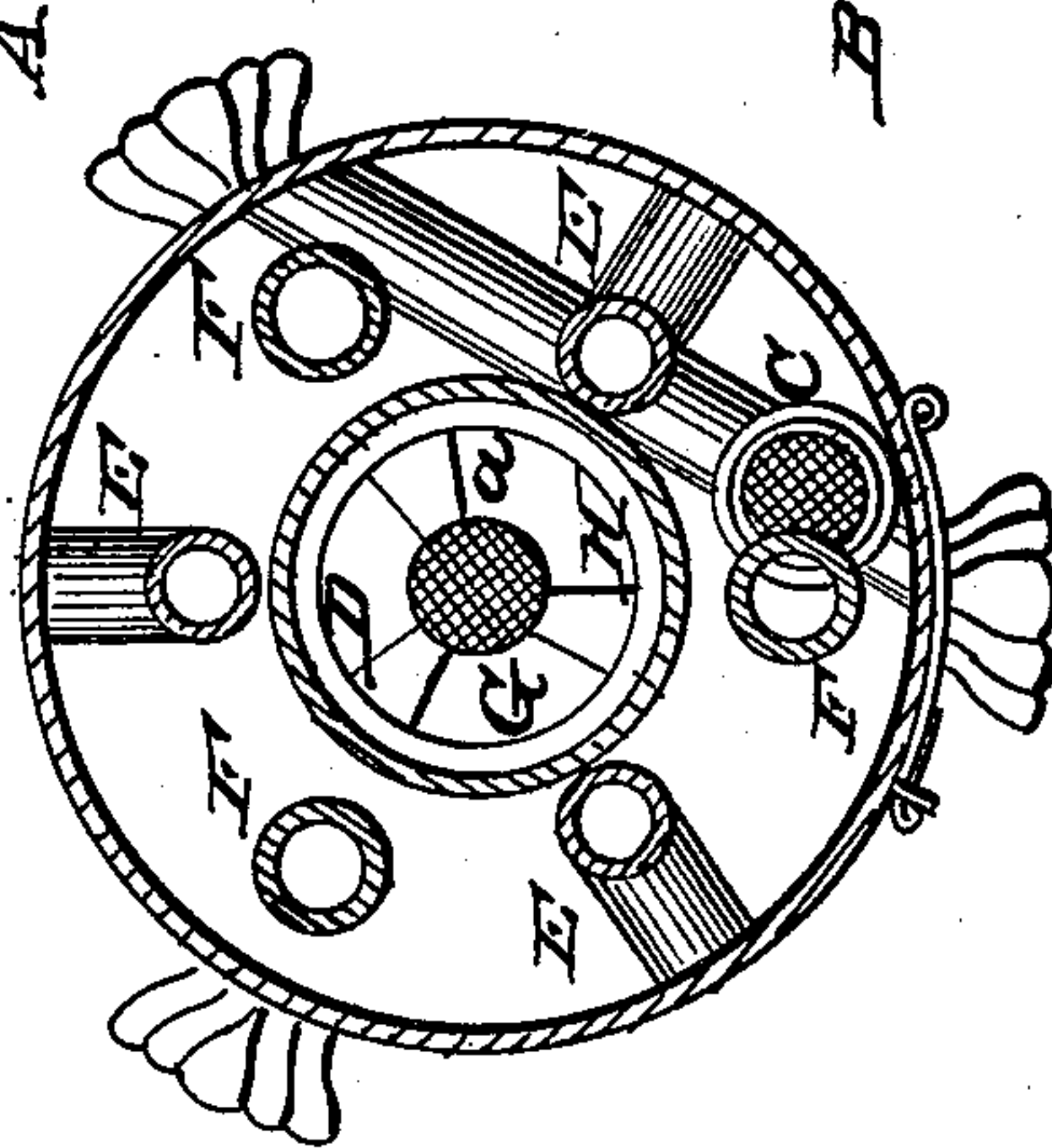
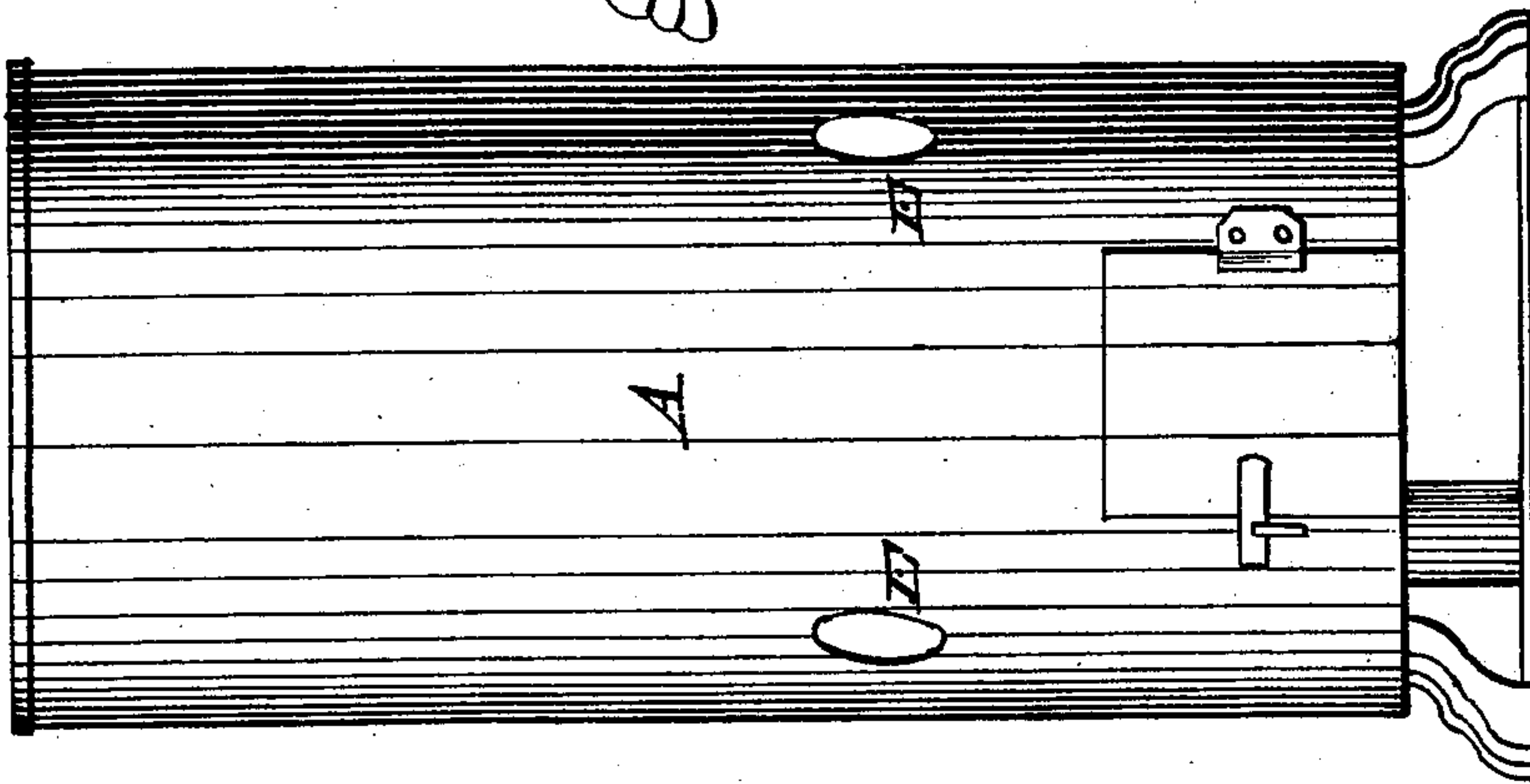


Fig. 1.





# UNITED STATES PATENT OFFICE.

THOMAS WATTERS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND STEPHEN SHERLOCK, OF EASTPORT, MAINE.

## GAS-STOVE.

Specification of Letters Patent No. 17,771, dated July 7, 1857.

*To all whom it may concern:*

Be it known that I, THOMAS WATTERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Gas-Stove; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1 denotes an external elevation; Fig. 2 a vertical, central, and transverse section of it.

The object I have had in view in constructing my stove has been to obtain a perfect or nearly perfect combustion of the volatile products and gases, which usually escape from the flame of an air and gas burner when within a chamber of combustion; and for this purpose I have provided the chamber of combustion with an auxiliary chamber opening into it and furnished with air ducts, an auxiliary air and gas burner, and a reverberatory bell, as will be hereinafter specified.

In the drawings, A exhibits the main case of the stove, within which is the chamber of combustion B, the same being furnished with one or more air and gas burners C, C, arranged in or near its lower part. Above the said chamber of combustion is another or auxiliary chamber of combustion D, constructed in the form of an inverted truncated cone and furnished with air inlet pipes E, E, extending from it laterally and through the chamber B, and opening out of the case A, as shown in Fig. 2. The two chambers, B and D, are made to communicate with one another by holes or passages arranged as shown at F, in Fig. 2, and just above the lower part of the chamber D, in which is placed an air and gas burner G, surrounded by an air pipe H, which is arranged concentrically with, and projects downward to, or about to the level of the middle of the burners C, C.

The auxiliary chamber D is provided with an opening I, leading out of its top, such opening being covered by or leading into a reverberating dome K, arranged above the chamber D, and provided with discharge openings L, L, in its lower part. The said dome K is surrounded by a chamber M, formed by the case A, such chamber M being furnished with eduction openings N, N, arranged through its top.

Fig. 3 represents a horizontal section of

the stove taken just above the wire gauze cap *a* of the burner G.

When the said stove is in use, each of the burners C and G should be furnished with a gas pipe suitably arranged for the induction of gas into such burner. In the operation of this stove, when air and gas are inflamed on the caps of the burners C, C, the products or noxious vapors escaping unconsumed from them will mix with oxygen, and be more or less converted into carbonic oxid, such tending with the flame to heat the pipes E and the case of the chamber B, as well as that of the chamber D. On entering the said chamber D through the passages F, F, the volatile products of combustion are met by the oxygen or air supplied through the pipes E and H, the aerial currents passing through the pipes E, by being heated in their course through the same, blend more intimately with the noxious vapors than when at the ordinary atmospheric temperature. By being heated, these aerial currents convert the noxious vapors into a combustible gas or material, so that combustion of these noxious products can take place within the chamber D, when flame is applied to the burner G. Generally speaking, after the stove has been a short time in operation, and so as to become well heated, combustion of the noxious gases within the chamber D will take place with little or no aid from the burner G. The tube H surrounding the burner G serves not only to supply the flame of the said burner with an external current of heated air, but also to furnish the chamber D with heated oxygen. Should any portion of the noxious vapors pass unconsumed out of the discharging orifice I, it will be detained, re-mixed, and consumed in the reverberatory bell K, from whence it will pass out and escape into the atmosphere in a purified state.

From the above it will be seen that the principle on which this improvement stands is neither by throwing the products of the fire against heated metal, nor by bringing them in contact with a body of incandescent flame, but by getting up within an auxiliary or receiving chamber a necessary temperature and a combustible material, such being accomplished by the assistance of a well-regulated supply of heated oxygen, heating the air being necessary to the desired result.



If cold instead of heated air be supplied, the temperature within the receiving chamber will be so lessened that combustion cannot well proceed; or if a less quantity of oxygen  
5 be supplied than the products of the fire demand, it will be impossible to convert the carbonic acid, etc., into combustible material.

10 The escaping heated products, together with the heat absorbed by the casing A, may be used to advantage for heating an apartment and for such other purposes as circumstances may require.

I claim—

15 1. The combination of the main chamber of combustion B, its air and gas burner or burners C, and the auxiliary chamber of combustion D, made to communicate by one or more passages F, with the main  
20 chamber B, and having pipes E extending through the chamber B, and arranged so

that air, in passing through the said pipes, may be heated by the heated products in the chamber B, as specified.

2. I also claim the air and gas burner G 25 and supply pipe H, in combination with the main and auxiliary chambers of combustion B and D, made to communicate with each other, as specified.

3. I also claim the combination of the re- 30 verberating bell or dome K, with its auxiliary chamber D and the main chamber B, when furnished with burners and connected with one another and the external atmosphere, substantially as specified. 35

In testimony whereof, I have hereunto set my signature this 6th day of May, 1857.

THOMAS WATTERS.

Witnesses:

R. H. EDDY,  
F. P. HALE, Jr.