

F. WOODS.

Stove.

No. 39,088.

Patented June 30, 1863.

Fig. 2.

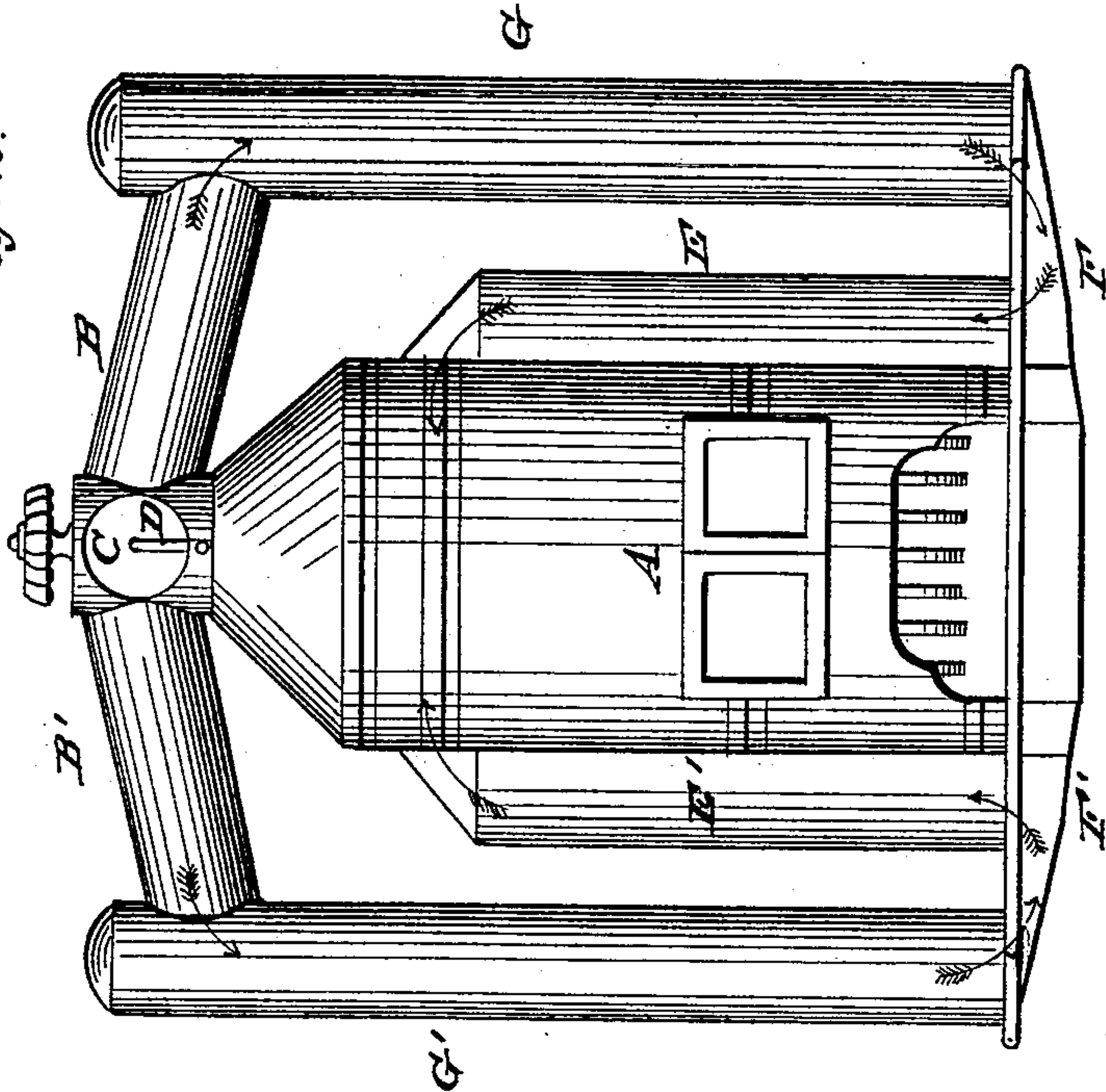


Fig. 1.

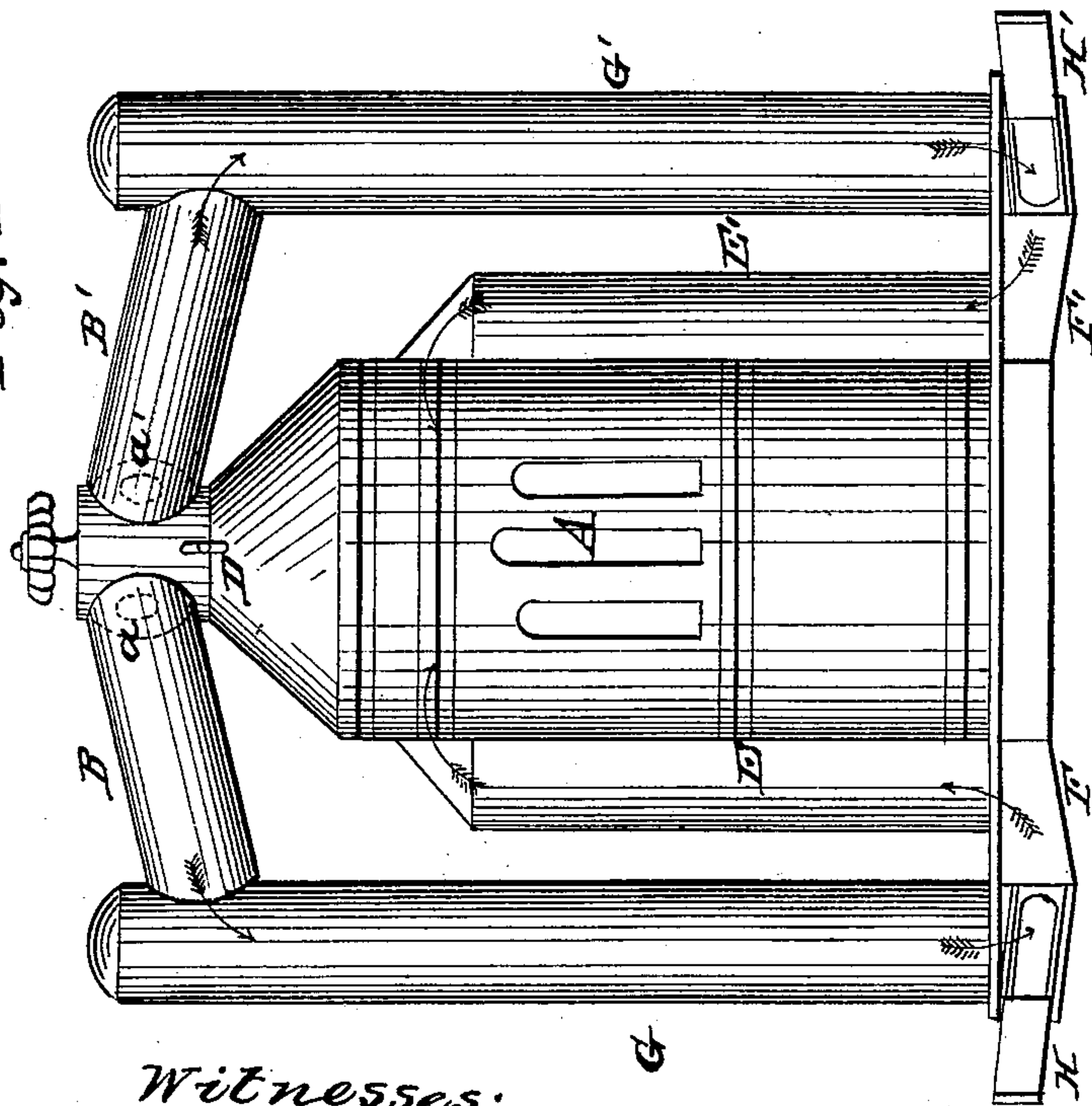


Fig. 4.

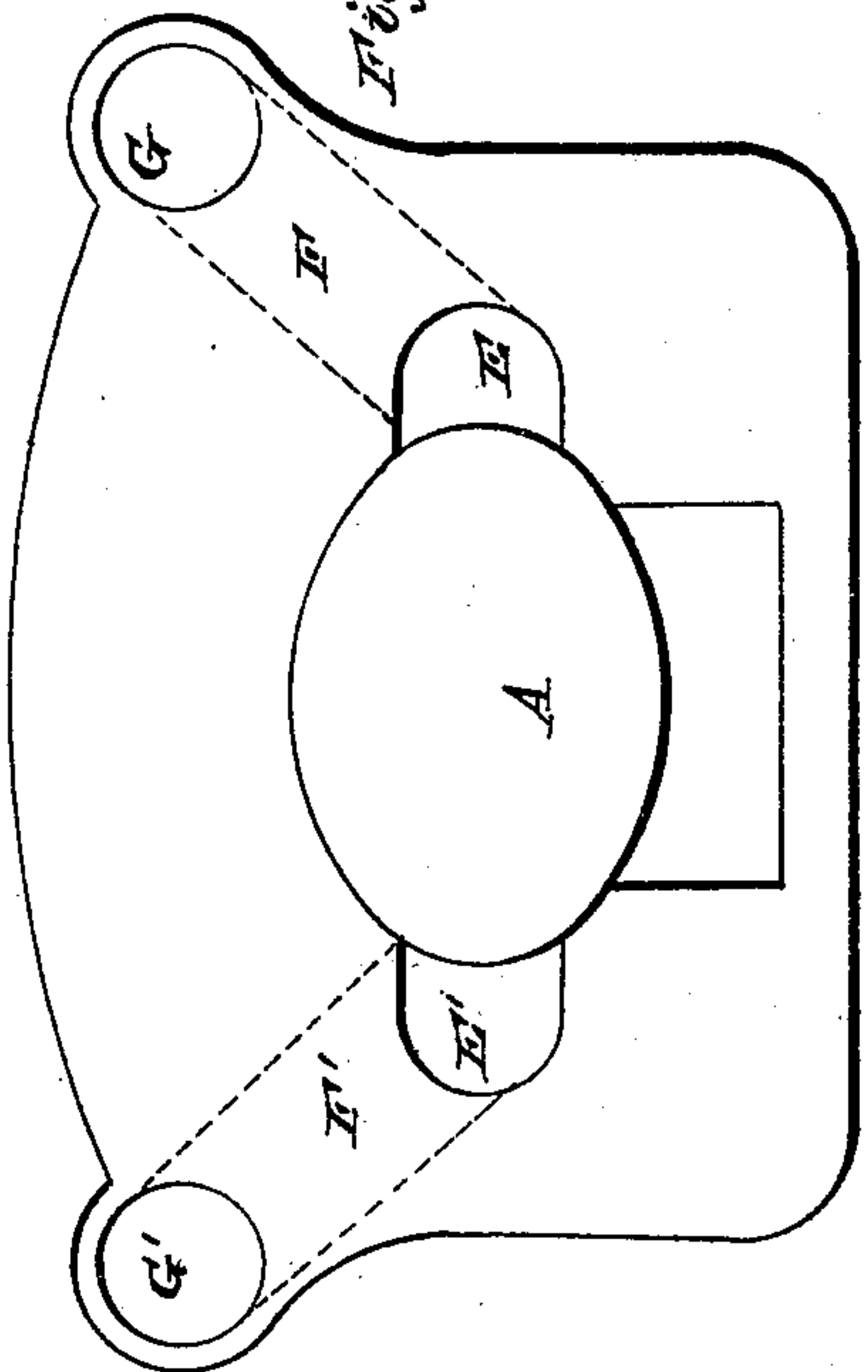
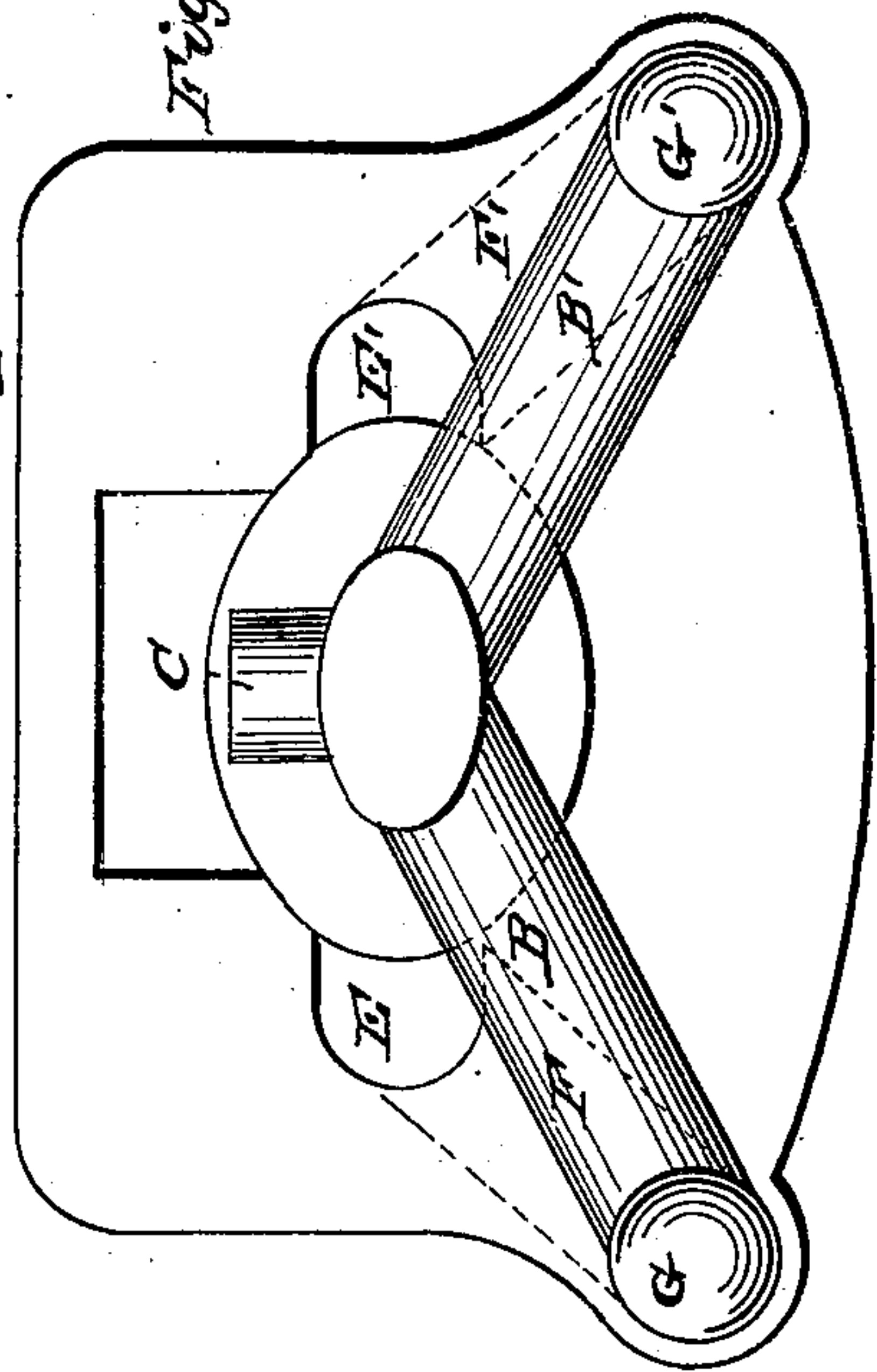


Fig. 3.



Witnesses:

Charles Smith
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per. Knight & Blossey.

UNITED STATES PATENT OFFICE.

FRANKLIN WOODS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. 39,088, dated June 30, 1863.

To all whom it may concern :

Be it known that I, FRANKLIN WOODS, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Heating-Stoves; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation. Fig. 2 is a rear elevation. Fig. 3 is a top view, and Fig. 4 is a cross-section, of Fig. 2.

The nature of my invention relates to an arrangement of pipes and flues whereby the heat of the fire chamber is caused to circulate exterior to said chamber, thereby giving much more heating-surface, while at the same time the draft of the stove is in no way impeded by these secondary currents of heated gas.

A represents the fire-chamber or body of the stove. This may be cylindrical, oval, or of any other desired form. Upon each side I attach a flue, E E', the body of the stove forming one side of each. These flues open into the fire chamber at the top, but have no connection with the fire-chamber at the bottom. The lower end of the flues E E' connect, respectively, with horizontal passages F F', either upon or below the hearth, and whose office will be hereinafter described.

C represents the pipe leading directly from the fire-chamber into the chimney, through which all the smoke and gas arising from the combustion finally passes off. The passage from the fire-chamber to this pipe is provided with a damper, D, simply to regulate the strength of the draft, and is a common device and may be placed either in the pipe C or below it. From each side of the pipe C, or from the upper portion of the fire-chamber, the pipes B B' lead off in a horizontal direction and connect with the pipes G and G', respectively. The pipes G and G', both for convenience, ornament, and utility, are placed upon or near the corners of the hearth of the stove. The lower end of these connect with the flues E and E', respectively, by means of the horizontal flues F F'. At the point of union of the pipes B B' with the pipe C the openings from C into B and B' are contracted to about half the diameter of the pipes B B', as shown

at a a' in Fig. 1. There is therefore a free communication from the upper portion of the fire-chamber or pipe C through the openings a a' into the pipes B B' G G' F F', and back into the fire-chamber through the flues E E'.

The outer ends of the flues F F' are provided with doors H, for the purpose of cleaning out the ashes, but these doors are kept closed when the stove is in operation. The flues and pipes may be increased in number, if desired, and arranged in any way to suit the fancy of the manufacturer.

The operation of this stove is as follows: A fire being built, of wood, hard or soft (bituminous) coal, the damper D being opened, a strong draft will be secured. By the radiation of heat through the walls of the fire-chamber the air in the flues E E' becomes heated and, as a matter of necessity, an upward current is produced in the flues E E'. These communicating only with the passages F and F' and through these to G and G', a downward current is produced through G and G', which in turn can only be supplied with heated air and gas from the upper portion of the fire-chamber through the openings a a' and pipes B B'. The openings a a' perform an important function in the circulation of the heated gases through the above-named pipes and flues. The area of the opening, it will be observed, is only about one-fourth of the area of the pipes B B', and consequently a partial vacuum is formed in the pipes G G' and B B' by the ascent of heated air in the pipes E E', resulting in a strong current of heated gas from the pipe C in the direction of the arrows. Thus a current of heated gas is established and kept up on one side through the pipes B, G, F, and E into the fire-chamber, and on the opposite side, through B', G', F', and E' into the fire-chamber, and this circulation of heated gas is wholly independent of the proper draft of the stove. In this way the heat is increased rather than diminished in the passage of the gas through the pipes and flues, and thus a more vigorous circulation is kept up. When the damper D is placed in the position shown in Fig. 2 and the combustion well established, all the openings into the chamber A above the grate being closed by closing the damper D, the flues E E' will act as diving-flues and thus keep up a

circulation of heat in the reverse direction; but this is not the primary action of the flues and pipes.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The pipes and flues B B', G G', F F', and E E', and openings *a a'*, in combination with the fire-chamber A, the several parts being

arranged and operating as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

FRANKLIN WOODS.

Witnesses:

GEO. H. KNIGHT,
A. C. REID.