

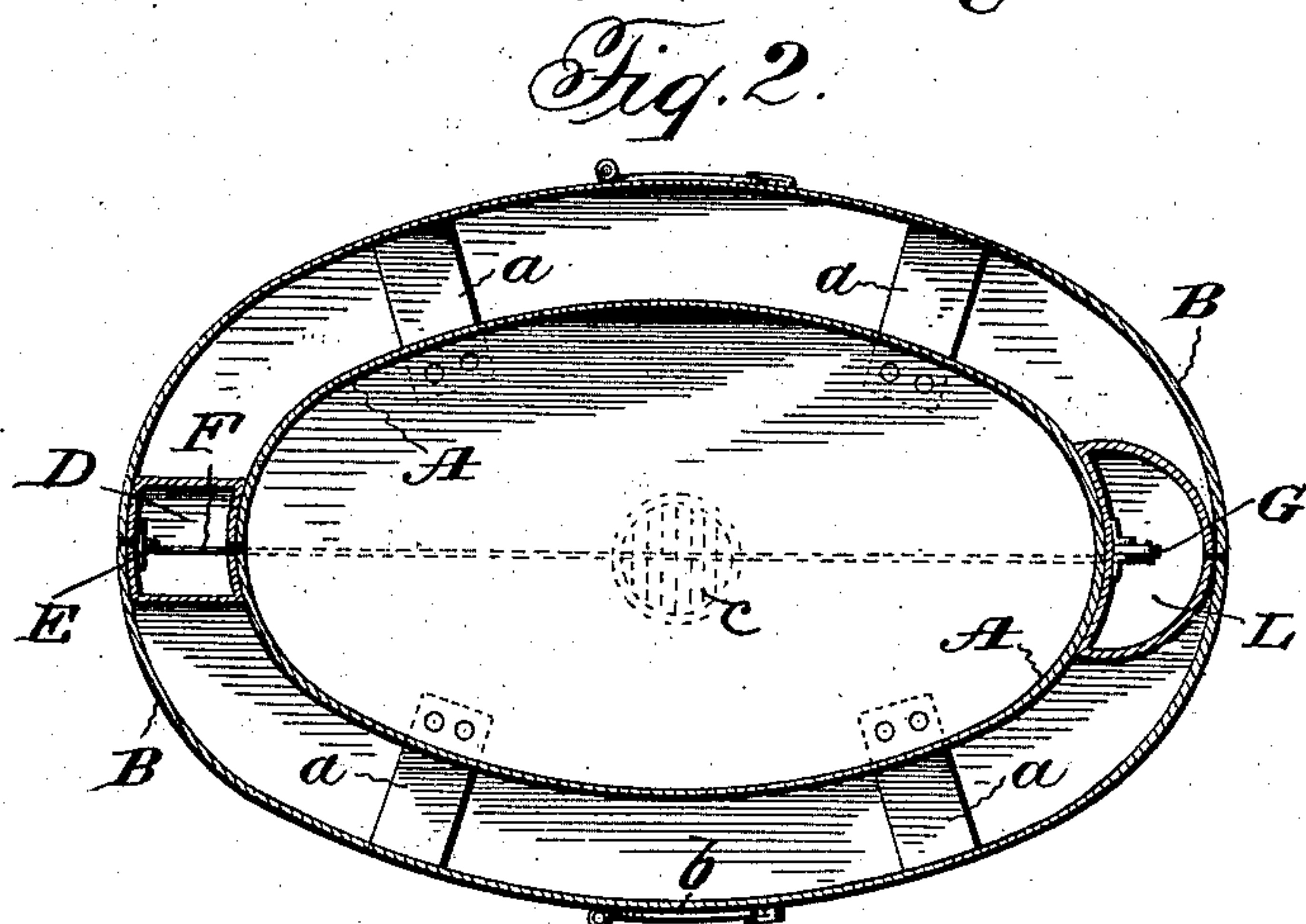
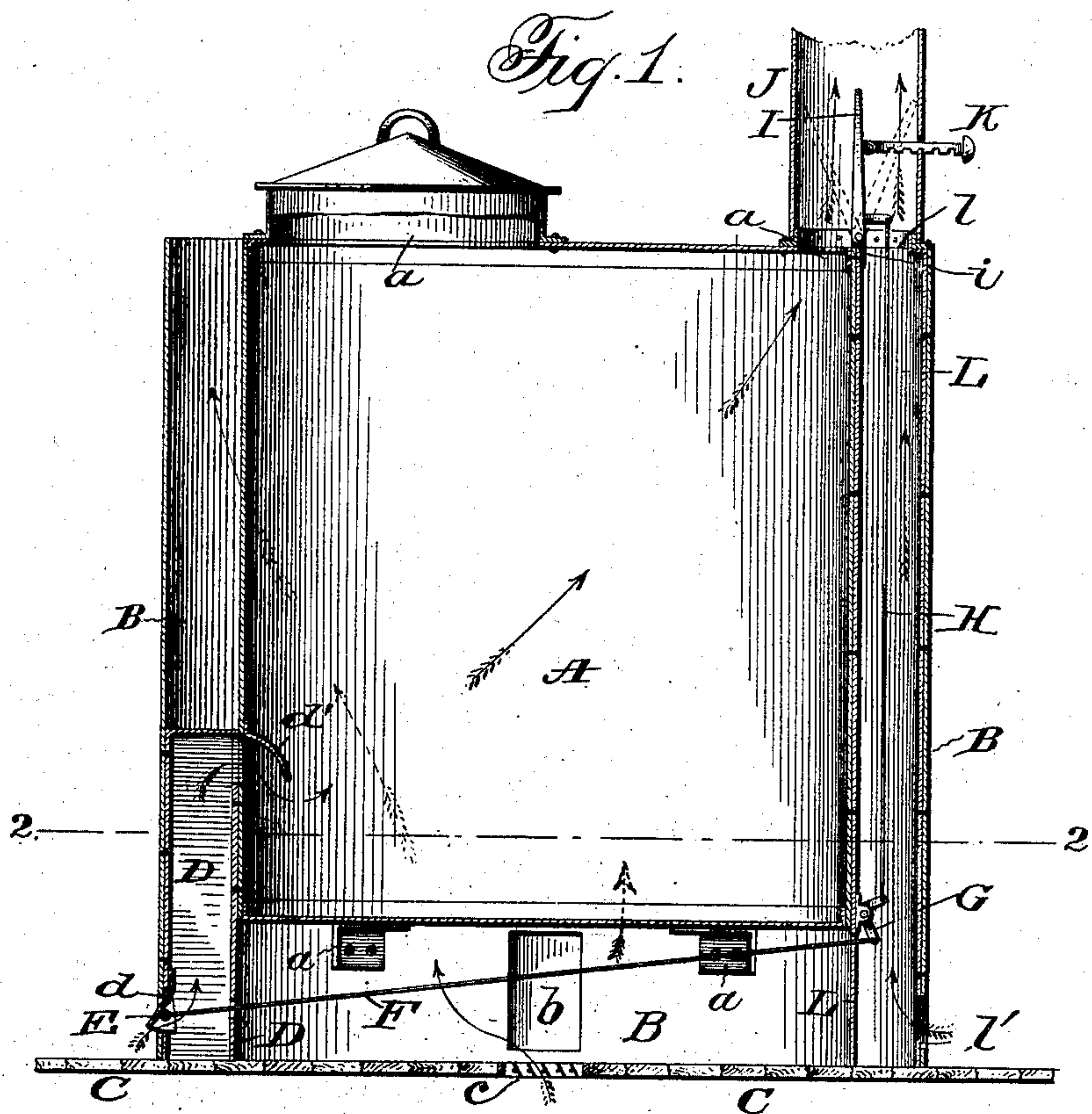
No. 717,290.

Patented Dec. 30, 1902.

F. R. SHAFER.
VENTILATING STOVE.

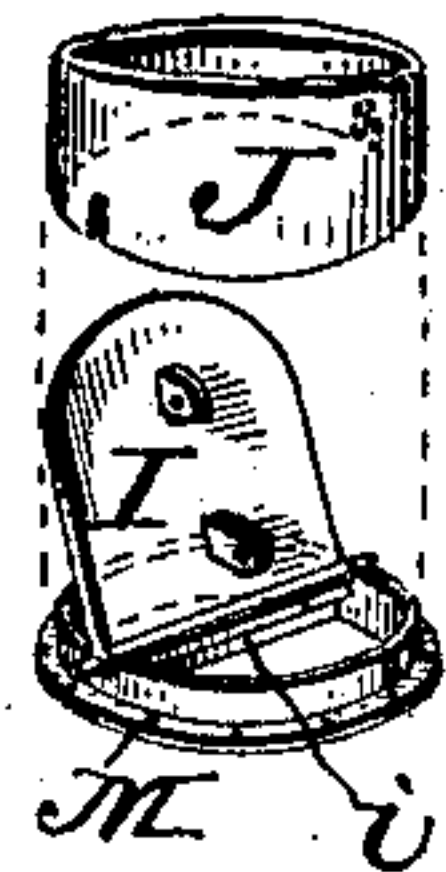
(Application filed Jan. 4, 1902.)

(No Model.)



WITNESSES:
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Fig. 3.



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FRUIT R. SHAFER, OF BURLINGTON, WASHINGTON.

VENTILATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 717,290, dated December 30, 1902.

Application filed January 4, 1902. Serial No. 88,475. (No model.)

To all whom it may concern:

Be it known that I, FRUIT R. SHAFER, a citizen of the United States, residing at Burlington, in the county of Skagit and State of Washington, have made certain Improvements in Stoves, of which the following is a specification.

My invention relates to sheet or cast iron stoves by means of which fresh cold air from outside of building to be heated and ventilated is made to pass between an inner heated stove and an outer jacket and discharged into room to be heated and ventilated and as such warm air cools and settles to the floor to be taken from the room by way of the stove-pipe.

The objects of my invention are attained by the mechanism illustrated in the accompanying diagrams or drawings, in which—

Figure 1 is a vertical section of entire appliance, showing direction of air-currents. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a perspective view illustrating the stovepipe-damper and the collar to which it is attached.

A indicates a combustion-chamber or stove proper, and B a surrounding jacket, the two being oval in cross-section and separated from each other by a narrow space. The bottom of the stove or combustion-chamber A is closed and is separated from the floor C by considerable space, as shown in Fig. 1. The jacket or casing B rests directly upon the floor, not being provided with a bottom. On the front side, between the chamber A and jacket B, there is arranged an air-pipe D, the same extending to the floor and being riveted to both parts A and B, so that it serves a partial support for A. This pipe D is provided with an air-inlet d on the outer side adjacent to the floor C and with an air-inlet d' on the inner side adjacent to its upper end. Thus air may pass through d into D and escape through the opening d' into the chamber A for the purpose of supporting combustion therein. Inlet of air at a is governed by a valve E, which consists of a plate having parallel side wings of triangular form. The said valve is hinged at its upper edge and swings in the opening d . It is connected, by means of a rod F, with an elbow-lever G, which is pivoted at the lower right-hand corner of the combustion-

chamber A. From such lever G a rod H extends to and is pivotally connected with a damper I, arranged in the stovepipe J. The latter is located upon the chamber A and casing B in such position that one half of its diameter projects over the chamber A and the other half over the space between such chamber and the jacket B. The lower end of the stovepipe J is open to both said chamber and space. Thus the products of combustion may escape at the opening a' into the stovepipe J. The damper I is adjusted by means of a rack-bar K, which projects through an opening in the stovepipe and is provided with a knob or handle for convenience of manipulation. On the rear side of the stove—to wit, diametrically opposite the air-inlet pipe D—is arranged another pipe L, the same extending from the floor C to the top of the stove, where it communicates with the stovepipe J by means of an opening l . As in the case of the air-inlet pipe D, this air-draft pipe L is riveted to both the stove proper, A, and the jacket B, so that it likewise serves as a means of support for the chamber A. The latter may be further supported by means of brackets a , arranged as shown. The air-draft pipe L is provided near its lower end on the outer side with an opening l' . As shown in Fig. 1, the flue-damper I is hinged at its lower edge upon a bar i , (see Fig. 3,) which traverses the circular collar M. The latter is provided with a horizontal flange and supports the stovepipe J over the chamber A and jacket B. The lower end of the stovepipe J is in practice provided with slots (see Fig. 3) which receive the pintles or pivots of the damper I. It will be understood that the aforesaid bar i is arranged diametrically in the collar M, and in practice it is grooved on the upper edge to accommodate the lower end of the damper I.

From the foregoing description of construction and arrangement of parts the operation will be readily understood. When the damper I is arranged vertically, the air-valve E is open, and air passes, as shown by the arrows, into the stove or combustion-chamber A, and the gases or lighter products of combustion escape into the stovepipe J through the opening a . If, on the other hand, the damper I be thrown to the left, as shown by dotted lines, Fig. 1, it will practically close

the opening *a*, and the valve E will also be swung into closed position through the medium of the rods FH and elbow-lever G. Contrariwise, if the damper I be adjusted to the right the opening *a* will be left open, and the valve E will also be open, while the draft of air through the openings *l l'* of pipe L will be cut off. It is thus apparent that the adjustment of the damper I involves a corresponding adjustment of the air-valve E. The latter is provided with the side wings before referred to for the purpose of cutting off side draft and more effectively controlling the inlet of air. It will be further seen that the air for supporting combustion in the chamber A is taken at the lowest point adjacent to the floor C, and, similarly, the air which enters the draft-pipe L is taken at the lowest point. Thus, unlike most stoves, the air which is coolest and also foulest is removed from the apartment in which the stove is located. It will be understood that the heat received from the combustion-chamber A will cause an upward current in the draft-pipe L, even independently of the natural draft existing in the stovepipe J. By the simple adjustment of the damper I, whose upper end is so constructed as to fit against the stovepipe when thrown to the right or left, not only combustion but the removal of cool air from the space next the floor may be regulated at will. In practice the loss of heat by radiation to the ventilating or draft pipe L is compensated for by the volume of cool air drawn off for combustion.

In the floor C is arranged an opening having a draft-regulator *c*, whereby provision is made for the entrance of pure air from the outside of the building. Such air passes upward into contact with the bottom of the combustion-chamber A and around the sides of the same and escapes into the apartment between the parts A and B, as indicated by arrows in Fig. 1. Thus fresh but warm air may be admitted to the apartment by controlling the regulator *c*. For the latter purpose access may be had to the regulator through doors *b*, provided in the jacket B.

Fuel may be placed in the stove through a covered opening at *a'*.

My improved stove forms a very efficient and cheap substitute for certain air-heating furnaces.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The improved ventilating-stove comprising the combustion-chamber A, a surrounding jacket B which is separated therefrom by a narrow space, an air-inlet pipe arranged between the two on one side, and an air-draft pipe arranged on the opposite side; a valve controlling the air-inlet; a damper controlling the exit of products of combustion and

the air-draft at the top of the stove, and rods and an elbow-lever connecting such valve and damper whereby they are operated together in the manner shown and described.

2. An improved ventilating-stove comprising a combustion-chamber, a surrounding jacket which is separated therefrom, the said chamber being provided with a bottom and made of less length than the jacket so that a space is provided below the same; an air-inlet pipe arranged on one side of the stove, and provided with an opening at bottom and top on the front and rear sides respectively; an air-valve arranged in the lower opening, a draft-pipe arranged on the side of the stove opposite the air-inlet pipe and extending to the floor where it is provided with an opening; a stovepipe set upon the stove and communicating with the combustion-chamber and air-draft pipe; a damper arranged in said stovepipe and pivoted at the junction of the combustion-chamber and air-draft pipe; and means for connecting with the air-inlet valve so that both are operated together, or correspondingly, substantially as shown and described.

3. A ventilating-stove comprising a combustion-chamber having openings for admission of air and escape of products of combustion at practically diametrically opposite points; a jacket surrounding such chamber and spaced therefrom, the chamber being raised above the floor upon which the jacket rests; an air-inlet pipe and a draft-pipe arranged diametrically opposite in the space between the combustion-chamber and jacket, and riveted to both so that they form supports for the stove within the jacket, substantially as shown and described.

4. The combination, with a combustion-chamber, having an opening at the top for exit of products of combustion, and a draft-pipe arranged at the rear of the stove with its upper end opening adjacent to said opening for products of combustion, and provided near its lower end with an air-inlet, and a damper pivoted at the top of the stove between the two adjacent openings of the combustion-chamber and draft-pipe and adapted for adjustment to one side or the other so as to control combustion and air-draft, substantially as shown and described.

5. The combination, with a combustion-chamber, and an air-draft pipe having openings which are adjacent, of a circular collar surrounding said openings, a flue-damper pivoted diametrically in said collar and adapted to swing right or left, and a stovepipe set upon the said collar and receiving the damper in the manner shown and described.

F. R. SHAFER.

Witnesses:

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