

(No Model.)

W. W. KELSEY.
HOT AIR FURNACE.

No. 476,230.

Patented May 31, 1892.

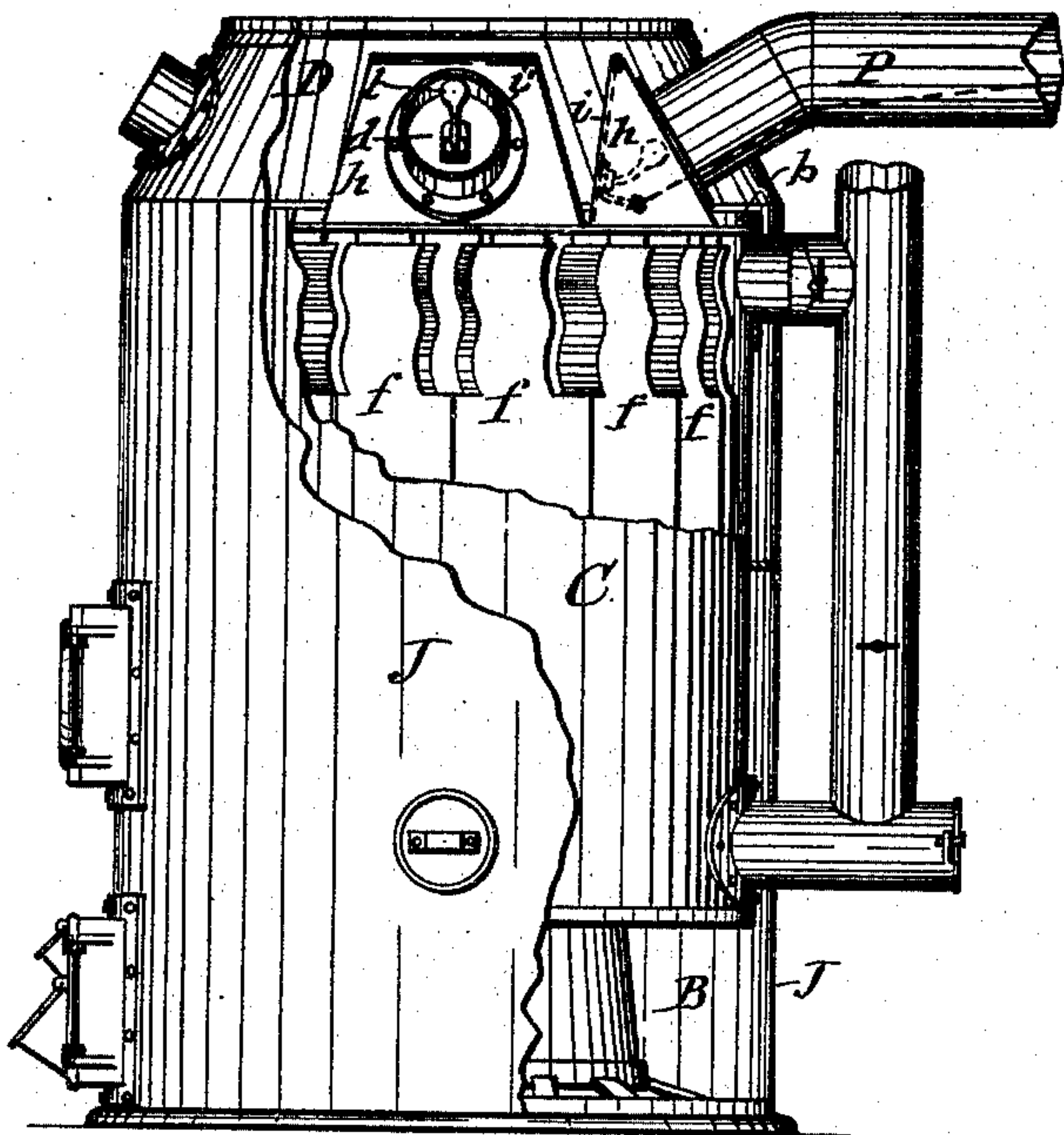


Fig. 1

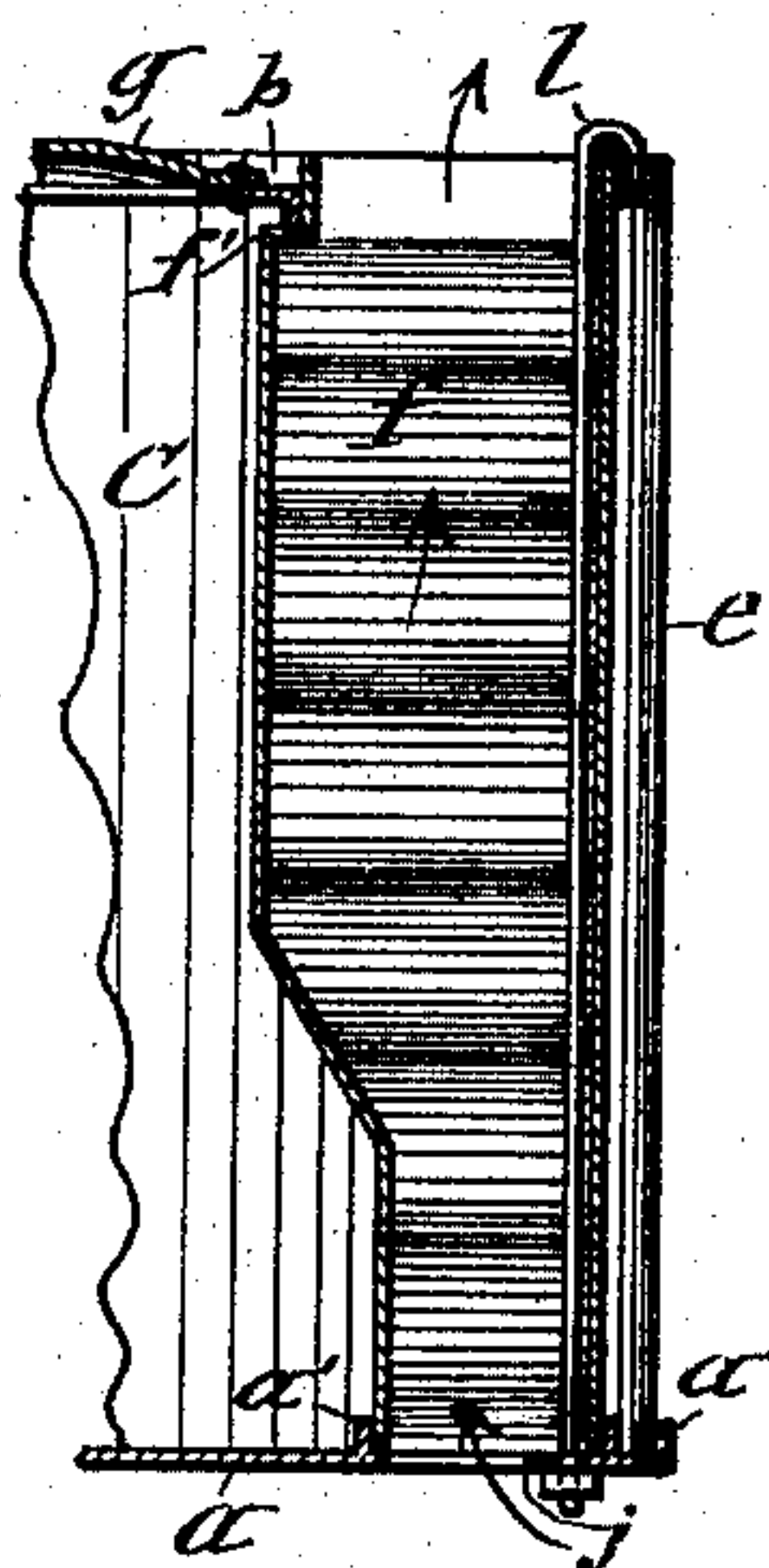


Fig. 2

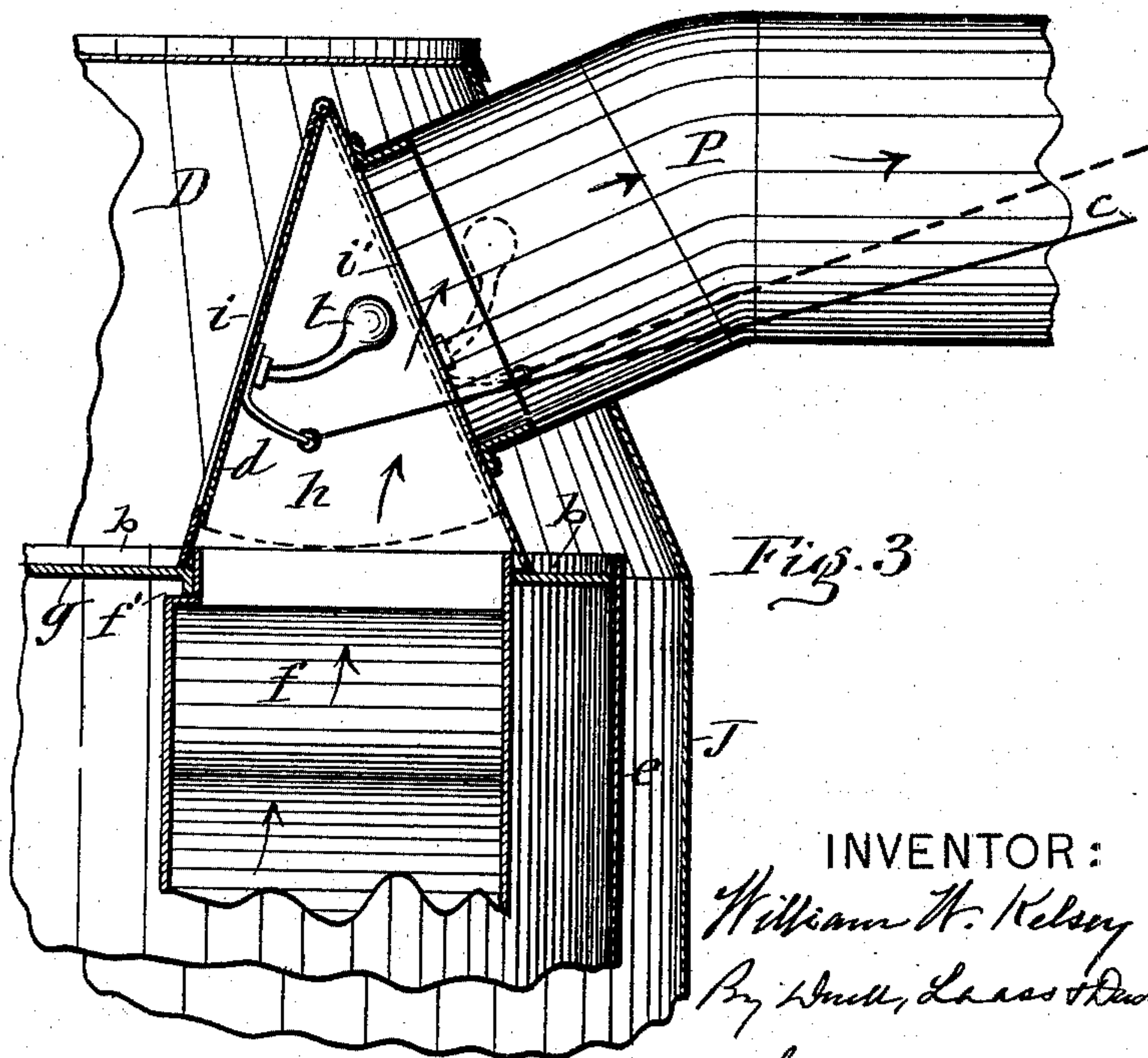


Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM W. KELSEY, OF CORTLAND, NEW YORK, ASSIGNOR TO THE KELSEY FURNACE COMPANY.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 476,230, dated May 31, 1892.

Application filed January 6, 1892. Serial No. 417,171. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. KELSEY, of Cortland, in the county of Cortland, in the State of New York, have invented new and useful Improvements in Hot-Air Furnaces, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists, chiefly, in improved means for obtaining a direct hot-air passage from the hot-air flue of the furnace to the apartment of the building to be heated and in which a single damper is adapted to divert the hot air from the direct passage to the common circulation and arranged to be adjusted from the aforesaid apartment of the building; and the invention also consists in an improved construction of the combustion-chamber, having air-flues extending vertically through it and tie-rods extending longitudinally through said flues and tying thereto the bottom plate and crown-sheet of the combustion-chamber, said arrangement protecting the tie-rods from soot and rust and obviating obstructions in cleaning the interior of the combustion-chamber, all as hereinafter more fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is partly a side elevation and partly a sectional view of a hot-air furnace embodying my improvements. Fig. 2 is a vertical transverse section of one side of the combustion-chamber, and Fig. 3 is an enlarged sectional view of the direct hot-air passage and its damper.

Similar letters of reference indicate corresponding parts.

C represents the combustion-chamber of a hot-air furnace, and J denotes the usual jacket which incloses the combustion-chamber and forms at the bottom and top thereof, respectively, the cold-air chamber B and dome D. The air to be heated is admitted in the the said cold-air chamber in the usual and well-known manner and ascends through the vertical flues *ff* to the dome D, and in said passage the air becomes heated by contact with the heated flues and walls of the combustion-chamber.

The combustion-chamber is composed of the bottom plate *a*, provided with apertures,

from which extend the flues *ff*, which are mounted on said bottom plate and held in place by flanges *a'a'* on the plate and embracing the bases of the flues, as shown in Fig. 2 of the drawings. Upon the bottom plate is seated the shell *e*, which is likewise held in place by a circumferential flange *a'* on said plate. The flues *ff* are formed with shoulders *f'* a short distance from the upper ends thereof, and upon said shoulders rests the crown-sheet *g*, which is also provided with openings, through which the upper ends of the flues *ff* protrude. Said flues extend above the crown-sheet and terminate within the dome D, and the shell *e* also extends above the crown-sheet, and thereby forms upon the top of the combustion-chamber a bed *b* for sand, which serves to pack all the joints on the crown-sheet. The bottom plate *a* and crown-sheet *g* are tied to the air-flues *ff* by means of rods *l*, which extend longitudinally through the interior of the air-flues and pass with their lower ends through ears *j* on the bottom plate and are provided with nuts under said ears, as shown in Fig. 2 of the drawings. The upper ends of the rods are bent outward and made to bear on the crown-sheet. Said rods are thus protected from soot and rust and obviate obstructions in cleaning the interior of the combustion-chamber.

Within the dome D and directly over the end or ends of one or more flues *f* I place the hood *h*, which is seated in the sand-bed surrounding the protruding end of the flue. This hood is formed with two of its opposite sides inclining with their tops toward each other, and in each of said sides is a port *i'i'*. From the port *i'* extends the hot-air pipe P, which conducts the hot air to the apartment to be heated. To the top of the interior of the hood is hinged a pendent damper *d*, which is adapted to be swung to either of the aforesaid inclined sides of the hood, and thus close either of the ports *i i'* and simultaneously open the other of said ports. To this damper I attach a weight *t*, which causes the damper to automatically close the port *i*, and in order to allow the damper to be swung to the opposite side of the hood, and thus close the port *i'* when desired, I attach to said damper a wire or chain *c*, which extends along the interior of the pipe

P and to the apartment with which said pipe communicates, thereby allowing the occupant of said apartment to adjust the damper. When the damper is in its normal position, the port *i* is closed and the other port *i'* is open, and therefore the hot air passes from the flue or flues *f* directly through the pipe *P* to the apartment to be heated. By drawing up the wire or chain *c* the damper *d* is caused to open the port *i* and close the port *i'*, and this precludes the hot air from the pipe *P* and compels said air to enter the dome *D*, where it combines with the general distribution of the hot air.

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

1. The combination, with the hot-air dome *D* and air-flues terminating in said dome, of a hood placed over the upper end or ends of one or more of said air-flues to receive the air therefrom and provided with two ports, one of which communicates with the interior of the dome, a hot-air pipe extending from the other port of the hood to the apartment to be heated, and a damper in the hood, adapted to close either of the ports thereof and simultaneously open the other of said ports, as set forth.

2. The combination, with the combustion-chamber *C*, jacket *J*, forming the cold-air chamber *B*, and dome *D*, of the air-flues *f f*, extending from said cold-air chamber through the combustion-chamber and terminating in the dome, the hood *h*, placed over the upper end or ends of one or more said air-flues and provided with the ports *i i'*, the hot-air pipe *P*, extending from the port *i'*, and the damper *d*, arranged in the hood and movable from one port to the other thereof, as set forth and shown.

3. In combination with the dome *D* and

air-flues *f*, terminating in said dome, the hood *h*, provided with ports *i i'*, the hot-air pipe *P*, extended from the port *i'*, the damper *d*, suspended from the top of the interior of the hood and movable from port to port, the weight *t*, attached to the damper to automatically close the port *i*, and the wire or chain *c*, connected to the damper and extended through the pipe *P*, substantially as and for the purpose set forth.

4. The combination of the combustion-chamber *C*, having the sand-bed *b*, formed by the vertical wall of said combustion-chamber, extending above the crown-sheet thereof, and the air-flues *f f*, extending through said crown-sheet and terminated above the same, the jacket *J*, formed with the dome *D*, the hood *h*, placed over the protruding end or ends of one or more of the aforesaid flues and seated in the aforesaid sand-bed and provided with ports *i i'*, the damper *d*, arranged in the hood movably from port to port, and the pipe *P*, extending from one of said ports, substantially as described and shown.

5. The combustion-chamber *C*, composed of the bottom plate *a*, provided with the flanges *a' a'* and apertures, the shell *e*, and flues *f f*, seated on said bottom plate, said flues being formed with the shoulders *f'*, the crown-sheet *g*, resting on said shoulders, and the rods *l*, extending through the aforesaid flues and tying thereto the aforesaid bottom plate and crown-sheet, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 31st day of December, 1891.

WILLIAM W. KELSEY. [L. S.]

Witnesses:

H. M. SEAMANS,
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