No. 876,873. PATENTED JAN. 14, 1908.

E. O. HASKINS.

HOOD FOR HOT AIR FURNACES.

APPLICATION FILED AUG. 21, 1906.

Fig. 1.

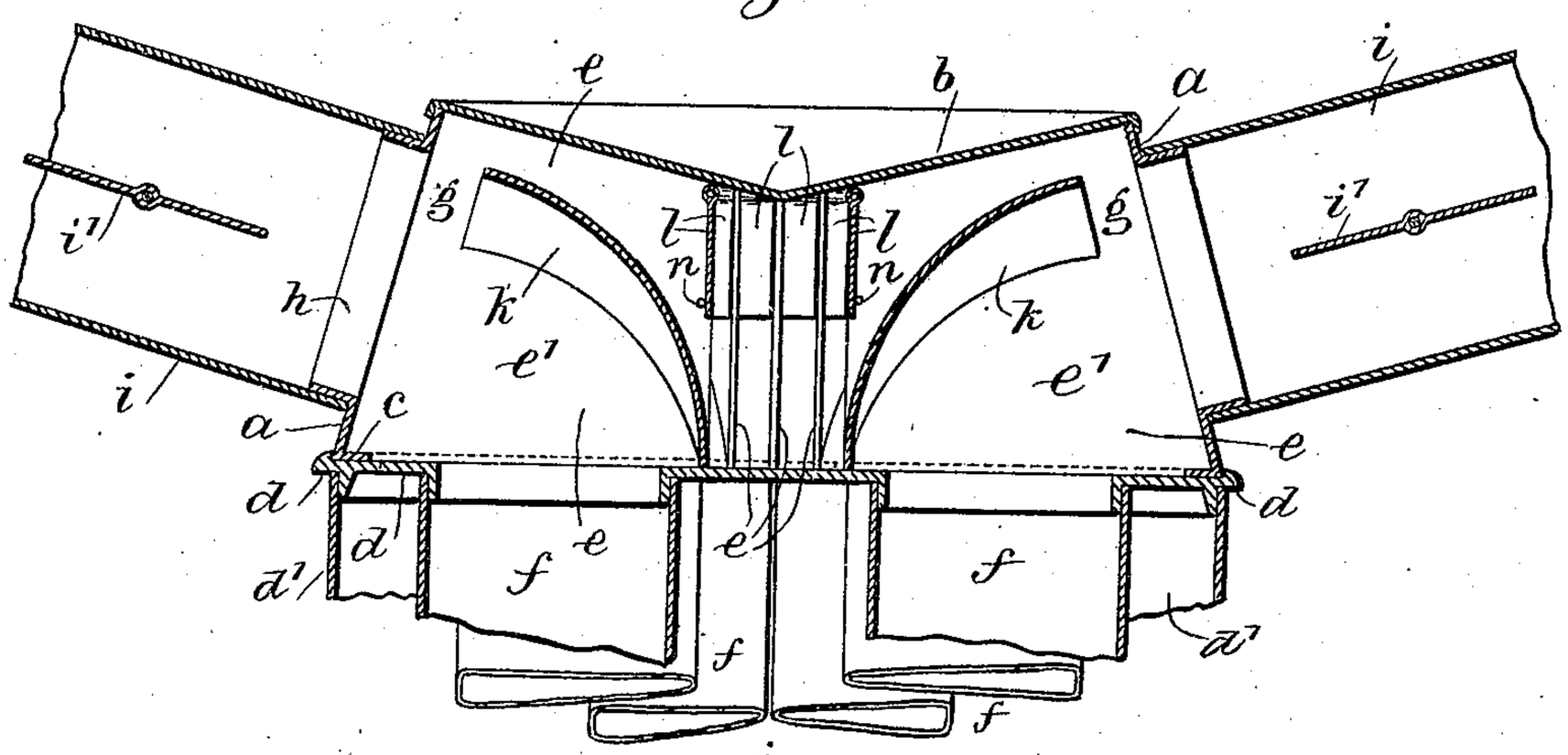


Fig. 2.

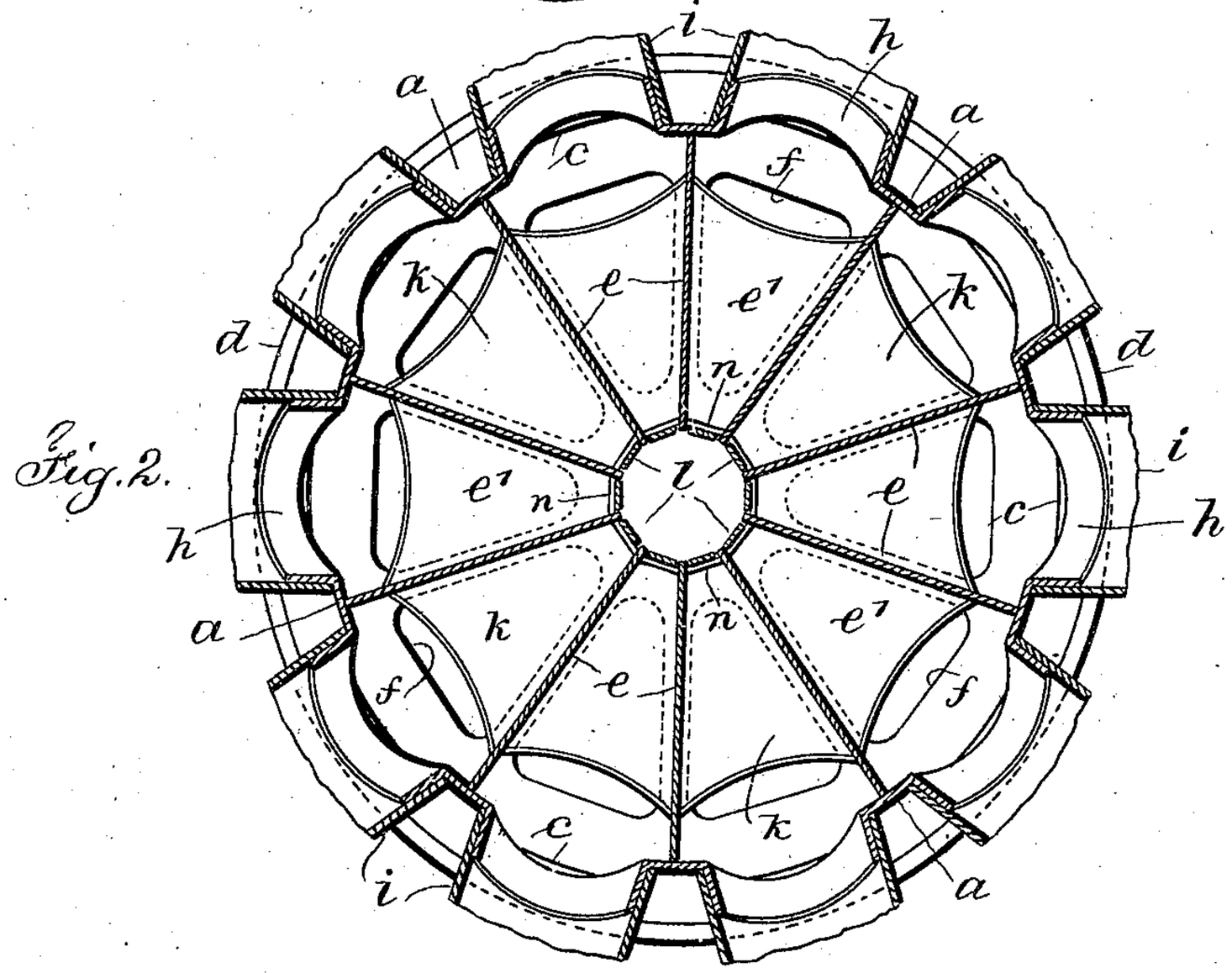
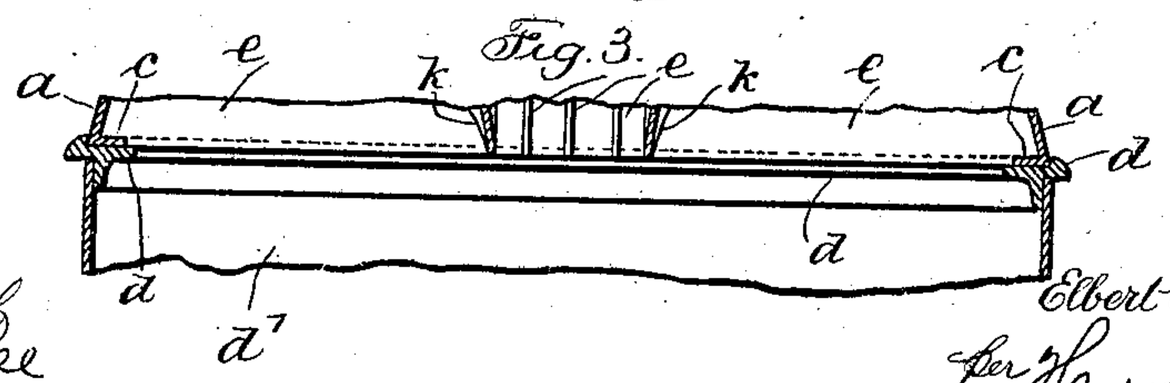


Fig. 3.



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UNITED STATES PATENT OFFICE.

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HOOD FOR HOT-AIR FURNACES.

No. 876,873. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed August 21, 1906. Serial No. 331,437.

To all whom it may concern:

Be it known that I, ELBERT O. HASKINS, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented an Improvement in Hoods for Hot-Air Furnaces, of which the following is a specification.

My present invention relates to hoods for hot air furnaces.

Heretofore hoods for furnaces of the hot air class have commonly been made of a one compartment casing or shell and adapted to be placed over the top of the fire dome and at the top of the furnace, the air supply passing from beneath, around the fire pot and dome and to the hood, from which the heated air has been distributed by means of pipes leading from the sides or top of the hood to the various rooms or apartments to be heated. In a given hot air heating system, the pipes for conveying the heated air are necessarily of different lengths and rise to different heights, depending upon the situation of the room or apartment in the building to which each pipe leads and as will be readily understood, the greater the rise of a pipe of given horizontal length, the greater will be the draft created therein and this is so to such an extent that in the use of a one compartment hood, the drafts in the longer vertical pipes are often sufficient to create back drafts or counter currents in the shorter pipes,—resulting in rendering the said shorter pipes ineffective if not practically useless. Hot air furnaces have also been constructed in which the air supply to each leader pipe is independent of that to the others, each individual leader pipe being carried through the hood of the furnace, down over and alongside of the fire pot and terminated below the same and at a point immediately above the fresh air inlet or supply chamber. Practice has demonstrated however that in these continuous pipe systems, the shutting off of any given leader pipe causes an over-supply of air to all the other leader pipes with the result that the then working portion of any given system cannot take care of this over-supply and the air is not heated to the desired degree and the pipe closed off is liable to be burned by the over-heating, all of which difficulties it is the object of my invention to overcome.

In carrying out my invention, I employ a hood comprising a metal shell, a series of radially disposed vertical partitions dividing the said shell interiorly into a number or series of compartments to each of which an intake pipe leading from the fresh air supply well beneath the furnace may be connected and from which distributing pipes pass to the rooms or apartments to be heated;—each of said compartments is provided with means for deflecting and directing the air received from below into the distributing pipe in passing through the compartment and means for permitting a continuation of the normal circulation of air through any compartment and its utilization by the other distributing pipes when the corresponding distributing pipe has been shut off, as will hereinafter be more particularly described.

In the drawing, Figure 1 is a vertical central section illustrating my improved hood for hot air furnaces and Fig. 2 is a sectional plan of the same, in both of which figures intake pipes are shown, and Fig. 3 is a vertical central section through the lower part of the hood and upper part of the furnace casing without any intake pipes.

According to my present invention, I employ a hood preferably made of sheet metal and in the form of a truncated cone, which comprises an inclined side member *a*, a cover *b* dishing substantially as shown, and an annular flange *c* at the base adapted to rest on and be secured to the top ring *d* of the casing d^1 of the furnace or to be supported in any other manner known in the art. Within this hood I employ a series of vertical partitions indicated at *e* preferably placed in suitably spaced apart and radial positions, thereby dividing the interior of the hood into a number or series of compartments e^1 of predetermined size.

f designates the intake pipes of which in a given furnace a number may be employed agreeing substantially with the number of compartments into which the hood is divided. Each of these intake pipes *f* is carried down over the top of the dome and alongside the fire pot to a point beneath the latter and into a supply chamber or fresh air well below the furnace. As will be readily understood, these pipes are to be suitably supported in any convenient manner, the essential feature in regard to the same in the present invention being that the upper orifice of each of these pipes shall communicate directly with one of the said compartments in the hood.

Exteriorly the side member *a* of the hood is provided in predetermined spaced apart positions with circular flanges *h* or other connections, each adapted to receive and to be connected to a discharge pipe *i* leading from one of the said compartments e^1 of the hood, and such pipe *i* is advantageously provided with a damper i^1.

The radial partitions *e* preferably extend from the side member *a* to points appreciably and equally distant from the center of the hood, thereby forming a central chamber by means of which communication between any compartment and any or all of the other compartments is provided.

Within each compartment e^1 and extending from the lower and inner edges of the partitions *e* forming the same, I employ a deflector *k*. Each of these deflectors is so shaped as to divert the path of the heated air from the outlet orifice of an intake pipe to the inlet orifice of a distributing pipe and moreover each deflector is of such an extent that its upper edge is appreciably distant from the adjacent portion of the side member *a* of the hood, leaving a space indicated at *g*, see Fig. 1, between the same, whereby means of communication are provided between that portion of each compartment e^1 below its deflector and the other portion thereof above the deflector. I prefer to make these deflectors *k* curved in transverse section so as to substantially comprise the upper segment of a curved pipe.

From the foregoing description, it will be understood that when heated air is being distributed by all the pipes *i*, that each and every pipe *i* is substantially independent of each of the other pipes *i* because of the radial partitions *e* and moreover in case any one or more of these pipes *i* should be wholly or partially shut off, the circulation of the air through the hood supplying the same will not also be shut off, but will continue to circulate through the corresponding compartment beneath the deflector therein, through the space indicated at *g* into that portion of the compartment of the hood above the deflector whence the heated air will be distributed to all of the unclosed distributing pipes *i* which are then in service in proportion to their area passing to the same by way of the spaces above the deflectors in their respective compartments and through the spaces *g*.

As is also shown in the drawing, I may employ a series of vertical gravity dampers, each of which is indicated at *l*. Each damper *l* is preferably pivotally mounted at its upper edge adjacent to the dishing cover *b* of the hood and extends from the same down the inner edges of the partitions *e* forming the compartments e^1 to a point appreciably distant from the deflectors *k*, each compartment e^1 being thereby provided with a damper *l* which swings in opening toward the vertical center of the furnace and is prevented from opening into the compartment by means of a pin *n* suitably placed back of the damper and secured in the partitions *e* or otherwise.

I do not herein limit myself to the employment of the pivoted dampers *l* or in fact to the use of any dampers; nor do I limit myself to the employment in connection with my improved radially divided hood of the rising intake pipes *f*, as the latter may be dispensed with, or in other words, my improved form of hood may be employed on a furnace having an open air chamber around the fire pot and dome, see Fig. 3, for the reason that in such use the rising hot air is pocketed the moment it gets into the radially constructed compartments and is thus compelled to enter the appropriate and continuing distributer pipes *i* extending therefrom. I further do not limit myself to making the deflectors curved as described, as the same may be made flat, without departing from the spirit of my invention.

I claim as my invention:

1. A hood for hot air furnaces comprising a shell, a series of partitions dividing said shell interiorly into a number of compartments, such compartments being in communication with one another and each adapted in its lower portion to receive the rising heated air from around the furnace, a connection for an outlet distributing pipe from each of the said compartments, and means in each of the said compartments for deflecting the heated air from the intake pipe through its compartment and into the corresponding outlet distributing pipe.

2. A hood for hot air furnaces comprising a shell, a series of partitions dividing said shell interiorly into a number of compartments, such compartments being in communication with one another and each adapted in its lower portion to receive the rising heated air from around the furnace, a connection for an outlet distributing pipe from each of the said compartments, means in each of the said compartments for deflecting the heated air from the intake pipe through its compartment and into the corresponding outlet distributing pipe and a damper in each outlet distributing pipe.

3. A hood for hot air furnaces comprising a shell, a series of partitions dividing said shell interiorly into a plurality of communicating compartments each adapted in its lower portion to receive an air inlet pipe, an outlet distributing pipe from each of the said compartments and a closing means therefor whereby the normal circulation of heated air is continued through the said compartments when any outlet distributing pipe therefrom is shut off.

4. A hood for hot air furnaces, comprising a hollow shell in the form of a truncated cone,

a series of vertical radially placed partitions extending from the outer member of the said shell to points equally distant from the center thereof, thereby dividing the said shell interiorly into a number of compartments, each adapted in its lower portion to receive an inlet pipe, a connection for an outlet distributing pipe from each of said compartments, a series of deflectors, one for each compartment, each deflector extending from the inner edges of the said partitions to a point adjacent to the connection for the said outlet distributing pipe, and a series of dampers pivotally mounted to operate automatically at the inner edges of the said partitions.

5. A hood for hot air furnaces, comprising a shell, a series of vertical radially placed partitions extending the depth of the hood and from the outer member of the said shell to points equally distant from the center thereof, thereby dividing the said shell interiorly into a central compartment and a number of independent compartments communicating therewith each adapted in its lower portion to receive the heated air from around the furnace and a connection for an outlet distributing pipe from each of the said compartments.

6. A hood for hot air furnaces, comprising a hollow shell in the form of a truncated cone, having a dishing top, a series of vertical radially placed partitions stopping an appreciable distance from the center of the hood forming a series of inter-communicating compartments and a series of deflectors between said partitions, the lower portion of the hood being open.

Signed by me this 16th day of August, 1906.

E. O. HASKINS.

Witnesses:

GEO. T. PINCKNEY,

ELIZABETH ZACHARIASEN.