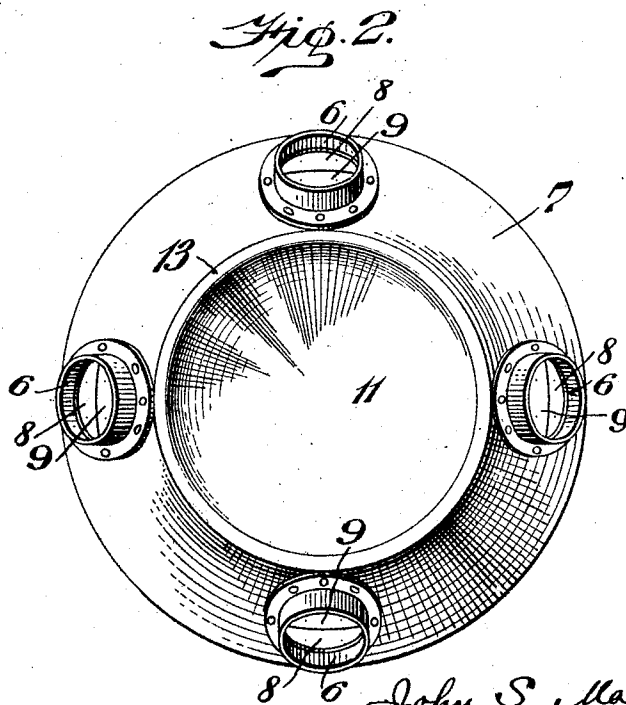
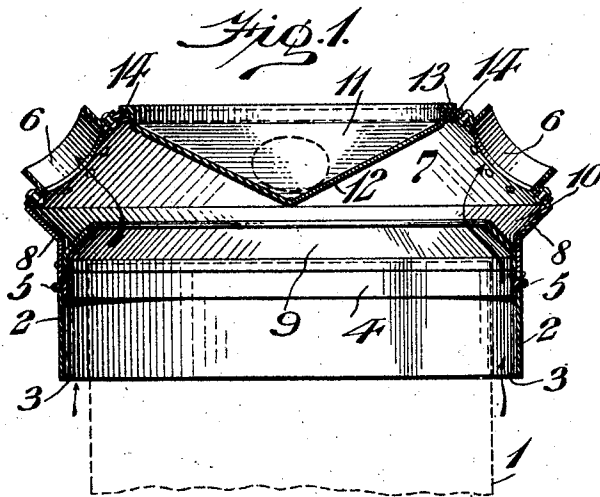


J. S. MAKIN & H. A. SCHELLMAN.  
 DEFLECTOR FOR HEATERS.  
 APPLICATION FILED JULY 20, 1911.

1,022,854.

Patented Apr. 9, 1912.



WITNESSES

*H. Dieterich*  
*L. Couville*

INVENTORS

*John S. Makin*  
*Henry A. Schellman*  
 BY *Nedrohem Grain Bank*  
 ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOHN S. MAKIN AND HENRY A. SCHELLMAN, OF PHILADELPHIA, PENNSYLVANIA,  
ASSIGNORS TO THE MAKIN HEATING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## DEFLECTOR FOR HEATERS.

1,022,854.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed July 20, 1911. Serial No. 639,507.

*To all whom it may concern:*

Be it known that we, JOHN S. MAKIN and HENRY A. SCHELLMAN, both citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Deflector for Heaters, of which the following is a specification.

This invention relates to an improved furnace casing, and more particularly to a construction of top or hood therefor, the object of the invention being to provide an improvement of the character wherein the passage for the air is directed to the supply pipes properly commingled, while a back draft into the air passage is prevented.

In furnace hoods or tops as heretofore constructed, it has been proposed to provide an equalizing and commingling chamber adjacent the air supply conduits but it has been found in practice that in such structures air currents frequently flow in a reverse direction within the supply conduits and produce eddies of cold air which naturally reduce the effectiveness of the heaters. It has also been proposed to utilize baffles in the air passage around the fire chamber but such baffles act as retarding means for the air and do not eliminate the possibility of back draft with its attendant disadvantages.

In our present invention it is our object to eliminate defects heretofore inherent in structures of this kind by providing a baffle structure adjacent the discharge of the air passage and the inlet of the air supply conduits and so positioned as to prevent any back draft interfering with the free flow of air circulating about the fire chamber, and furthermore located exterior of the air passage but relative thereto in order to properly direct and mix the heated air.

For the purpose of illustrating our invention, we have shown in the accompanying drawings one form thereof which is at present preferred by us, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of these in-

strumentalities as herein shown and described.

Referring to the drawings:—Figure 1 represents a vertical section through a furnace top embodying our invention, showing a portion of a furnace. Fig. 2 represents a plan of the same.

Similar numerals of reference indicate corresponding parts in the figures.

1 designates the upper end of the casing forming the fire chamber which of course may be of any suitable construction, and exterior to which is the outer casing 2 inclosing the same and forming an air passage 3 between the two casings. In the present instance, a ring 4 is provided having an outwardly extending flange 5 thereon, the latter being adapted to seat on the top of the casing 2 and forming an abutment upon which the top 7 rests. Attention is directed to the conformation of this top 7, since the arrangement thereof embodies a feature of our invention and by means of which without increasing the size of the casing, the outlet conduits 6 may be positioned suitably apart in order that the air currents in one will not affect the others and so that they will properly distribute the heated air to the points of use.

8 designates an outwardly flared portion of the top 7 preferably of inverted truncated form, while the remaining portion of the top is inwardly and upwardly inclined, and has therein the outlet conduits 6 of which there are any desired number for the use intended.

9 designates a deflector or baffle suitably secured to the top 7 and herein shown as resting upon the ring 4 and extending upwardly and inwardly from the outlet of the air passage formed between the two casings 1 and 2. This deflector 9 is so positioned, relative to the flared portion 8 of the top 7, as to form a pocket 10 therewith into which currents of air flowing from the air conduits 6 into the casing 2, may be directed and thus prevent them from meeting and retarding the heated air discharging from the air passage 3.

11 designates a closure or cover, removably secured to the top 7 and preferably having a downwardly extending and sub-

stantially cone-shaped lower portion 12 which serves as a distributing wall, directing the air to the several conduits 6 and eliminating any dead air space within the top. This closure or cover 11 is provided with a circumferential flange 13 adapted to fit over the crimped edge 14 of the top 7 which as will be noted is angular and converges from a suitable point. Of course it will be understood that the joint formed by the top 7 and the closure or cover 11 is tight and properly packed to prevent leakage at this point. With this novel structure in use upon a furnace, the heated air products pass freely upwardly in the passage 3 until the top of the inner casing 1 is reached and adjacent to which the deflector 9 is located and positioned so that there is no diminishing of the air passage or obstruction to the passage of air. The arrows shown in Fig. 1 indicate the direction of flow of the air which is directed inwardly over the top of the furnace casing 1 and then reaches the air conduits 6. The deflector 9 is so positioned as to prevent any back drafts from the air conduits 6 from reaching the air passage 3, and it will be noted that the pocket 10 serves to collect air flowing in the reverse direction due to back drafts should this occur, and prevent the same from effecting the free flow of heated air to the conduits 6. As a matter of fact, the current produced by a back draft swirls around the pocket 10 back of the deflector 9 and at the time it meets the heated air it is flowing in the same direction as the heated air, thereby tending to increase the velocity of the heated air rather than to retard the same. It is important to note the relation existing between the top of the fire-box casing 1 and the deflector 9 since the same is essential in properly directing the heated air into the chamber

formed by the top structure and designing the same so that there will be no retardation at this point.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a furnace, an inner and an outer casing forming an air-passage between them, a top consisting of an outwardly flaring lower portion and inwardly inclined upper portion, hot-air conduits extending from said upper portion, an inverted conical distributor supported upon said upper portion, and an annular upwardly and inwardly inclined deflector projecting at the upper end of the air-passage at a distance not less than the diameter of the same and projecting beneath the inlets of the hot-air conduits to intercept reverse air-currents in the same.

2. In a furnace, an inner and an outer casing forming an air-passage between them, a ring within the upper end of said outer casing and having an outwardly projecting flange resting upon the same, an annular top resting upon said flange and having an outwardly flaring lower portion and an inwardly inclined upper portion, hot-air conduits extending from said upper portion, an inverted conical cover supported upon the inner edge of the inwardly inclined upper portion of the top, and an annular upwardly and inwardly inclined deflector supported from the top at the upper end of the air-passage at a distance not less than the diameter of the latter and projecting beneath the inlets of the hot-air conduits to intercept reverse air-currents in the same.

JOHN S. MAKIN.

HENRY A. SCHELLMAN.

Witnesses:

C. D. McVAY,

F. A. NEWTON.