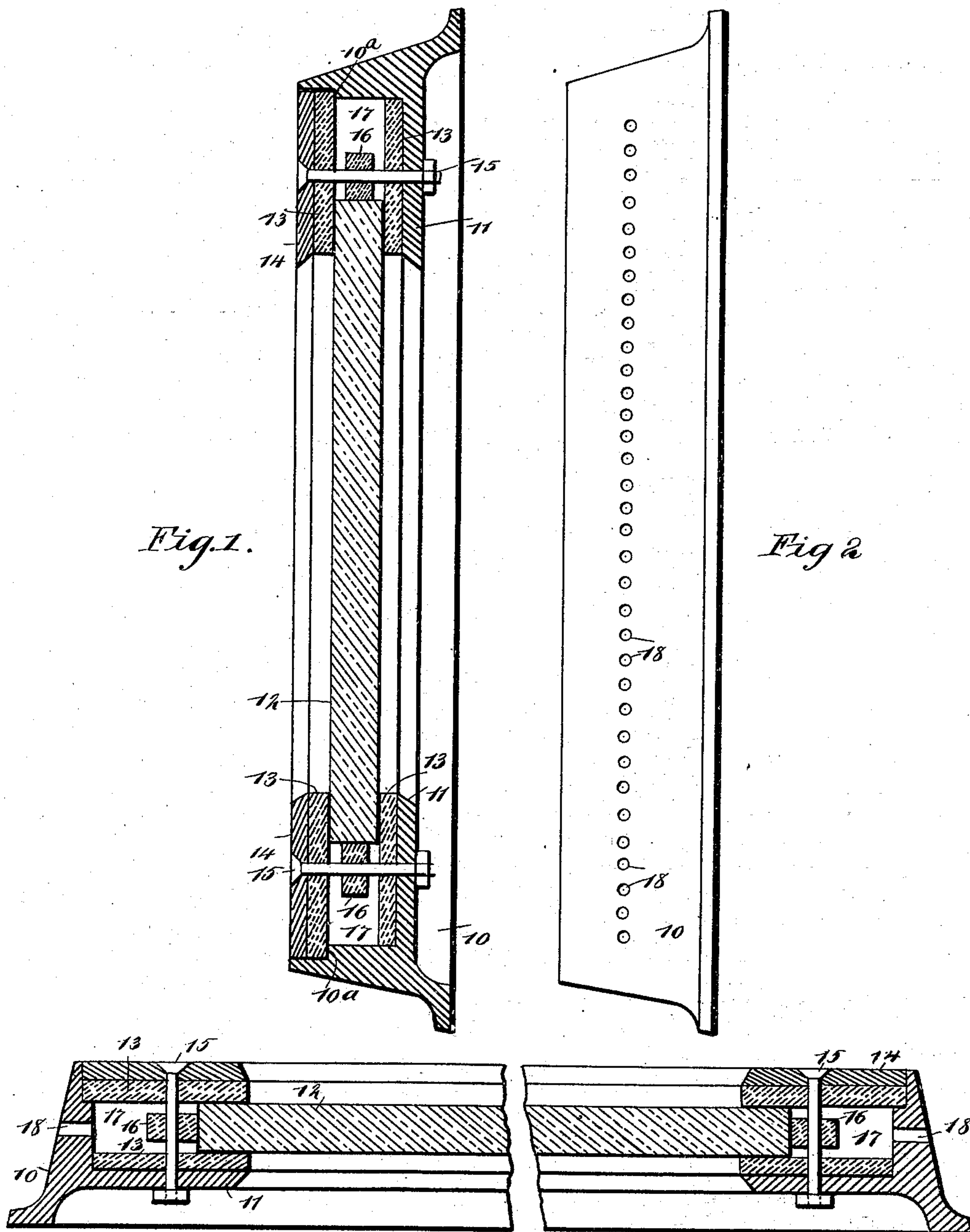


(No Model.)

W. R. WEBSTER & J. HAMILTON.  
OVEN OR OTHER DOOR.

No. 503,820.

Patented Aug. 22, 1893.



WITNESSES:  
*H. McAnally*  
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Fig. 3.

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# UNITED STATES PATENT OFFICE.

WALTER R. WEBSTER AND JAMES HAMILTON, OF PINE GROVE, CALIFORNIA

## OVEN OR OTHER DOOR.

SPECIFICATION forming part of Letters Patent No. 503,820, dated August 22, 1893.

Application filed May 10, 1893. Serial No. 473,685. (No model.)

*To all whom it may concern:*

Be it known that we, WALTER R. WEBSTER and JAMES HAMILTON, both of Pine Grove, in the county of Amador and State of California, have invented a new and Improved Oven or other Door, of which the following is a full, clear, and exact description.

The desirability of having a transparent window in the doors of stove and range ovens, and in other metal doors subject to heat, has always been understood, but the attempts to provide such doors with glass windows have been in a great measure unsuccessful, owing to the fact that it has been found difficult to arrange the glass in such a way as to have it evenly heated, and when the distribution of heat through it is unequal, the glass breaks. To obviate this difficulty the edges of the glass have usually been incased in a non-conducting packing, but this remedy for the cracking of the glass has been but partial, as the packing heats and eventually heats the edges of the glass to a greater extent than the body portion thereof is heated, and the glass finally breaks.

The object of our invention is to construct a metal door with a glass window, and arrange the window and door so that when the door is subjected to heat the edges of the glass will be kept comparatively cool, and the whole body of the glass will be evenly heated and consequently will not break. To produce this result, we arrange for supporting the glass in a non-conducting flexible packing, and also provide for a free circulation of atmospheric air around the edges of the glass to keep it cool, and further, to construct the parts so that the air cannot pass through the door to the heated chamber within.

To these ends, our invention consists of a door with a window therein, the construction of which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of a door embodying our invention. Fig. 2 is a side or edge elevation of the same; and Fig. 3 is a broken transverse section.

The door is provided with a suitable frame

10, which may be of any desired shape and size and of any suitable metal, and it has near its inner edge an inwardly-projecting flange 11, which lies parallel with the flat sides of the door, and which forms a support for one side of the glass 12. This glass fills the central portion of the frame and forms the middle part of the door, and it is held between flexible non-conducting packings 13, which are preferably of asbestos, and which are arranged around the inner portion of the frame 10 and on opposite sides of the glass 12. The outer packing 13 rests against a shoulder 10<sup>a</sup> on the frame 10, and upon the outer side of the outer packing piece is a clamping ring 14, which fits snugly in the door frame and which is held in place by bolts 15, which project through the clamping rings, through the packings 13 and the flange 11, and thus bind the clamping ring and glass firmly in place. Upon the bolts 15 are non-conducting washers 16, which abut with the edges of the glass and which prevent it from slipping edge-wise. They also prevent any hot part of the frame from contacting with the glass. The glass projects but a short distance beyond the edges of the flange 11 and clamping plate 14, and thus an air space 17 is formed which entirely surrounds the edge of the glass. This air space communicates with the outer air through a series of holes 18, as shown clearly in Figs. 2 and 3, and these may be arranged in opposite edges or sides of the door, or entirely around the same if desired.

It will be seen that the cool air can pass in and out through the perforations 18, thus keeping the air space 17 always full of comparatively cool air, which keeps the packing at a low temperature, and the air cannot possibly pass through the door into the oven. The circulation of air around the glass keeps the edges of the latter cool, and the glass is heated from the central portion which comes into direct contact with the heat from the oven, and it has a chance to expand laterally by compressing the flexible non-conducting washers 16, and hence the glass is not broken by the action of the heat.

We are aware that it is not new to provide metal doors subject to heat, with glass windows, and to incase the same in a non-conducting packing, but we claim as broadly



new, the arrangement of the air space around the edge of the window, and the provision for a free circulation of atmospheric air through the air space.

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

10 1. In a metal door the rectangular open frame 10, having series of apertures 18 in its side walls and provided with an inwardly extending flange 11, the inner removable open clamping frame 13 parallel with the flange 11, the frame 13 and flange 11 being connected by bolts to clamp the glass between them and  
15 form a space 17 into which said apertures open, substantially as set forth.

20 2. As an improved article of manufacture, a metal door having a glass window therein, non-conducting packings on opposite sides of the window near the edge, flexible non-conducting washers abutting with the edges of the window, and an air space extending around the edges of the window and in com-

munication with the outer air, substantially as specified.

25 3. As an improved article of manufacture, a metal door, comprising a frame having an inner flange and a central opening, a clamping ring adapted to fit in the outer portion of the frame parallel with the flange, a glass  
30 window arranged between the flange and clamping ring, packing pieces arranged between the glass and the flange and clamping ring, bolts to fasten the ring and flange together, flexible non-conducting washers carried by the bolts and abutting with the edges  
35 of the glass, and an air space formed in the frame around the edges of the glass and communicating with the outer air, substantially as specified.

WALTER R. WEBSTER.  
JAMES HAMILTON.

Witnesses:

W. Q. MASON,  
J. B. DILLE.