

**Grate.**

Patented Dec. 6, 1845.

This technical drawing illustrates a mechanical assembly, possibly a pump or engine component, shown in two views: a cross-sectional view and a perspective view.

The cross-sectional view (top) shows a central cylindrical chamber with internal vanes or blades. The chamber is surrounded by a housing with various ports and openings. Labels include 'a' for the central chamber, 'b' for the housing, 'c' for a side port, 'd' for a base, 'e' for a flange, 'f' for a side port, 'g' for a top port, 'h' for a base flange, 'i' for a side port, 'j' for a base flange, 'k' for a side port, 'l' for a base flange, 'm' for a side port, 'n' for a base flange, 'o' for a side port, 'p' for a top port, 'q' for a side port, 'r' for a base flange, 's' for a side port, 't' for a base flange, 'u' for a side port, 'v' for a base flange, 'w' for a side port, 'x' for a base flange, 'y' for a side port, and 'z' for a top port.

The perspective view (bottom) shows the device from a side angle, highlighting the base and the side ports. Labels include 'a' for the central chamber, 'b' for the housing, 'c' for a side port, 'd' for a base, 'e' for a flange, 'f' for a side port, 'g' for a top port, 'h' for a base flange, 'i' for a side port, 'j' for a base flange, 'k' for a side port, 'l' for a base flange, 'm' for a side port, 'n' for a base flange, 'o' for a side port, 'p' for a top port, 'q' for a side port, 'r' for a base flange, 's' for a side port, 't' for a base flange, 'u' for a side port, 'v' for a base flange, 'w' for a side port, 'x' for a base flange, 'y' for a side port, and 'z' for a top port.

Fig. 3 is a perspective view of a rectangular frame structure, possibly a book binding or a small cabinet. It shows internal components and various labeled parts: 'f' for front panels, 'o' for side panels, 'm' for the top cover, 'k' for the bottom cover, and 'b' for the internal binding or support structure. The structure is shown in a perspective view, highlighting its three-dimensional form.

# UNITED STATES PATENT OFFICE.

C. L. H. WEBB, OF LOCKPORT, NEW YORK.

## PORTABLE STOVE.

Specification of Letters Patent No. 4,298; dated December 6, 1845; Antedated August 14, 1845.

*To all whom it may concern:*

Be it known that I, C. L. H. WEBB, of Lockport, in the county of Niagara and State of New York, have invented new and useful Improvements in Portable Grates or Furnaces for Cooking and other Purposes, and that the following is a full, clear, and exact description of the principle or character thereof which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved grate or furnace; Fig. 2, a vertical section thereof, and Fig. 3 a perspective view of the grate separate.

The same letters indicate like parts in all the figures.

The nature of my invention consists in making the grate, (which is of a four sided inverted pyramidal form), with the four sides cast separate from each other, and connected together by having the ends of two of the sides made to lap over the ends of the other two sides that are cast with hooks to receive ears or projections on the two first, so that two of the sides hang into the other two, the two latter being in turn suspended on brackets cast on the inside of the surrounding case, thus having the grate insulated therefrom all around except at the points of suspension, to prevent the high temperature to which the grate must be exposed, from being communicated by conduction to the casing, which, as heretofore constructed, soon warps and cracks. And also in providing two sides of the quadrangular case with doors opening directly to the sides of the grate to expose articles to be cooked or heated to the direct action of the rays of heat from the fire; the doors being hinged at the lower edge and connected with the case by means of a joint and slide link to support them when on a horizontal plane that they may answer the purpose of hearths, and the front being provided with the usual flap door and hearth.

In the accompanying drawings (*a*) represents the outer case which is of a quadrangular form with a boiler hole or holes (*g*) at the top, a smoke pipe (*p*) at the back, and a hearth (*b*), and door (*c*) in front made in the usual manner.

The side plates are open from the bottom

to near the top of the grate, and these openings are provided with doors (*d d'*) hinged to the side plates at the lower edge of the openings that they may open downward, and to prevent them from falling below a horizontal line, a link (*e*) is jointed to each of them inside, and near the upper edge, the other end of the said link being provided with an elongated hole (*h*) that plays on a pin (*i*) cast on and projecting from the side plates of the case; so that when the doors are closed the means of suspension are not visible.

The grate is cast in five parts, the front *h*, the back (*l*), the two sides (*m, m*) and the bottom *n*, put together by tapping the front and back over the ends of the sides, and notched ears (*o, o*) on the ends of the front and back fitting, or dropping into notches in corresponding ears (*f, f*), on the ends of the sides. The bottom (*n*) rests on brackets (*s, s*) cast on the inside of the lower edge of the two sides. And the whole is suspended on brackets (*q q*) projecting from the upper part of the side plates of the case. The grate when put together is in the form of an inverted quadrangular pyramid, and the front is only about half the height of the sides and back, for the introduction of fuel. This manner of constructing the grate saves much expense in molding and casting and prevents in a great measure the breakage from unequal expansion, so common in other grates; and the mode of connecting it with the case by suspending it by the upper edge to brackets that project from the side plates, prevents the high temperature to which it must be exposed from being communicated, by conduction, to the case of the stove, to crack the plates by unequal expansion &c. And by means of the arrangement of side doors, that open downward and are supported, when let down, by the jointed slide links, the whole surface of the sides of the grate from bottom to top is thrown open so that articles to be cooked or heated can be exposed to the whole action of the rays of heat from the whole surface of the sides of the grate, which, inclining outward from the bottom to the top, throw the rays of heat diagonally on to them, instead of casting them horizontally, as in other stoves &c.

I claim—

The quadrangular inverted pyramidal form of the grate in combination with the side doors hinged at the bottom and open-

ing downward to answer the purpose of  
hearths, that the whole surface of the fire  
at the sides may be presented and the rays  
therefrom may be cast on to instead of over  
5 the articles to be cooked or heated on the  
hearths, as herein described. And finally I  
claim the method of sustaining the side

doors when open by means of the jointed  
and sliding links, as herein described.

C. L. H. WEBB.

Witnesses:

C. M. HURLBURT,  
JOSEPH W. WEBB.