O. Collins.

Fire Place.

No. 64,284. Patented Apr. 30, 1867.

Fig. 2.

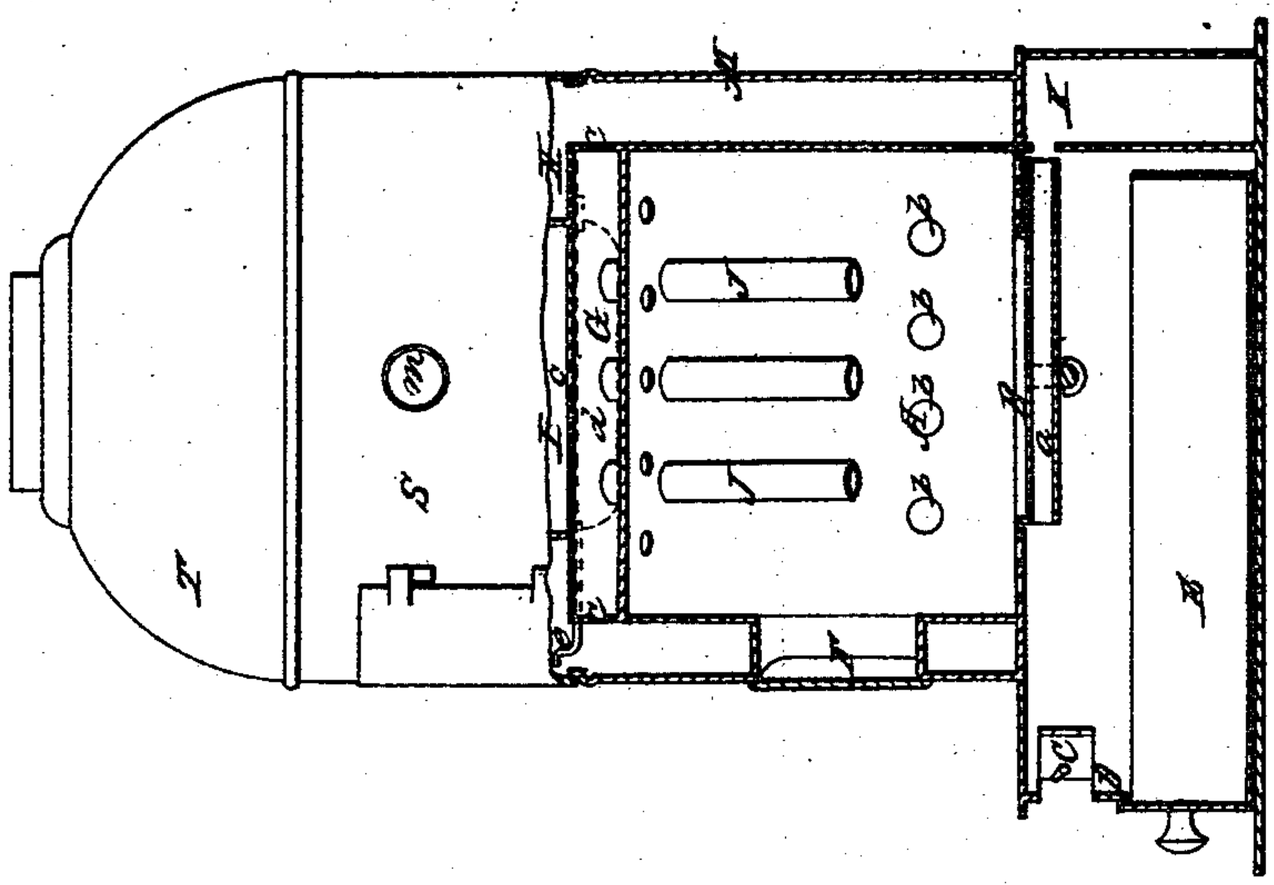
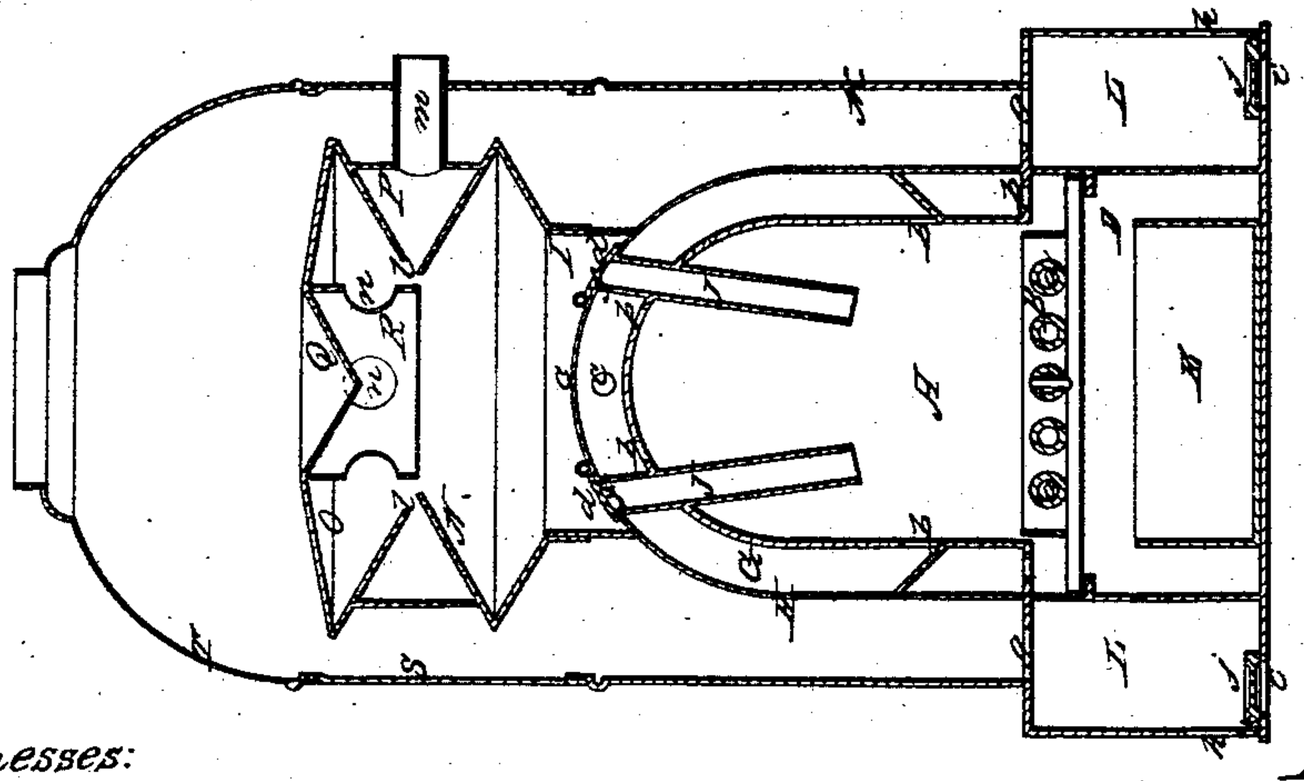


Fig. 1.



Witnesses:

F. W. Coomb

S. W. Reed.

Inventor:

Owen Collins

United States Patent Office

OWEN COLLINS, OF NEW YORK, N. Y.

Letters Patent No. 64,284, *dated April* 30, 1867.

FIRE-PLACE HEATER OR FURNACE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, OWEN COLLINS, of the city, county, and State of New York, have invented a certain new and useful improvement on Fire-Place Heaters or Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figures 1 and 2 represent elevations, mainly sectional, at right angles to each other, of a portable stove or furnace, or fire-place heater, constructed according to my invention.

The nature of my invention consists in a novel combination of tubular fire-bars, through which air is passed, with a rear air-chamber in the base of the furnace communicating with the space or spaces contained within the outer shell or jacket; also in a novel arrangement of a smoke-decomposing chamber with its inlets and outlets; likewise in a combination of side and bottom air inlets to the base, controlled by a single valve for admitting air from different stories or chambers; also in a novel arrangement of draught-tubes, arranged to project into the fire, and controlled by dampers above; and in a peculiar construction of radiating reflectors and central deflector for the better distribution of the heat, and serving to prevent lodging or choking, and so return matter carried up by the draught or soot deposit back to the fire.

Referring to the accompanying drawing, A represents the fire-place, preferably of arched form, and B its grate, which may be made to rock and tip in the usual manner. C is a door or doors arranged in the base D for, when open, to admit a direct current of air below or nearly in line with the fire-bars *a*, which are made tubular to serve the double purpose of passing air from the outside through them to keep them cool, and of supplying a back chamber, K. E is the ash-pit or pan, and F the fire-door to the fire-place A, which has a smoke-decomposing chamber, G, outside of it, formed by an arch-shaped jacket, H, and to which chamber, *b*, are lower and upper inlets, and, *c*, upper contracted outlets, to one of which, if desired, a gas-burner may be attached. Mounted on this jacket H is a cylinder, I, within or across which are arranged dampers *d*, controlled by rods or handles *e*, and serving to close or throw open for an upper through-draught, say more fully or particularly on first lighting the fire, outlets *f*, of tubes J, which descend or run down into the fire, and which, becoming highly heated and establishing fine, quick currents, secure a perfect draught. The sides of the base D are also formed into outside chambers L, which communicate with the back chamber K, and, by openings *g*, with a chamber or interior space to a jacket, M, surrounding the smoke-decomposing chamber. These side chambers L are provided with side apertures *h* and lower openings *i*, controlled by valves or dampers *j*, which may either be turned to admit air from a cellar below through the openings *i*, or from the basement or floor on which the furnace stands, through the apertures *h*. Mounted in a loose and detachable manner on the cylinder or cylindrical projection I are reversely conical or double-concave reflecting radiators N O, provided with apertures *k*, and connected by a cylinder, P, with which communication is established by an opening or openings, *l*, and from which the smoke and escaping gases are passed off by a pipe, *m*. The upper radiator O is constructed at its centre with a conical deflector, Q, arranged to project downwardly within a cylinder, R, open at its bottom, and provided with lateral apertures *n*.

A furnace thus constructed, and which may be used as a brick furnace for warming, by a suitable shaft or shafts, the various stories of a building, or which, by extending the jacket M by a cylinder S, that may be furnished with a door and dome, T, may readily be converted into a portable furnace or fire-place heater, will be found both economical in the working and free from escape, along with the heat distributed by it, of noxious gases. To detail some of the advantages of this construction here it may be observed that air entering by the tubular fire-bars *a* not only keeps the latter cool, but serves to supply, in a partially heated manner, the chambers K L and space enclosed by the jacket M, and which, in connection it may be with the spaces enclosed by the cylinder S and dome T, from the hot-air chambers of the furnace, while the smoke-decomposing chamber G is well supplied with air to effect ignition. The admission of air, too, at pleasure, to the chambers L by either the passages *h* or *i*, controlled by a single damper on either side, gives increased facility for drawing the supply either from the cellar below or floor on which the furnace stands, to suit circumstances. The use and advantages of the tubes J, arranged as described, and controlled by dampers *d*, have already been referred to. And, lastly, it may be mentioned that not only do the reflecting radiators N O and deflector Q serve most effectually

to distribute the heat within the surrounding jacket or space, but by their construction and the arched form of the jacket H, in connection with the cylinder I, soot or other matter carried up by the draught is prevented from accumulating, and readily falls or slides back and is returned to the fire on opening the dampers *d*.

What I claim as new and useful, and desire to secure by Letters Patent, is—

1. The arrangement of the tubular grate-bars with relation to the rear and side chambers K L of the base, communicating therethrough with the space or spaces within the jacket M, substantially as specified.

2. The smoke-decomposing chamber G, made to encompass the fire-chamber, and communicating therewith by smoke-passages *b*, also provided with suitable air inlets and outlets, as herein set forth.

3. The combination of the side and bottom air inlets *h* and *i*, to the chambers L of the base, and controlled by dampers or valves J to vary the ingress, essentially as specified.

4. The draught-tubes J, arranged to descend into the fire, and controlled by dampers *d*, substantially as shown and described.

5. The reversely conical or concave radiating reflectors N O and deflector Q, arranged for operation essentially as represented and described.

OWEN COLLINS.

Witnesses:

J. W. COOMBS,

G. W. REED.