2 Sheets--Sheet 1.

T. STEAD & J. S. ORAM.

Portable Furnace.

No. 130,081. Patented July 30, 1872.

Fig. I.

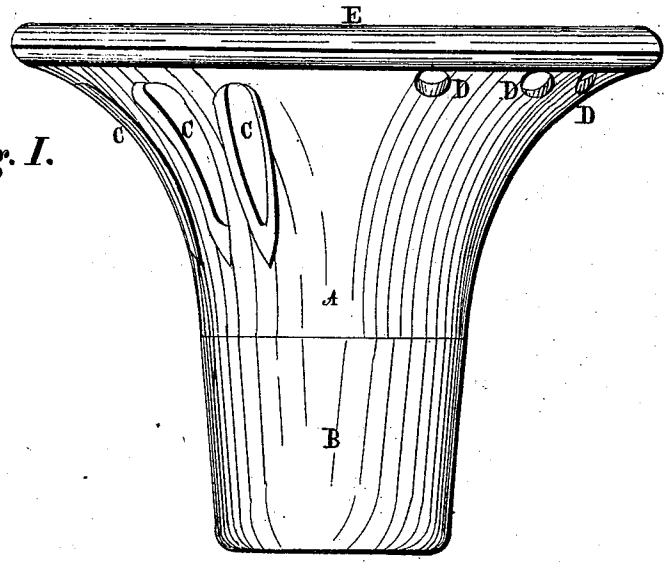
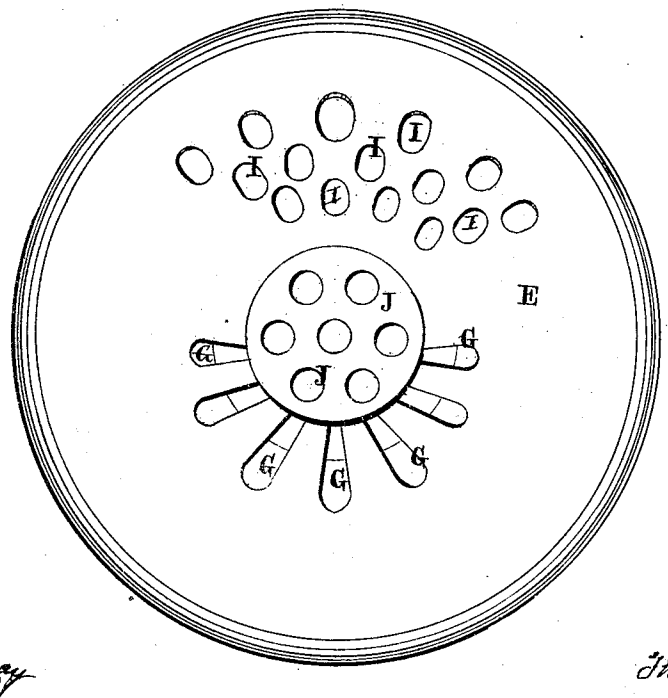


Fig. 2.



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Fig. 3.

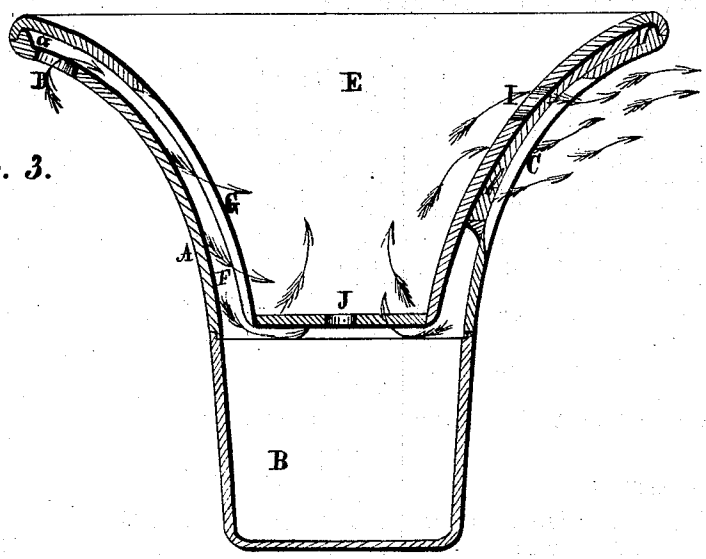
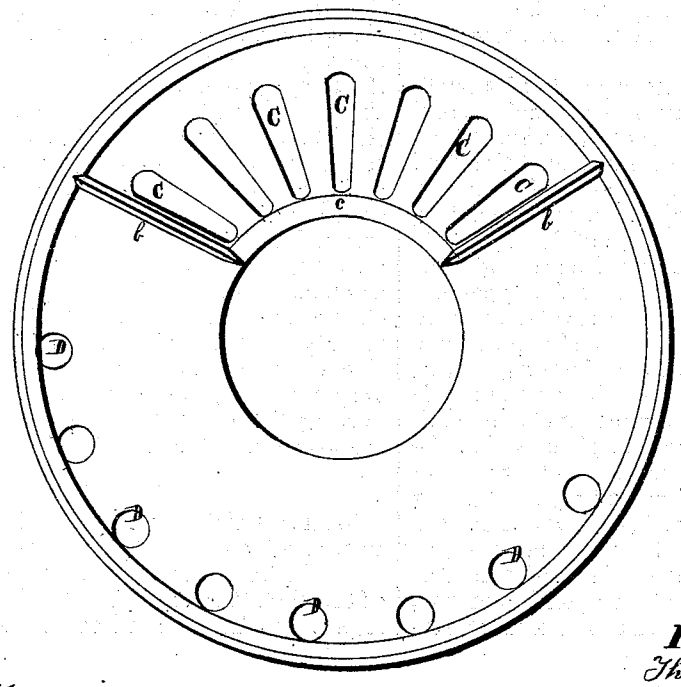


Fig. 4



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UNITED STATES PATENT OFFICE.

THOMAS STEAD AND JOHN SAMUEL ORAM, OF CLEVELAND, OHIO.

IMPROVEMENT IN PORTABLE FURNACES.

Specification forming part of Letters Patent No. **130,081**, dated July 30, 1872.

To all whom it may concern:

Be it known that we, THOMAS STEAD and JOHN S. ORAM, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Portable Furnace; and we do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawing making part of the same.

Figure 1 is a side view of the furnace. Fig. 2 is a top view of the inside. Fig. 3 is a vertical transverse section. Fig. 4 is an inside view of a detached section.

Like letters of reference refer to like parts in the several views.

SPECIFICATION.

The nature of this invention relates to a furnace to be used in combination with an ordinary cooking-stove; and the object thereof is to economize the use of fuel by burning it in said furnace instead of the fire-place of the stove, so that the heat is limited to the furnace, but depending upon the stove for its draft and for the escape of its smoke.

The following is a more full and complete description:

The above-said furnace consists of a shell, A, Fig. 3, of which Fig. 4 is an inside view. Of said shell, B is the ash-pit, both of which are cast in one piece. In one side of the shell is made a series of vertical slot-like openings, C, Fig. 4; and in the opposite corresponding side thereof is made a series of holes, D. It will be observed that said holes are higher or nearer the rim of the shell than the upper end of the openings C. The purpose of said openings will presently be shown. In the above-described shell is fitted a lining or grate, E, between the outside of which and the inside of the shell is formed an annular chamber, F, Fig. 3. The grate is held in place within the shell by being hung upon the rim thereof, and which is prevented from sliding or slipping therefrom by a circular rib, *a*, to which the under side of the rim of the grate is fitted, as shown in Fig. 3. In one side of the grate or lining is made a series of elongated openings, G, Figs. 2 and 3, similar in shape to the openings C made in the side of the shell, and in the same direction. In the opposite side thereof is made an arrangement of holes, I, Fig. 2; also in the bottom of the grate are made holes J. The elongated openings C of the shell and the holes I of the grate have no direct communication with the annular chamber F, they being cut off therefrom by the ribs *b* on the sides and a piece, *c*, at the bottom, thereby forming two divisions of the chamber.

The practical operation of the furnace is as follows: As aforesaid, the furnace is intended to be used in combination with an ordinary cook-stove; and for that purpose it is placed in one of the holes over the fire-place, and in which hole it fits so low as to bring the top of the elongated holes C under the top of the stove, hence inside, whereas the holes D are above it, and therefore outside the stove. The fuel is put into the grate, and the draft is supplied thereto from the outside by passing in through the holes D; thence down around the annular chamber to the bottom of the grate; also through the side, by way of the elongated openings G, as indicated by the arrows, passing through the grate, up through the burning fuel, and out therefrom, through the holes I and the elongated openings C, into the stove, from whence the smoke, &c., escapes through the stove-pipe.

By the above arrangement and combination of the shell and grate we are enabled to obtain a draft for the furnace from the bottom upward, whereby a more complete and lively combustion of the fuel is produced, and a cleaner fire than can be had by a side draft, usually provided for this class of furnaces. The consumption of coal in this furnace is very complete, even though it be slack coal, leaving little but ashes, which fall through the grate into the ash-pit B.

Claims.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The herein-described furnace, consisting of the shell A, provided with elongated openings C and holes D, in combination with the

grate E, provided with elongated openings G, holes I J, arranged in relation to each other in the manner substantially as described, and for the purpose set forth.

2. The shell A and grate E, arranged in relation to each other so as to form an annular chamber, F, ribs *b*, and bottom piece *c*, whereby is obtained the passage-way for the escape of the smoke, &c., excluded from the annular chamber, substantially in the manner as described, and for the purpose specified.

THOMAS STEAD.
JOHN SAMUEL ORAM.

Witnesses:
J. H. BURRIDGE,
C. BLASE.