J. RONEY & H. EICHBAUM.

Portable Furnaces.

No. 153,457. Patented July 28, 1874.

Fig: 1.

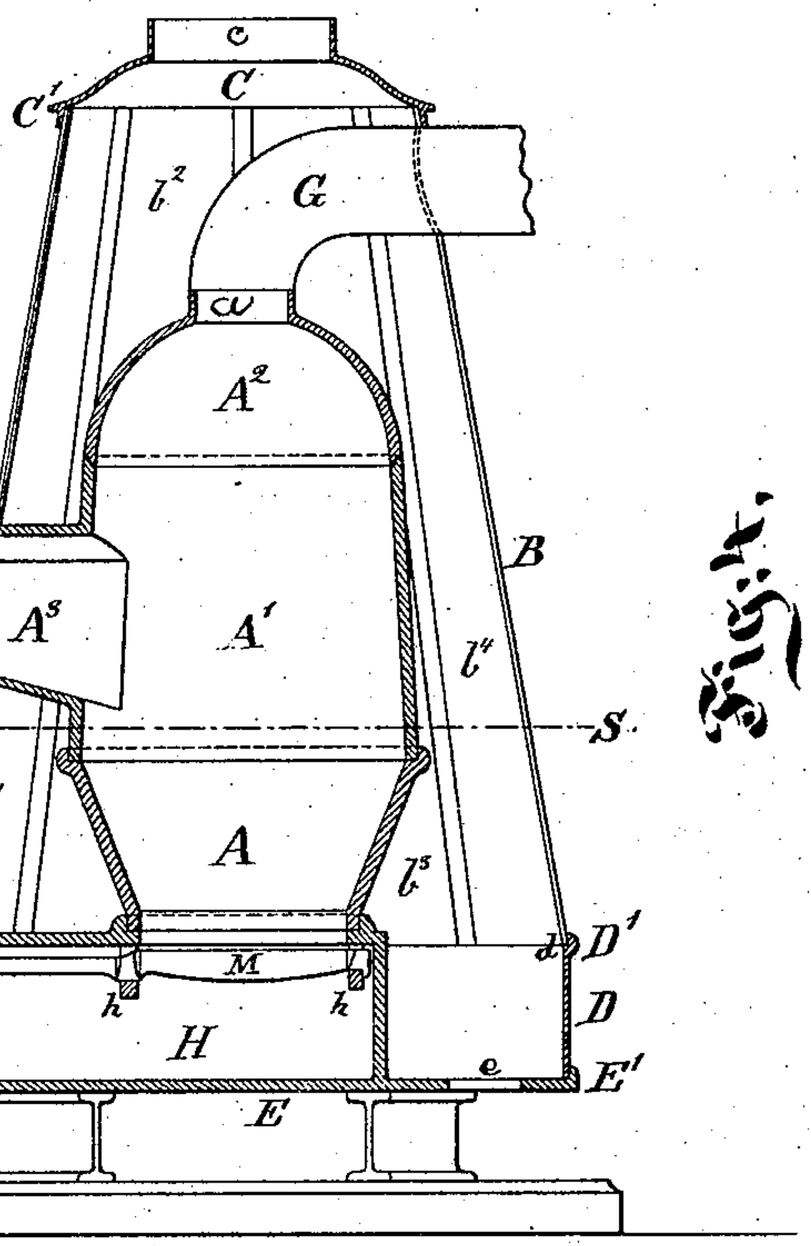


Fig: 3.

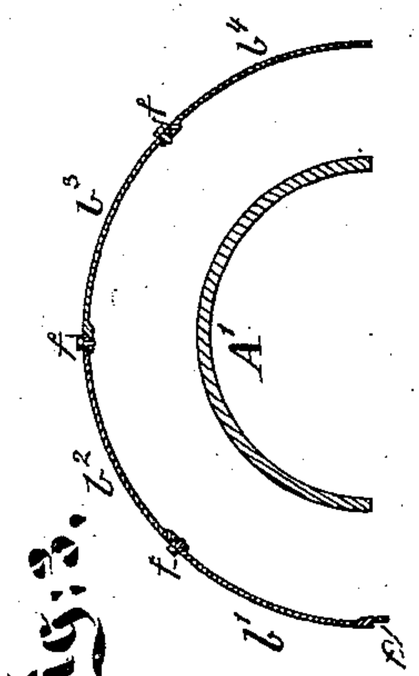


Fig: 4.

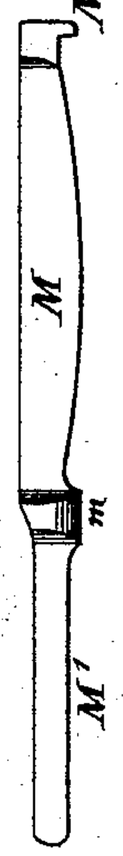
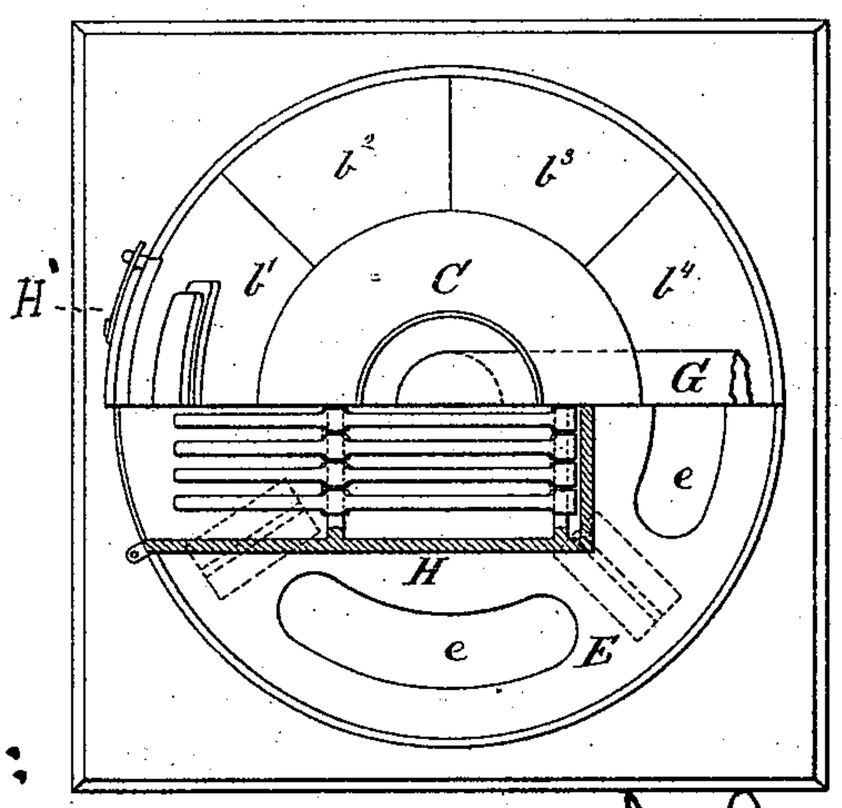


Fig: 2.



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UNITED STATES PATENT OFFICE.

JOHN RONEY AND HENRY EICHBAUM, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PORTABLE FURNACES.

Specification forming part of Letters Patent No. **153,457**, dated July 28, 1874; application filed January 27, 1874.

To all whom it may concern:

Be it known that we, JOHN RONEY and HENRY EICHBAUM, of Pittsburg, Allegheny County, State of Pennsylvania, have invented certain new and useful Improvements in Stoves; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section, from the top to the bottom plates, and on a line from front to rear. Fig. 2 is a top-plan view, one-half being removed, on a vertical central line. Fig. 3 is a detached view, showing in horizontal plan a portion of the fire-pot, and also of the exterior casing, with the means used for fastening together the different staves of this outside casing; and Fig. 4 is a side view of one of the grate-bars.

Letters of like name and kind refer to like parts in each of the figures.

This stove is ordinarily used for burning bituminous coal, and in its form and general construction is peculiarly adapted to work well for this end and purpose, but the especial points of novelty we now offer for a patent consist in the peculiar shape and construction of the casing or cover, which is placed over and around the heater or stove proper, and in its adaptation to and combination with the heater or stove, made and adapted for use inside, all as will be hereinafter more fully and clearly set forth.

In the accompanying drawings, A denotes the fire-pot proper; A^1, the chamber of combustion above it; A^2, the cover or dome placed upon A^1, and A^3 the usual feeding-chute extending through the walls of the casing B. The fire-pot proper is made in shape of an inverted frustum of a cone, and is placed or fixed upon the base E in any ordinary and workmanlike manner. Upon its upper edge, where it has its largest diameter, is placed the lower edge of the conical annulus A^1, which forms the walls of the combustion-chamber proper. The joint between these edges is made tight by any ordinary and convenient means. The feeding-chute A^3 opens into or out from part A^1 and is usually but not necessarily cast with it. The dome or cover A^2 is fitted to and upon the upper edge of A^1, ordinarily by adjusting the rabbeted lower edge of the one part to the rabbeted edge of the other part, but it is obvious that we can use the same kind of joint here that is described above, in connection with the fire-pot and the chamber of combustion proper. In the upper part of this dome is a thimble, *a*, to which is connected the exit-pipe G. The lower part of the outer casing is made of a rim, D, which is fitted to and upon the base-plate or bottom-piece E, usually by placing it within the upturned edge E^1, the diameter of said rim having been before calculated with relation to said upturned edge, so as to make a close fit at this joint. Any ordinary means for making this joint perfectly air-tight may also be used. This rim does not extend entirely around the edge of the base-plate, but meets at its ends E^2 the ends of the walls H of the ash-pit. The ash-pit doors H^1 are fixed to the front edges of these walls in any suitable manner. Any ordinary or usual grate may be used, but I prefer one made up of individual and detachable bars, as is now shown at M, and resting upon suitable bars or ledges *h h*, at front and rear. Upon the upper edge of this rim D, which is here provided with an out-turned edge, D^1, so as to form a ledge for the purpose, are placed the lower ends of the staves or pieces *b* b^1 b^2 b^3, &c. Each of these staves tapers a little from the bottom to the top, and in a horizontal line is slightly curved. The upper ends of the said staves or pieces are secured or fixed within a ledge or rim, C^1, depending from the cap C, and are here secured in position in any convenient way and by any suitable means. In order to make the joint or connection between the edges of these staves tight and secure, we cast with or affix to one edge on the under side of each stave a rib or flange, and to and upon this we fasten, usually by screw-bolts *f*, the abutting edge of the next stave, which is left plain or smooth for this purpose. Upon the top, C, of the casing is placed or formed a thimble, *c*, or a suitable opening is made in any convenient manner, for the purpose of attaching pipes to carry off the heated air from the interior of the casing. In the base-plate are made or provided any proper or suitable apertures, as

at *e e*, for the purpose of admitting a sufficient supply of air to this heating chamber. In the exit-pipes there is the usual provision of dampers to regulate combustion or the flow of heated air.

As thus made up and arranged, this heater is found very useful and effective in operation, and the end is attained by the peculiar shape and construction of the several parts and portions of this device. The flaring edges of the fire-pot proper projecting outward in the wider portion of the casing are exposed to nearly the entire bulk of the incoming air-current entering at the apertures in the base-plate of the heater, because the rays of heat are diverted toward this inflowing stream. This current of heated air now rising is drawn inward toward the upper portions of the heater by the conical walls of the casing, and in this process finds its closest point of impingement between the heater and the casing at the upper part of the former. During this long passage the incoming air has been exposed to the most intimate contact with the heat radiating from the stove; and by the peculiar structure of the stove-walls and the walls of the casing, the air has been forced more and more closely against their heated surfaces—by reason of all this, the air in the interior of the casing becomes thoroughly and intensely heated when it arrives at the point of exit in the top of the casing. In addition to this thorough utilization of the heat, the peculiar construction of the several portions of this device, as before explained, causes a very considerable draft through the heating-space. The use and object of that is to cause the radiated heat to be circulated or forced, as it were, out of the heating-chamber and toward the exit-passage, and thus the heat is compelled to rush into and through the ducts leading to the various apartments to be heated. The air in the heating-chamber being so rapidly changed there is always insured the presence of a pure and fresh supply.

This heater is designed for use chiefly as a portable furnace, and is of such shapely proportions externally that it can be placed in any basement-room, the dining-room, or sitting-room, as any stove ordinarily is, and without disfiguring or cumbering the apartment, as the usual bulky and unsightly portable heater now in common use invariably does.

Having thus fully set forth the nature and merits of our invention, what we claim as new is—

1. In a stove or furnace, the combination of base E E^1, rim D D^1, inclined and curved staves *b* b^1 b^2, &c., constructed and united as shown, and cap C C^1, combined in the manner and for the purposes set forth.

2. The conical fire-pot A and inwardly-inclining chamber A^1, united together at their largest diameters, cover or dome A^2, and chute A^3, combined with the conical casing B, base E *e*, rim D D^1, and cap C C^1, as and for the purposes set forth.

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Witnesses:
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