(No Model.)

2 Sheets—Sheet 1.

H. R. TAYLOR.

FURNACE.

No. 251,485. Patented Dec. 27, 1881.

Fig. 1.

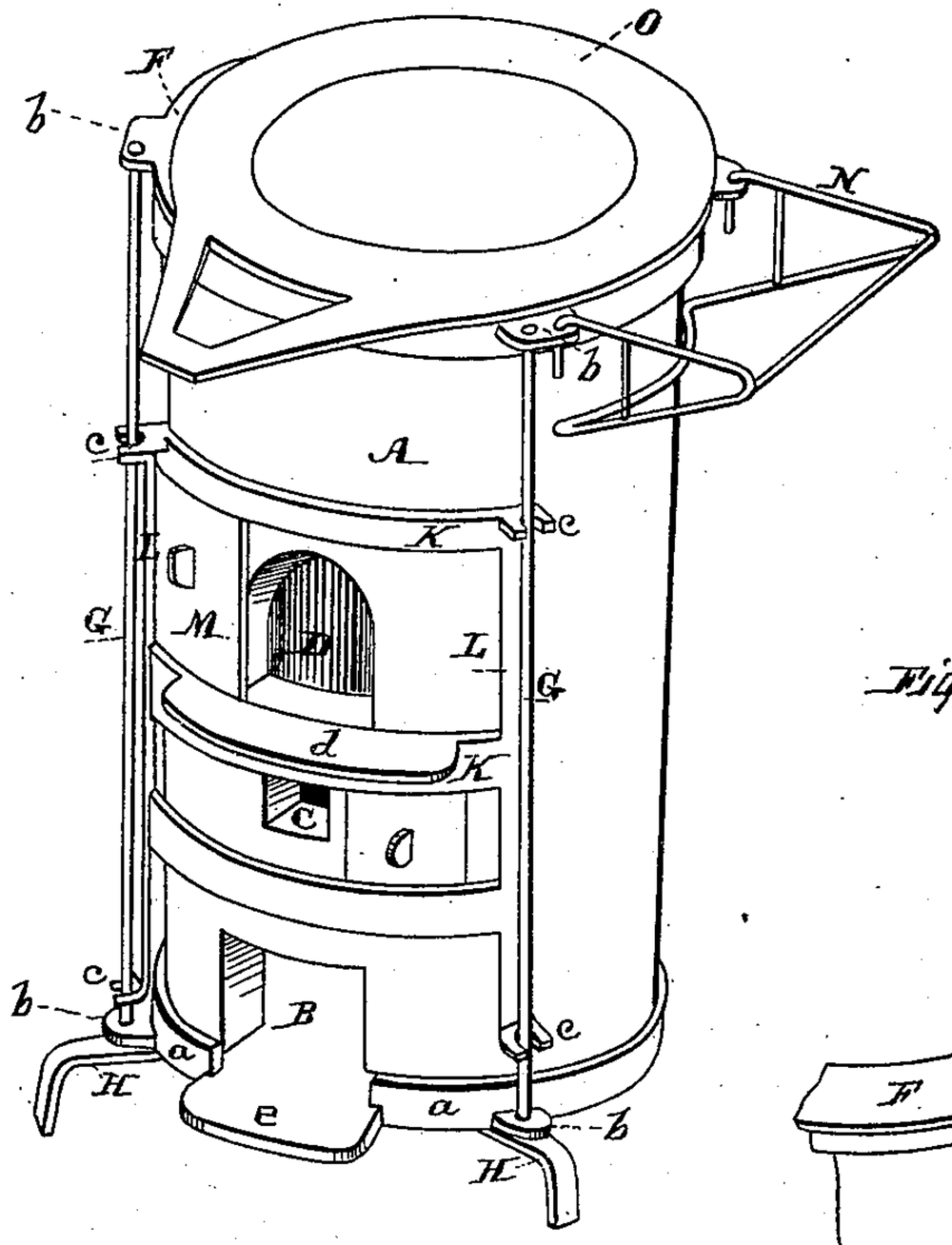


Fig. 2.

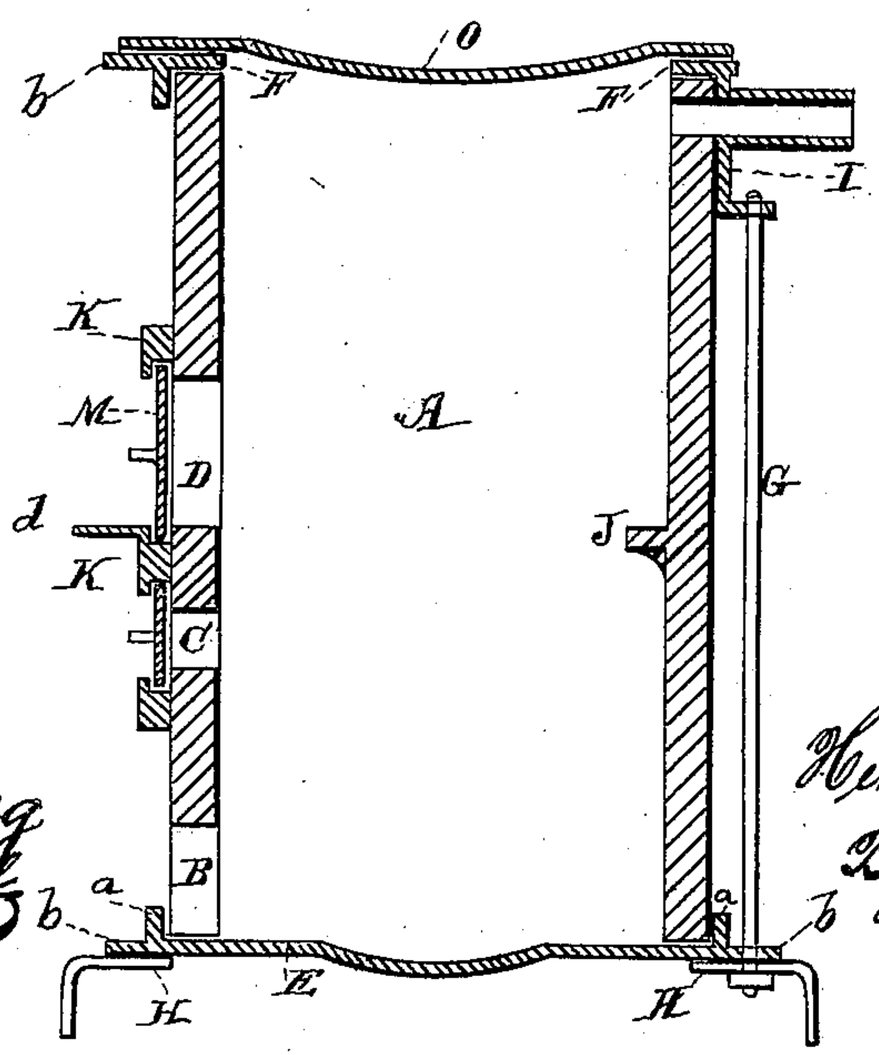


Fig. 3.

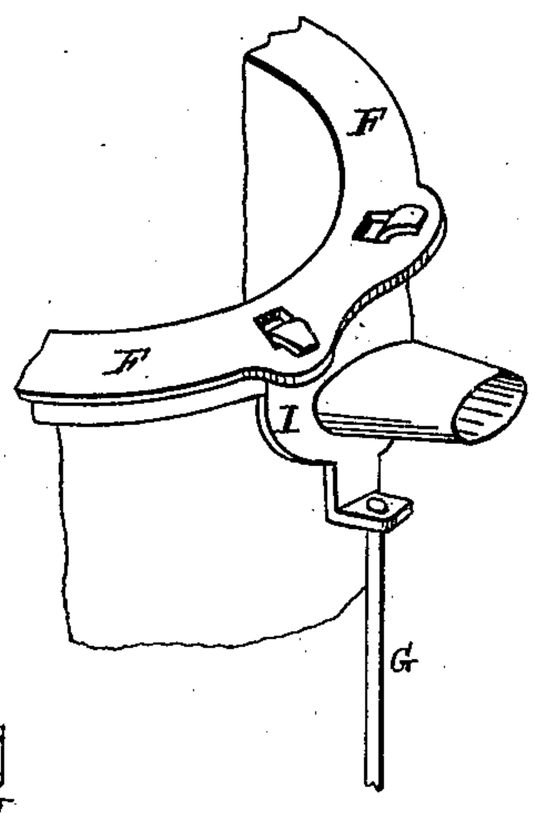
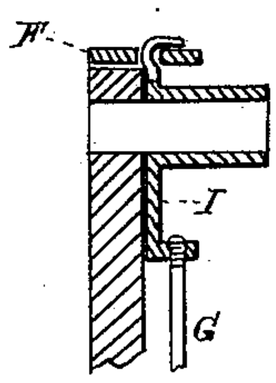


Fig. 4.



Witnesses,
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Frank A. Brooke

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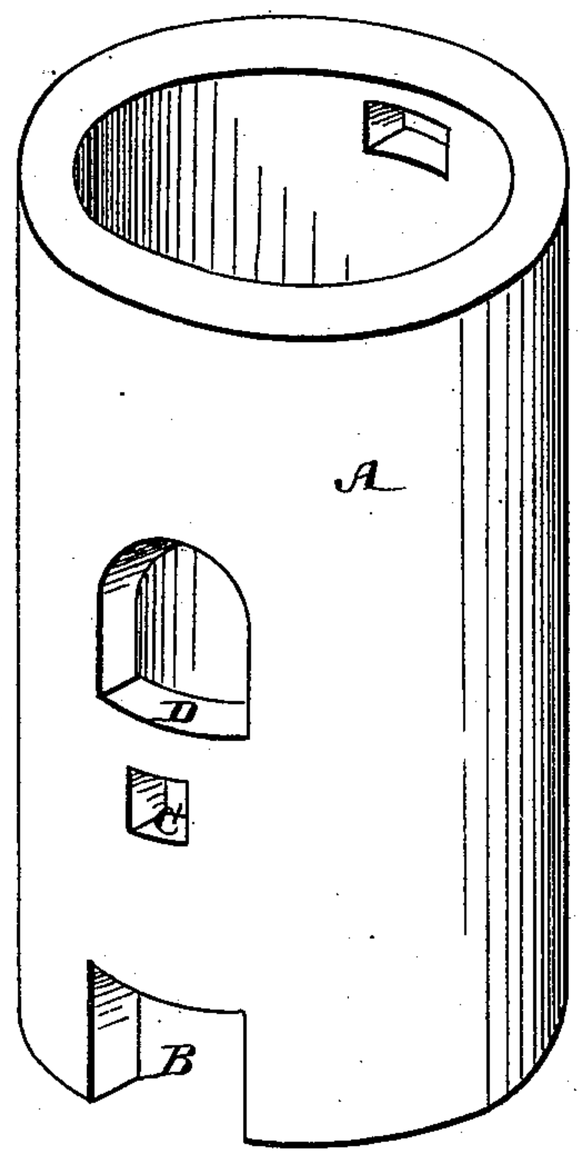
(No Model.) 2 Sheets—Sheet 2.

H. R. TAYLOR.

FURNACE.

No. 251,485. Patented Dec. 27, 1881.

Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY R. TAYLOR, OF SAN FRANCISCO, CALIFORNIA.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 251,485, dated December 27, 1881.

Application filed February 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. TAYLOR, of the city and county of San Francisco, State of California, have invented an Improved Furnace; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the class of furnaces, and more especially to those subclasses known as cupelling and melting assay-furnaces; and it consists in certain details of construction whereby I am enabled to make a furnace that will be firm and strong without the employment of a circumscribing sheet-iron cylinder or bands of strap-iron, all of which will hereinafter more fully appear.

Referring to the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a vertical section. Fig. 3 is a detail of construction. Fig. 4 is a section of the plate I.

Let A represent a cylindrical piece of fire-clay or fire-clay compound, hollow, as shown. It is provided with the opening B at the bottom for the ash-box, the smaller opening C just above, for inserting fuel under the muffle, and the arched opening D for the muffle. The base of the cylinder A rests upon the solid plate E, within a raised flange or rim, *a*, upon said plate. The flange on the plate E is cut to allow it a shelf, *e*, as shown, for supporting the ash-pit door. A metal band or plate, F, having an opening of the size and shape of the inside of the cylinder, and having a flange around its rim for fitting the cylinder A, rests upon the top of the cylinder. Both plates E and F have slight projections *b* extending outwardly from their rims, perforated to receive the vertical bolts G. The upper ends of these bolts, after passing through the upper plate, rest flush with the surface, and for this purpose I have here secured them by screwing them into the projections *b*. The lower ends of the bolts pass through the projections *b* on the lower plate, and also through the lugs H, under which they are secured by nuts. In this manner the upper and lower plates are secured upon the cylinder and the legs are secured to the lower plate. Thus a firm binding is given to the clay cylinder.

The description of the manner of securing the bolts only applies, as here shown, to two of them. The third bolt, after being secured to the lower plate, is secured above to the lower part of the frame of the pipe-support I, which is hooked into the projecting rim of the upper plate, F, as shown.

An opening in the clay cylinder is in open relation with the hollow pipe-supports I. Thus the pipe-support is practically a continuation of the vertical bolt.

I have thus far spoken of a cylindrical furnace. It is obvious that this construction would as well apply to a square furnace or other shape which would be found desirable, in which case the upper and lower plates would correspond in shape to the changed shape of the furnace. Within the furnace, at its back and on the same level as the bottom of the arched muffle-hole D, is the shelf or projection J for supporting the other end of the muffle. This shelf is molded with the piece of fire-clay when soft, and the openings in front are likewise then formed. The arched muffle-hole D and the smaller opening C are each covered by a door, M, sliding to either side in guides K. These guides are metal bands having their ends secured to upright pieces L, which fit between the bolts G and the cylinder, and are provided with a forked projection, *c*, for fitting the bolt. This secures them to the cylinder. The middle guide has a projecting shelf, *d*, in front of the muffle-hole, on which to lay the cupels or scorifiers when not in use. The door M sliding upon the ways will not interfere with whatever is placed upon the shelf *d*.

N represents a bracket or shelf hooked into projections upon the upper plate, F, and lying flush therewith. This is for the purpose of supporting the cover when taken off, it being pushed onto it. This manner of connecting the bracket N is easy and obviates the necessity of supporting it by a band around the furnace, as is now done. The cover is here represented by O, being of usual shape, as shown.

The employment of a single piece of fire-clay supported as herein described will as well be useful in constructing a melting-furnace for assay purposes as for a cupelling-furnace. For this purpose the muffle-hole D and the opening C, together with the sliding doors, are omitted, the melting-furnace having but one opening.

I do not claim any novelty either in the body

of the furnace as being constructed of one piece of fire-clay or in the tie-bolts connecting the top and bottom plates. My claim for novelty rests upon the whole furnace as constructed, rather than in any part, in which view I claim that it makes a different, cheaper, and better furnace for the purpose expressed than those now in use. Therefore

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

The casting I, having a stove-pipe hole, a bolt-hole in its lower portion for the reception of the tie-rod G, and hooked projections formed with its upper portion, in combination with the top ring-plate, F, having slots into which engage the projections of the castings I, the plate E, to which the opposite end of the rod G is attached, and the assay cylinder or furnace A, all constructed and arranged substantially as set forth.

In witness whereof I have hereunto set my hand.

HENRY R. TAYLOR.

Witnesses:
S. H. NOURSE,
WM. F. BOOTH.