M. D. HASKINS.

Diaphragm for Ore-Roasting Furnace.

No. 211,731. Patented Jan. 28, 1879.

Fig. 1.

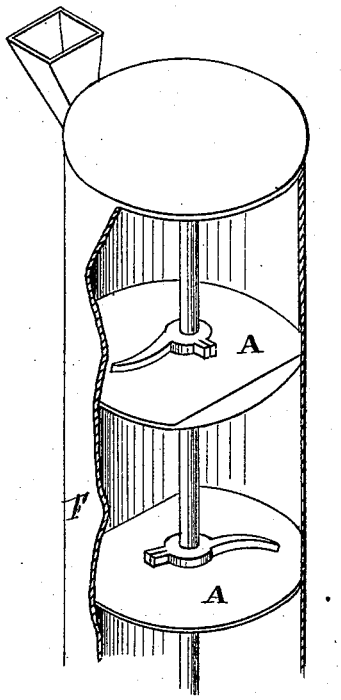


Fig 2

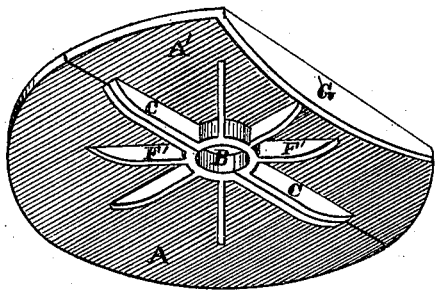
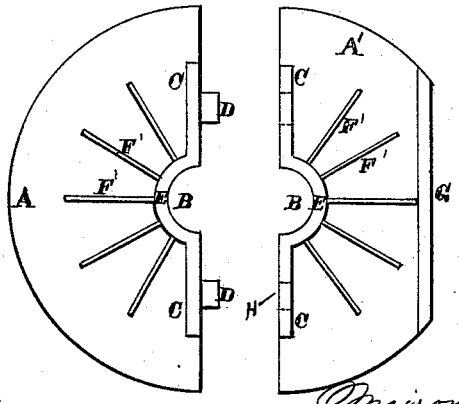


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

MYRON D. HASKINS, OF GUERNEVILLE, CALIFORNIA.

IMPROVEMENT IN DIAPHRAGMS FOR ORE-ROASTING FURNACES.

Specification forming part of Letters Patent No. **211,731**, dated January 28, 1879; application filed September 23, 1878.

To all whom it may concern:

Be it known that I, MYRON D. HASKINS, of Guerneville, county of Sonoma, and State of California, have invented an Improvement in Diaphragms for Ore-Roasting Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improvement in that class of furnaces in which ore is roasted by dropping it from one to another of a series of diaphragms which are placed horizontally in a vertical furnace; and my improvement consists more especially in a novel method of constructing these diaphragms, so that they will resist the effects of the heat and not give way under the load. When the diaphragms are made of tile or other plates, as is usual in this class of furnaces, they will not stand the combined effects of heat and the weight of the ore, and they soon sink in the center, and eventually fall through and render the furnaces useless. In order to remedy this and produce diaphragms which will stand the pressure I form them of cast-iron, in sections, so as to be readily introduced or removed, and these sections are united and provided with a system of radiating ribs projecting below the diaphragm and sustaining its center, so that when heated they will resist the tendency to sink and bend under the load.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 shows a furnace of the kind for which the described diaphragms are designed, and shown in patent to H. H. Eames on August 8, 1876, No. 180,856. Figs. 2 and 3 are views of the diaphragms, showing my improvements.

The diaphragms A are made of the shape of the interior of the furnace, (usually cylindrical,) and have a segment cut off at one side, so as to leave a space through which the ore may fall to the diaphragm below, being carried around to this point by arms which project from a rotating central shaft.

These points of construction do not differ materially from those already in existence; but it has been nearly impossible heretofore to keep furnaces of this class running, because when heated the center of the diaphragm would sink and give way.

In order to obviate this difficulty I make my diaphragm of cast-iron, in one or two sections, and of no great thickness. In the present case I have shown my diaphragm made in two sections, A A′, and having a central opening, B, through which the vertical shaft which drives the stirrers may pass. These sections have each a flange, C, projecting downward, and the flange upon one section being perforated or slotted at H, so as to admit a lug or projection, D, from the other, by which they are held together when in place.

The central opening is surrounded by a flange, E, projecting downward, and from this flange ribs F′ radiate outward toward the circumference, as shown.

These ribs, while not adding materially to the weight of the diaphragm, enable me to make it quite thin and light, while at the same time they strengthen and stiffen it, so that it will not warp or sink when heated.

The edge G, where the segment is cut off, is also provided with a similar downwardly-projecting rib, and the whole diaphragm is thus greatly stiffened and strengthened. In placing them in the furnace they are allowed to rest upon the walls which are built up, and the diaphragms are enough larger than the interior of the furnace to be built into the walls as they are put up.

I am aware that cast plates have heretofore been made with webs or ribs on their surfaces to strengthen the plates. This I do not claim; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with a vertical roasting-furnace, F, a cast sectional diaphragm, A A′, provided with flanges B C F′ G, lugs D, and openings H, all constructed and arranged as and for the purpose described.

In witness whereof I hereunto set my hand.

M. D. HASKINS.

Witnesses:

GEO. H. STRONG,

FRANK A. BROOKS.