W. ESTY.

KILN FOR BAKING EMERY-WHEELS.

No. 192,059. Patented June 19, 1877.

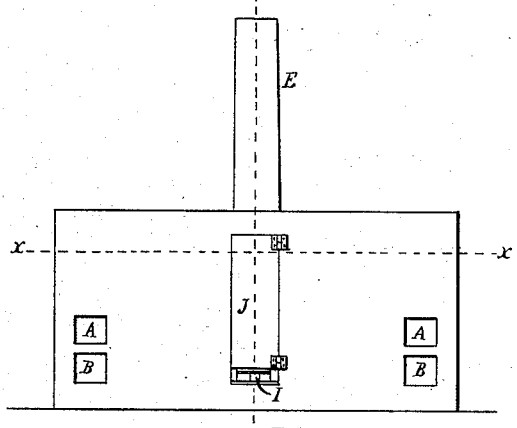

Fig. 1.

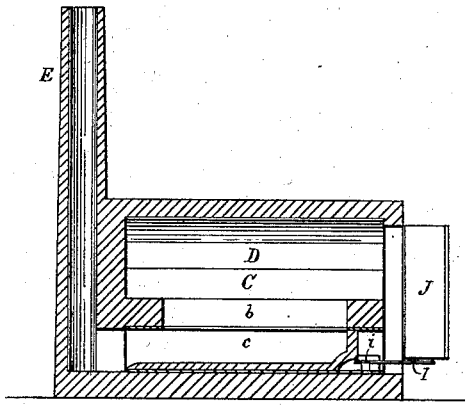

Fig. 2.

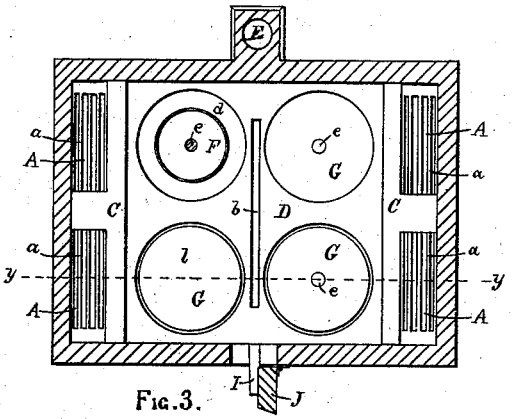

Fig. 3.

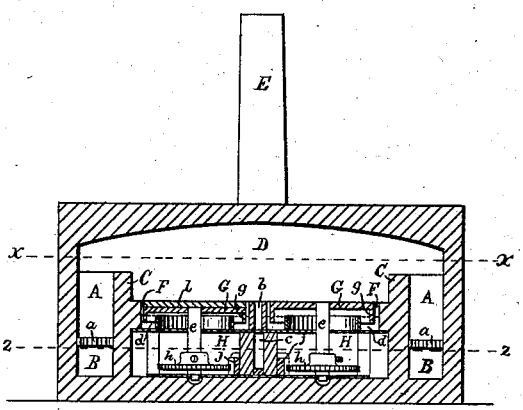

Fig. 4

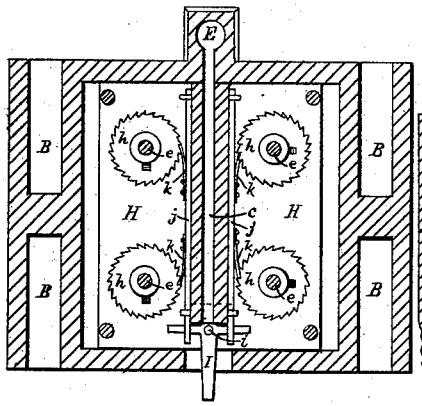

Fig. 5.

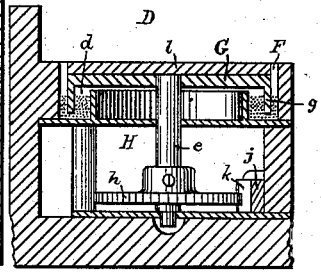

Fig. 6.

WITNESSES.

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IMPROVEMENT IN KILNS FOR BAKING EMERY-WHEELS.

Specification forming part of Letters Patent No. **192,059**, dated June 19, 1877; application filed January 9, 1877.

To all whom it may concern:

Be it known that I, WILLIAM ESTY, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Kilns for Baking Emery-Wheels, and for other purposes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a kiln or furnace for baking emery-wheels or other artificial stone, and has for its object a more even distribution or application of heat to all parts of the stone than has heretofore been accomplished; and it consists in the use, in a chamber contiguous to the fire-box of the furnace or kiln, and through which the hot gases and other products of combustion have to pass from the fire-box to the chimney, of one or more circular platforms or disks embedded in the fire-brick floor of said chamber, upon which the molded stones to be baked, inclosed in seggars composed of fire-clay, are placed, said platforms being adapted to be automatically rotated about a vertical axis, so that every part of the periphery of the stone is successively presented to the hottest part of the fire.

My invention further consists in forming upon the under side of said rotary platforms or disks an annular rib projecting downward therefrom, in combination with an annular groove or trough filled with sand, powdered soapstone, or equivalent material, in which said annular rib revolves, as a means of packing said disks, to prevent air from entering the furnace, except through the fire.

My invention further consists in the combination with a kiln or furnace of one or more disks, sunk in recesses in the floor of the combustion-chamber, and mounted upon vertical shafts of one or more ratchet-wheels, one or more reciprocating-bars carrying one or more pawls adapted to engage with said ratchet-wheels, and a lever adapted to impart reciprocating motion to said bars as will be described.

Figure 1 of the drawings is a front elevation of my improved kiln. Fig. 2 is a vertical section on line *v v* on Fig. 1. Fig. 3 is a horizontal section on line *x x* on Figs. 1 and 4. Fig. 4 is a vertical section on line *y y* on Fig. 3. Fig. 5 is a horizontal section on line *z z* on Fig. 4, and Fig 6 is an enlarged partial section, showing the method of packing the revolving disks.

A A A A are four fire-boxes provided with suitable grates *a a*, and B B B B are the ash-pits, each to be provided with suitable doors, (not shown.) C C are the bridge-walls between the fire-boxes A A, and the combustion-chamber or oven D, in the center of which opens the descending flue *b*, communicating with the horizontal flue *c*, leading to the chimney E.

The floor of the chamber D, made of fire-brick, has formed in it one or more sunken recesses or openings, F, circular in form, in the bottom of each of which is formed an annular groove or trough, *d*, which may be formed in the fire-brick, or the bottom of the recess may be made of metal, and the inner wall of the annular groove *d* be formed by a raised rib cast on said bottom plate, as shown in Figs. 4 and 6.

Within the recess F is placed a circular metal disk, G, mounted upon the upper end of the vertical shaft *e*, and provided with the downwardly-projecting annular rib *g*, the lower edge of which extends nearly to the bottom of the trough *d*, as shown in Figs. 4 and 6. The trough *d* is nearly filled with dry sand, powdered soapstone, or equivalent material, packed closely around the rib *g*, which revolves therein, thereby packing the joint and preventing air from entering the oven or chamber D around said disks.

The shafts *e* are mounted in suitable bearings, and have each secured firmly thereon a ratchet-wheel, *h*, located in the chambers H below the floor of the chamber D.

I is a three-armed lever pivoted at *i*, and engaging by its two opposite arms with the two long bars or rods *j*, and adapted to impart thereto a reciprocating motion in opposite directions, and through the pawls *k k* secured to said bars engaging with the ratchet-wheels *h* impart an intermittent rotary motion to the disks G.

In practice the disks G will be located with

their upper surfaces somewhat below the level of the floor of the chamber D, and will have their upper surfaces protected from the great heat of the furnace, by being covered with a circular disk of fire-brick *l*, as shown at the left-hand side of Fig. 4, and in Fig. 6. J is a door opening into the chamber D, through which the stones to be baked may be placed in position on the disks G.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with the combustion-chamber of a furnace or kiln, one or more circular disks or platforms sunk in suitable recesses formed for the purpose in the floor of said combustion-chamber, and adapted to be automatically rotated about a vertical axis, substantially as and for the purpose described.

2. In combination with the combustion-chamber of a furnace or kiln the disk G, provided with the downwardly-projecting annular rib *g*, the annular trough *d*, and a packing of dry sand, powdered soapstone, or other granulated material nearly filling the trough *d*, and surrounding the lower edge of the rib *g*, substantially as and for the purposes described.

3. The combination with the combustion-chamber of a furnace or kiln of one or more disks G, mounted upon vertical shafts, one or more ratchet-wheels *h*, one or more reciprocating bars *j*, one or more pawls *k*, and a single operating-lever, I, all arranged and co-operating, as set forth, to impart an intermittent rotary motion to any object placed upon said disks, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 4th day of January, 1877.

WILLIAM ESTY.

Witnesses:
N. C. LOMBARD,
E. A. HEMMENWAY.