

H. R. SIMONDS.
 APPARATUS AND PROCESS FOR BAKING EMERY WHEELS AND THE LIKE.
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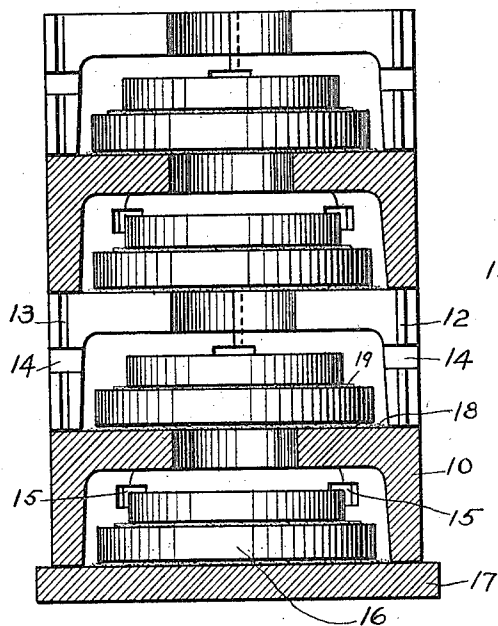


FIG. 1

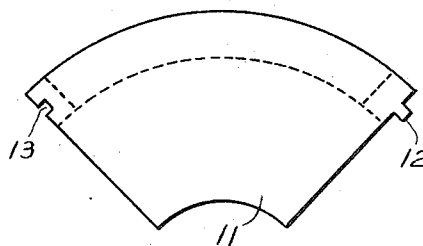


FIG. 2



FIG. 3

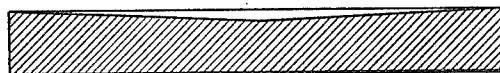


FIG. 4

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APPARATUS AND PROCESS FOR BAKING EMERY-WHEELS AND THE LIKE.

1,215,067.

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To all whom it may concern:

Be it known that I, HERBERT R. SIMONDS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Apparatus and Processes for Baking Emery-Wheels and the like, of which the following is a full, clear, and exact description.

10 In making emery wheels it has been customary to mold or "puddle" the wheels on plaster of Paris blocks or "bats", the material having about the consistency of thick paste or soft mud. On the bat, which is flat, a ring having a height about equal to the face of the wheel to be puddled, is laid and the soft material is placed or "puddled" in this ring. After the material has dried sufficiently to enable the wheel to retain its form the ring is removed and the bat with the green wheel on it is placed in a drying room. When dry the wheel is removed from the bat and placed upon a tile composed of fire clay or other refractory material on which it remains while being baked. Before it is baked the wheels are very fragile and crumble so easily that great care must be exercised in transferring them to the tile, and notwithstanding this care many wheels are ruined in transferring. As the surfaces of the tiles are more or less uneven it has been found necessary to bed the wheels in a thick layer of sand or ground quartz. The tiles with the wheels on them are then piled in stacks in a kiln, with a hollow ring, called a saggar, surrounding each wheel and acting as a separator for adjacent tiles, and also as a shield to prevent direct contact of fire with the wheels. Irregularity of the several contacting surfaces together with the weight on the tiles and saggars, has caused many of the tiles to break, frequently resulting in the wheels being cracked or broken. Many attempts have been made to prevent this strain on the tiles and one of the objects of my invention is to overcome the difficulty.

Another object is to avoid having to transfer the wheels from bats to tiles. This is effected by puddling the wheels on the tiles, and to enable this to be successfully done I first cover the tile with a substance which will not affiliate with the material of the wheel but which will prevent the wheel sticking to the tile. Another object

is to give the surface of the tile such form as it is desired to impart to the wheel.

In the accompanying drawing.

Figure 1 is a sectional elevation of a stack of saggars with a tile under each.

Fig. 2 is a plan of one segment of a saggar.

Fig. 3 is a section through a wheel of special form.

Fig. 4 is a section through a tile adapted to give one side of a wheel the form shown in the wheel shown in Fig. 3.

Similar numerals refer to like parts in the several views.

The saggar 10 resembles an inverted box with a hole in its bottom and no lid. While it may be made in one piece it is preferably made in segments, one of which is shown in Fig. 2. The inwardly projecting member 11 throws the segment out of balance but the tendency to tip inward is overcome by tongues and grooves, 12 and 13 respectively, by which the several segments are locked together. The tongues and grooves run from top to bottom of the segments which allows the last segment to be dropped into place from above. A recess 14 is formed at each end of the segment which coöperates with the corresponding recess in the abutting segment to form an aperture 15.

The tile 16 is a circular block of fire clay or other refractory material which is placed on top of one saggar and covered by another saggar. The tiles are made smaller than the interior of the saggars so that the stack of saggars is independent of the tiles and none of the weight is imposed on the tiles. In building the stack the first tile is laid on a suitable base block, such as 17. A saggar is placed over this tile and a second tile is placed on the saggar; etc. A layer of sand or quartz 18 may be placed under the tile but this is not essential. In case the old method is used, that of transferring the wheels from a "bat" to the tile, the wheels are bedded in a layer of sand or quartz in the usual way. I prefer, however, to "puddle" the wheels on the tiles and in order to prevent them sticking to the tiles I first cover the tiles with a thin layer of material which will not affiliate with the soft material of the wheel. I have found certain kinds of clay suitable for this purpose. For convenience, I have used a sheet of paper, 19, containing such clay which

remains and acts as a bedding for the wheel after the combustible components of the paper have been consumed.

Fig. 3 shows what is known as a "safety" wheel, the sides being slightly conical. It has been customary to turn the wheels to this conical form in a sort of lathe before baking them. By making the tile, or the bat as the case may be, with a conical depression as in Fig. 4, the conical form may be given to one side of the wheel in the puddling operation, thus reducing the cost of turning the wheels.

My invention is not limited in its application to the specific embodiment shown. For example the hole in the top of the saggar may be dispensed with. The apertures 15, which help to admit heat to the interior of the saggar, may be omitted if desired. Other variations may be made without departing from the substance of appended claims.

What I claim is as follows:

1. Apparatus for baking emery wheels and the like, comprising a tile on which to lay a wheel, and a saggar resembling an inverted box without a cover, the interior thereof being large enough to enable it to cover the tile and rest upon a surface in the same plane as that of the surface on which the tile rests, without imposing any of its weight upon the tile.

2. Apparatus for baking emery wheels and the like, comprising a tile on which to lay the wheel, and a saggar resembling an inverted box with a hole in its bottom and no lid, the interior thereof being large enough to enable it to cover the tile and rest upon a surface in the same plane as that of the surface on which the tile rests, without imposing any of its weight on the tile.

3. Apparatus for baking emery wheels and the like, comprising a tile on which to lay a wheel, and a saggar resembling an inverted box without a cover, the interior thereof being large enough to enable it to cover the tile and rest upon a surface in the same plane as that of the surface on which the tile rests without imposing any of its weight upon the tile, the saggar being composed of segments locked together by tongues and grooves.

4. Apparatus for baking emery wheels and the like, comprising a tile on which to lay a wheel, and a saggar resembling an inverted box without a cover, the interior thereof being large enough to enable it to cover the tile and rest upon a surface in the same plane as that of the surface on which

the tile rests, without imposing any of its weight upon the tile, the saggar having apertures in its sides to admit heat to the interior thereof.

5. Apparatus for baking emery wheels and the like, comprising a tile on which to lay a wheel, a saggar resembling an inverted box without a cover, the interior thereof being large enough to enable it to cover the tile and rest upon a surface in the same plane as that of the surface on which the tile rests, without imposing any of its weight upon the tile, and a sheet of paper between the tile and wheel, the composition of said paper comprising a refractory substance which will remain and act as a bedding for the wheel after the combustible components have been consumed.

6. Apparatus for baking emery wheels and the like, comprising a tile on which to bake the wheel, and a sheet of paper between the tile and wheel, the composition of said paper comprising a refractory substance which will remain and act as a bedding for the wheel after the combustible components have been consumed.

7. A process for making emery wheels and the like, comprising molding a wheel on a tile, and drying and baking said wheel before removing it from the tile.

8. A process for making emery wheels and the like, comprising molding a wheel on a tile with a layer of refractory substance interposed to prevent the wheel sticking to the tile, and drying and baking it before removing it from the tile.

9. A process for making emery wheels and the like, comprising molding a wheel on a tile and baking it before removing it from the tile.

10. A process for making emery wheels and the like, comprising molding a wheel on a tile with a layer of refractory substance interposed, and baking it before removing it from the tile.

11. A process for making emery wheels and the like, comprising molding the wheel on a tile or the like whose upper surface has a concentric conical depression with a continuous uniform slope, whereby one side of the wheel is made slightly conical, and baking it before removing it from the tile.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

HERBERT R. SIMONDS.

Witnesses:

EUGENE G. KENNEDY,
LOUISE A. BAUER.