No. 754,591. PATENTED MAR. 15, 1904.

T. H. MOONEY.

APPARATUS FOR GRINDING TILE.

APPLICATION FILED JUNE 11, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

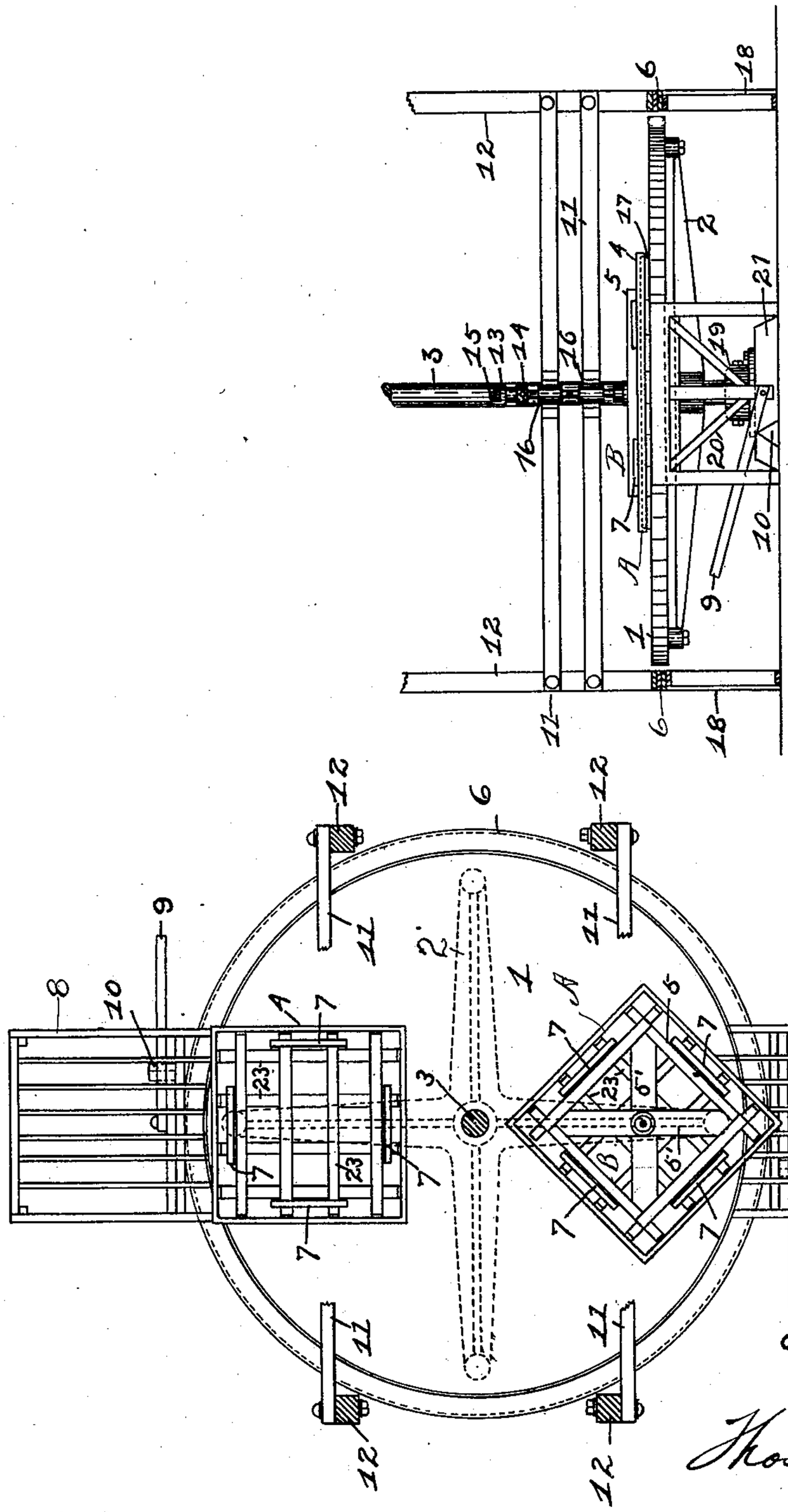

Fig. 2.

Fig. 1

Witnesses

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C. M. Thebald.

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By P. J. McCarty.

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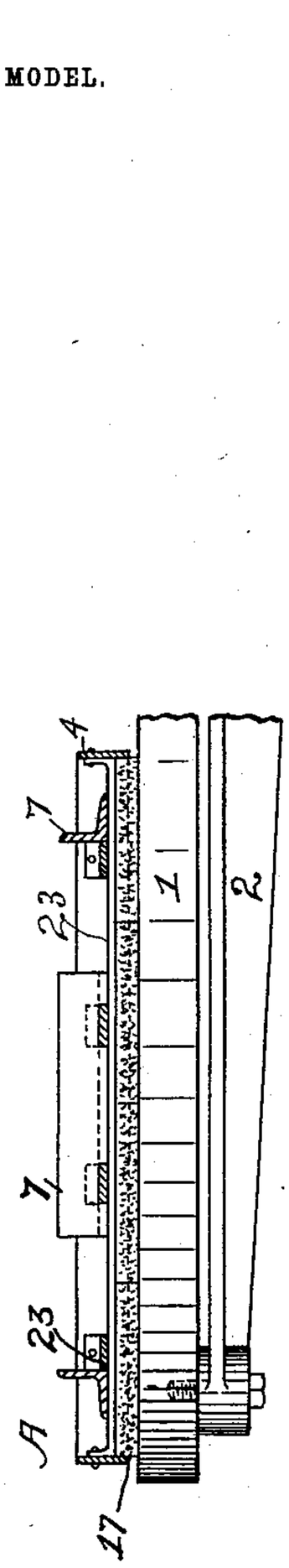

Fig. 4.

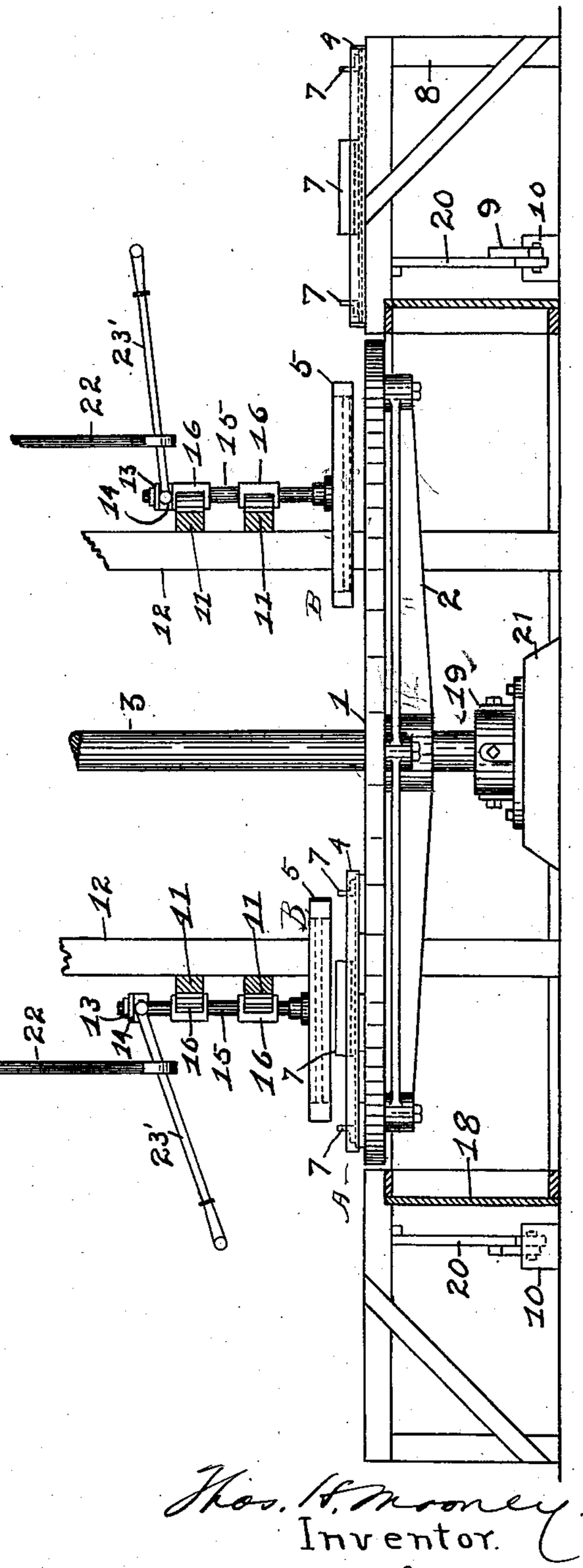

Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS H. MOONEY, OF DAYTON, OHIO.

APPARATUS FOR GRINDING TILE.

SPECIFICATION forming part of Letters Patent No. 754,591, dated March 15, 1904.

Application filed June 11, 1903. Serial No. 160,993. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. MOONEY, 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 for Grinding Tile, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine for grinding the surface of mosaic or marble tile, mosaic or marble slabs, and the like; and it consists of a rotary grinding-bed upon which is arranged the tile, slabs, or other article to be ground, the said tile, slabs, or other article being rotated upon a separate axis from that of the rotary grinding-bed and receiving its rotary movement from said grinding-bed, all as will be hereinafter more fully described.

Preceding a detail description of my invention reference is made to the accompanying drawings, of which—

Figure 1 is a top plan view of my improved rotary grinding-machine. In this view uprights are shown in section and cross-beams are partly broken away. Fig. 2 is an elevation with portions of uprights broken away, also a portion of the main driving-shaft. The inclosing rim of the machine is shown in section in this view. Fig. 3 is an elevation at right angles to Fig. 2, portions of the uprights, the main driving-shaft, and lever-supports being broken away. Fig. 4 is an enlarged detail view of a portion of the rotary grinding-bed with a series of tile thereon.

In a detail description of the invention similar reference characters indicate corresponding parts.

1 designates a rotary grinding-bed, which consists of a metal disk supported and secured to a four-armed spider 2.

3 designates an upright shaft which passes through the axis of said bed and is mounted in a lower bearing 19, supported on a base 21. Power is imparted to the shaft 3 to rotate the grinding-bed.

A designates a rectangular tile-frame, of which there are two placed at opposite points on the grinding-bed when in operative positions. These frames consist of marginal bars or flanges 4, which are united to a series of cross-bars 23, and each of said frames is adapted to receive or encompass a plurality of tiles 17, as shown in Fig. 4, or said frame may inclose a single tile of its own dimensions. 7 designates four flanges projecting from the upper side of said frames A and adapted to receive a rectangular holding-frame B, constructed of marginal bars 5 and cross-bars 5′ and adapted to coöperate with frames A in holding the tile in position on the grinding-bed.

15 designates two upright shafts which are journaled in boxes 16, secured to horizontal beams 11, which in turn are secured to uprights 12. These shafts 15, together with the frames B, are adapted to be elevated to free said frames from engagement with the frames A by means of hand-levers 23′, which are fulcrumed upon hangers 22, connected to loose collars 14. Collars 14 inclose the upper portions of the shafts 15 below rigid collars 13, which are secured to said shafts. As the frames B are shown in Fig. 3 they are elevated, one above a frame A. The other frame A is removed from beneath its respective frame B.

6 designates a stationary rim inclosing the rotary grinding-bed 1 and supported upon an annular base 18. This rim 6 should at all times be on a level with the upper surface of the bed. It is therefore made of laminations or a series of layers of wood united in such manner that the uppermost layer may be removed as the grinding-surface of the bed 1 becomes worn away by constant friction in the operation of the machine. Thus the rim and grinding-bed are maintained on a level.

8 designates two feed-tables, each of which is constructed of a series of parallel bars connected by marginal bars and supported upon uprights. The several sections of tiling 17 are placed upon such tables when it is desired to grind the surface of a plurality of tiling

at a single operation, or if a single tile of the dimensions of one of the rectangular frames A is to be faced or ground said tile is placed upon one of the feed-tables and a frame A is placed over the same in such manner that the marginal bars 4 of said frame project downwardly around the edges of the tile, as shown in Fig. 4. It will be understood that the marginal edges of said frame A should not project so far that they might come in contact with the grinding-bed 1 for obvious reasons. The normal position of the table 8 is slightly below the upper surface of the grinding-bed 1, as is shown in Fig. 3. This is important, for the reason that in the rotation of the tile in the frames A said tables must offer no obstruction to such movement. The table to the right in Fig. 3 contains a frame A with its charge of tiling ready to be delivered to the grinding-bed 1 below a holding-frame B. In order to slide said frame with the tiling onto said grinding-bed, it is necessary to slightly elevate the inner end of the feed-table to a position on a level with the upper surface of the grinding-bed—that is to say, the upper surface of the parallel bars of said table should be elevated to a position on a level with the upper surface of the grinding-bed. This requires a slight movement of said table by means of the foot-lever 9, which has a fulcrum 10 and is pivoted to braces 20, projecting from near the inner end of said table. When suitable pressure is exerted upon said lever to elevate the frame A with the tile as described, the said frame, with its contents, is slid off of said table onto the grinding-bed 1 beneath the holding-frame B, care being taken to move the tile-frame A to a proper position to bring the flanges 7 in the right positions to inclose the four sides of the frame B, at which time the frame B is lowered upon said tile-frame A by means of a hand-lever 23′. The frame B holds the tile-frame A in a position to rotate on a permanent axis—namely, the shaft 15—as the grinding-bed rotates. The tile-frame A, holding-frame B, and shaft 15 rotate together. It will be understood that the frictional contact between the tiling 17 and the grinding-bed 1 causes said tile to rotate on such axis.

In the operations of the machine the grinding-bed 1 is supplied with a suitable feed of sand and water to cause an abrading-surface throughout the area of said bed. Throughout the operation of the machine the working surface of the rotating bed is worn away uniformly, and as a consequence the surface of the tiling is ground uniformly throughout. If a plurality of similar slabs or sections of tiling are placed within the frame A, the grinding given each of said slabs is uniform, and the same is true of a single slab of tiling of dimensions equal to said frame. The work of grinding tiling by this machine is consequently far superior and more speedy than the hand operation. In order to obtain the proper movement, the axis of the tile-frame A—to wit, the shaft 15—is placed nearer to the rim of the grinding-bed than to the main driving-shaft 3, substantially as shown in Fig. 1.

Having described my invention, I claim—

1. In a grinding apparatus, a rotary grinding-bed, a tile-frame adapted to encompass the tiling to be ground, said frame inclosing the upper portion of the tiling so that the face of said tiling alone, is in contact with the grinding-bed, a holding-frame engaging the tile-frame, a shaft secured to said holding-frame and having suitable journals, said shaft forming the axis of rotation of the tile-frame and the holding-frame, substantially as set forth.

2. In a grinding apparatus, a rotary grinding-bed, a tile-frame consisting of a series of cross-bars inclosed by marginal bars, said tile-frame being adapted to inclose a series of tile or a single tile of equal dimensions with the frame, a holding-frame having a shaft rigidly secured thereto, and suitable bearings for said shaft, said shaft forming the axis of rotation for the tile-frame and the holding-frame, substantially as set forth.

3. In a grinding apparatus, a rotary grinding-bed, a tile-frame adapted to hold a plurality of sections of tiling together upon the rotary grinding-bed, a holding-frame secured to said tile-frame, and a shaft secured to said holding-frame, said shaft being the axis of rotation to the tile-frame, and the holding-frame, the holding-frame serving to hold said tile-frame in a position to rotate under the action of the grinding-bed, substantially as set forth.

4. In a grinding apparatus, a rotary grinding-bed driven from an upright shaft, a rectangular tile-frame having flanges projecting upwardly therefrom, a holding-frame adapted to be placed upon said tile-frame between said flanges, and a shaft rigidly attached to said holding-frame and becoming the axis of rotation of the tile-frame when the latter is in contact with the rotary grinding-bed.

5. In a grinding apparatus, the combination of a rotary grinding-bed, a stationary rim surrounding said grinding-bed, a feed-table located adjacent to said rim, and the upper surface thereof being normally below the surface of the grinding-bed, said feed-table being adapted to support the tile-frames preparatory to said frames being moved onto the grinding-bed, means for elevating said feed-table to a position on a plane with the surface of the grinding-bed to permit of the tile-frame and its contents being moved onto said grinding-bed, substantially as set forth.

6. In a grinding apparatus, a rotary grinding-bed, a stationary rim surrounding said grinding-bed, a tile-frame adapted to inclose tiling in a position upon the grinding-surface

of said bed, a holding-frame and a shaft adapted to hold said tile-frame on a permanent axis of rotation, substantially as set forth.

7. In a grinding apparatus, a rotary grinding-bed, a stationary rim surrounding said bed, a tile-frame consisting of a series of cross-bars surrounded by marginal bars, said tile-frame being adapted to hold one or more slabs of tiling in position to be acted upon by the grinding-bed, a holding-frame detachably connected to said tile-frame, and adapted to hold said tile-frame, a shaft to which said holding-frame is rigidly united and which forms the axis of rotation for the tile-frame, and means for elevating said shaft to remove the holding-frame from the tile-frame, substantially as set forth.

8. In a grinding apparatus, a rotary grinding-bed, a tile-frame adapted to hold one or more slabs of tiling in a position to be acted upon by the grinding-bed, a holding-frame adapted to interlock with said tile-frame to hold the latter during the grinding operation, an upright shaft rigidly secured to said holding-frame, and an operating-lever by means of which said holding-frame is elevated from the tile-frame, substantially as set forth.

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

THOMAS H. MOONEY.

Witnesses:
R. J. McCarty,
C. M. Theobald.