A. N. ZAVAGNO.

APPARATUS FOR EDGING TILES AND THE LIKE.

APPLICATION FILED APR. 30, 1920.

1,394,392. Patented Oct. 18, 1921.

Fig. 1.

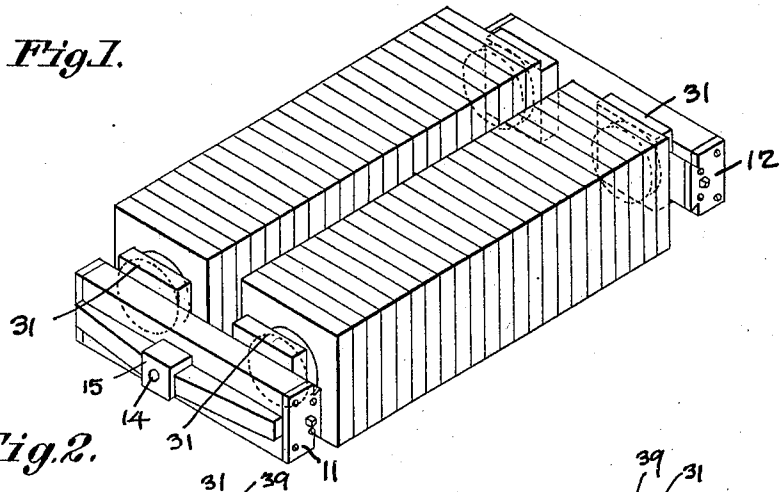


Fig. 2.

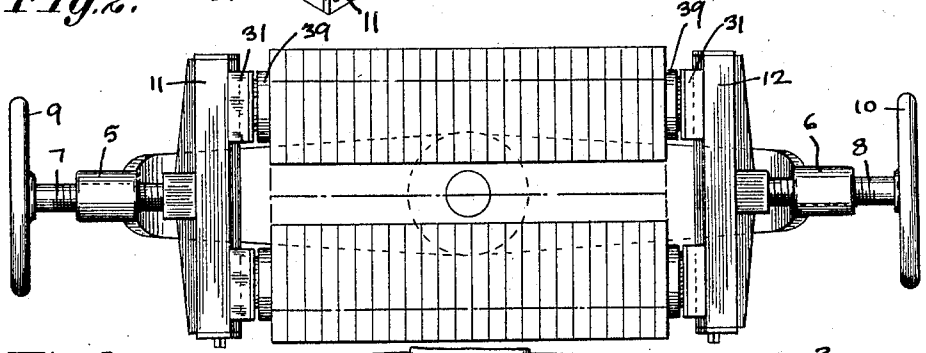


Fig. 3.

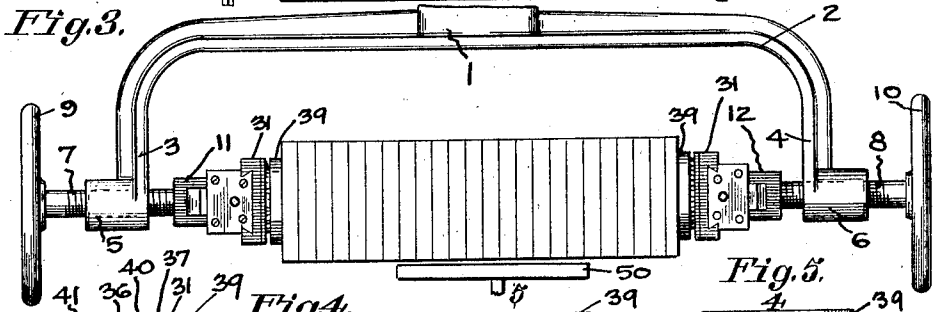


Fig. 4.

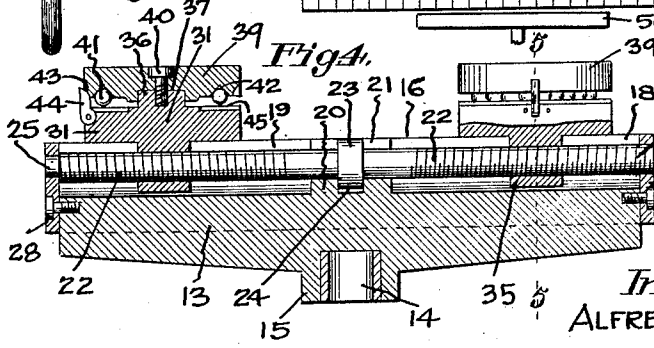
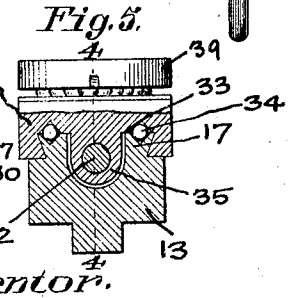


Fig. 5.



Inventor.

ALFRED N. ZAVAGNO

By Baldwin Vale Attorney

UNITED STATES PATENT OFFICE.

ALFRED N. ZAVAGNO, OF SAN FRANCISCO, CALIFORNIA.

APPARATUS FOR EDGING TILES AND THE LIKE.

1,394,392. Specification of Letters Patent. Patented Oct. 18, 1921.

Application filed April 30, 1920. Serial No. 378,008.

To all whom it may concern:

Be it known that I, ALFRED N. ZAVAGNO, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have made a new and useful invention—to wit, Improvements in Apparatus for Edging Tiles and the like; and I do hereby declare the following to be a full, clear, concise, and exact description of the same.

The principal object of this invention is to provide a new and improved apparatus for edging, surfacing and smoothing rough slabs of marble, stone and other natural and artificial monolithic compositions.

A further object is to provide a new and novel construction and arrangement of the operating parts. Other objects and advantages will appear as this description progresses.

In this specification and the annexed drawings, the invention is illustrated in the form considered to be the best, but it is to be understood that the invention is not limited to such form, because it may be embodied in other forms; and it is also to be understood that in and by the claims following the description it is desired to cover the invention in whatsoever form it may be embodied.

In the following one sheet of drawings:

Figure 1 represents an isometric projection of a tile edging apparatus constructed in accordance with my invention.

Fig. 2 is a bottom plan view of the same.

Fig. 3 is a side elevation of the tile and the apparatus for holding the same on the supporting base.

Fig. 4 is an enlarged plan section taken on the line 4—4 of Fig. 5.

Fig. 5 is an end section partially in elevation taken on the line 5—5 of Fig. 4.

In detail the construction illustrated in the drawings includes the base supporting frame 1, mounted in a suitable over-head crane or other conveying device, and terminating in the end bearing members 3 and 4 substantially at right angles thereto forming a yoke 2. Each of the members 3 and 4 are provided with hub projections 5 and 6 respectively, and are drilled and threaded having the clamping screws 7 and 8 in engagement therewith that are operated by the handles 9 and 10. Within the interior of the yoke 2 the adjustable screws 7 and 8 respectively have the frames 11 and 12, in juxtaposition, rotatably mounted thereon.

The frames 11 and 12 are identical in construction and comprise the bed plate or base member 13 drilled at 14 in the hub 15 thereof to provide a bearing for the ends of the thread shafts 7 and 8. The interior of the opening 14 is lined with a suitable anti-friction bushing for the purpose of permitting the frame 13 to rotate easily around the ends of the respective shafts 7 and 8. The opposite face 16 of the base member 13 is milled to provide an externally dove-tailed member 17 and has the slots or depressions 18 and 19 formed therein. Each of the grooves 18 and 19 are separated by a projecting wall 20 integrally formed substantially in the center of the said frame. The division member 20 is provided with a longitudinally milled groove 21 for receiving and forming a bearing for the adjusting rod 22 rotatably retained therein by the collar 23, secured on said shaft 22, and revolving in a lateral annular depression 24 formed in said division member. The shaft 22 on opposite sides of the division is threaded with right and left hand threads and has the ends 25 and 26 thereof mounted in bearing plates 28 and 29 respectively, secured to the ends of the bed plate 13 by machine screws or other appropriate fastening means. The end 27 of the shaft 22 is provided with a squared end 30 for engaging a suitable wrench or spanner for rotating said shaft as will be hereinafter more fully described in detail.

The chuck 31, or plurality of chucks, has an internally dove-tailed face 33, is slidably mounted in engagement with the male dove-tailed member 17 and has suitable anti-friction roller bearings 34 interposed therebetween and maintained in longitudinal grooves provided in the companion sliding faces of the dove-tails 33 and 17. The inner face of the member 31 is provided with an integral projection adapted to fit into grooves 18 and 19 and is drilled and threaded for running engagement with the threaded shaft 22. The outer face of the chuck 31 has an annular projection 36 thereon engaging a companion annular depression 37 formed on the inner face of the rotatable disk or turn table 39 swivelly mounted on said member 31 by the pivot pin 40. A suitable anti-friction ball race 41 is rotatably mounted in a groove 42 formed in the

inner face of said member 39 and bearing against the wearing plate 45 mounted on the companion face of the chuck 31. To prevent the disk 39 from rotating its outer periphery is provided with slots 43 spaced at suitable points around the circumference thereof and which are adapted to be engaged by locking plates 44 pivotally mounted in suitable slots provided in the chuck 31. Thus it will be seen that by disengaging the pivot locking plate 44 from one of the registering slots 43, the turn table 39 can be freely revolved relative to its supporting plate 31.

This device operates substantially as follows: The frames 11 and 12 within the yoke 2 are positioned snugly against the projecting arms 2 and 3. A plurality of rough unfinished slabs of tile, marble, stone or the like are stacked in superposed relation between the chuck members 31 slidably mounted on the opposite frame members 11 and 12 and are clamped therebetween by advancing the said frames on the threaded shafts 7 and 8. The substantially integral unit of supporting base 1 adjustable end frames 11 and 12 together with the monolithic mass are then advanced into frictional contact with a suitable rotary surfacing apparatus or grinding mechanism 50. Thus each of the independent stacks of tile in superposed relation are surfaced to any suitable plane or finish desired by the operator in charge. When the desired finish has been obtained the finished faces of the monolithic mass are withdrawn from the surfacing apparatus and the whole monolithic mass, together with the side frames 11 and 12 are revolved on the ends of the supporting shafts 7 and 8 through an arc of one hundred and eighty degrees placing the unfinished portions thereof in position to be advanced toward the surfacing apparatus 50 and ground or finished to any desired plane. Upon completion of the last mentioned operation, the second mentioned surfaced face is withdrawn from the rubbing bed. Suitable handles are placed on the squared ends of the running shafts 22 for advancing each of the individual chucks 31 in threaded engagement therewith, either toward or from each other. Each of the chucks 31 on the frame 11 are in longitudinal alinement or juxtaposition with the chucks 31 on the frame 12, therefore, synchronous rotation of the shafts 22 will advance each of the independent stacks of tile, marble, stone or the like toward or from each other. When the monolithic masses have been separated a sufficient distance, the locking plates 44, pivotally mounted on the supporting chucks 31 are disengaged from the slots formed in the turn table 39. The turn tables 39 together with the monolithic mass clamped therebetween are then rotated through an arc of ninety degrees relative to the chuck base 31, or any lesser number of degrees desired. The locking plates 44 are then replaced in engagement with registering slots 43 provided in the rotatable disks 39, thus holding the stacks of slabs with the unfinished portions thereof in position to contact with a surfacing apparatus. For the purpose of illustration presuming that the finished surfaces of the stacked slabs have been rotated through an arc of ninety degrees the surfaced faces on each of the independent stacks would then be in contiguous or adjacent relationship. In this position the right and left hand threaded shaft 22 would be revolved to advance chucks 31 and the aforementioned surfaced faces of the independent stacks into contacting engagement as is indicated by dotted lines in Fig. 2. Thus the pair of stacked tiles would have the surfaced faces thereof in planal engagement and the unfinished portions or sides of the monolithic mass would be advanced to the surfacing apparatus 50 and be finished to any desired plane. Upon completion of this operation the surfaced face would be withdrawn from the surfacing stone, and the frames 11 and 12 and the monolithic mass revolved through an arc of one hundred and eighty degrees placing the remaining unfinished sides of each of the independent stacks of slabs in position to be advanced toward the rubbing bed. The finishing of the last remaining surface permits the supporting frame 1 together with the slabs to be withdrawn from the rubbing bed, the companion chucks 31 and interposed slabs to be separated from each other and the supporting frames backed away, thus releasing the plurality of stacks clamped therebetween.

By the use of the apparatus described increased amounts of slabs of stone, marble, tile and the like weighing in the neighborhood of eight or nine hundred pounds can be finished with the same efficiency and ease that at the present time permits only two or three slabs having a weight of twenty to fifty pounds to be hand finished.

Having thus described this invention, what I claim and desire to secure by Letters Patent is:—

1. An apparatus for edging tiles comprising a supporting base; adjustable frames rotatably mounted on said base; and tile engaging chucks slidably mounted on said frames.

2. An apparatus for edging tiles comprising a supporting base; adjustable frames rotatably mounted in juxtaposition on said base; chucks slidably mounted on said frames and rotatable tile engaging means positioned on said chucks.

3. An apparatus for edging tiles comprising a supporting base; spaced frames

in juxtaposition rotatably mounted on said base; means for adjusting the positions of said frames relative to the base; chucks slidably positioned on each of said spaced frames and means for adjusting said chucks on said frames.

4. An apparatus for edging tiles such as described comprising a supporting base; spaced frames in juxtaposition rotatably mounted on said base; means for adjusting the positions of said frames relative to the base; chucks slidably positioned on each of said spaced frames; tile engaging means rotatably mounted on said chucks and means for adjusting said chucks on said frames.

5. An apparatus for edging tiles comprising a supporting base; adjustable frames rotatably mounted on said base; tile engaging chucks slidably mounted on said frames and means for synchronously adjusting the positions of said chucks.

6. An apparatus for edging tiles comprising a supporting base; spaced frames in juxtaposition rotatably mounted on said base; means for adjusting the positions of said frames relative to the base; chucks slidably mounted on said frames and means for synchronously adjusting the positions of said chucks.

7. An apparatus for edging tiles comprising a supporting base; spaced frames in juxtaposition rotatably mounted on said base; means for adjusting the position of said frames relative to the base; chucks slidably positioned on each of said spaced frames; tile engaging means rotatably mounted on said chucks and means for synchronously adjusting the positions of said chucks.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 22nd day of April, 1920.

ALFRED N. ZAVAGNO.

In presence of—
LINCOLN V. JOHNSON.