

E. EGGERS.
 STONE SHAPING MACHINE.
 APPLICATION FILED MAR. 9, 1910.

997,764.

Patented July 11, 1911.

3 SHEETS—SHEET 1.

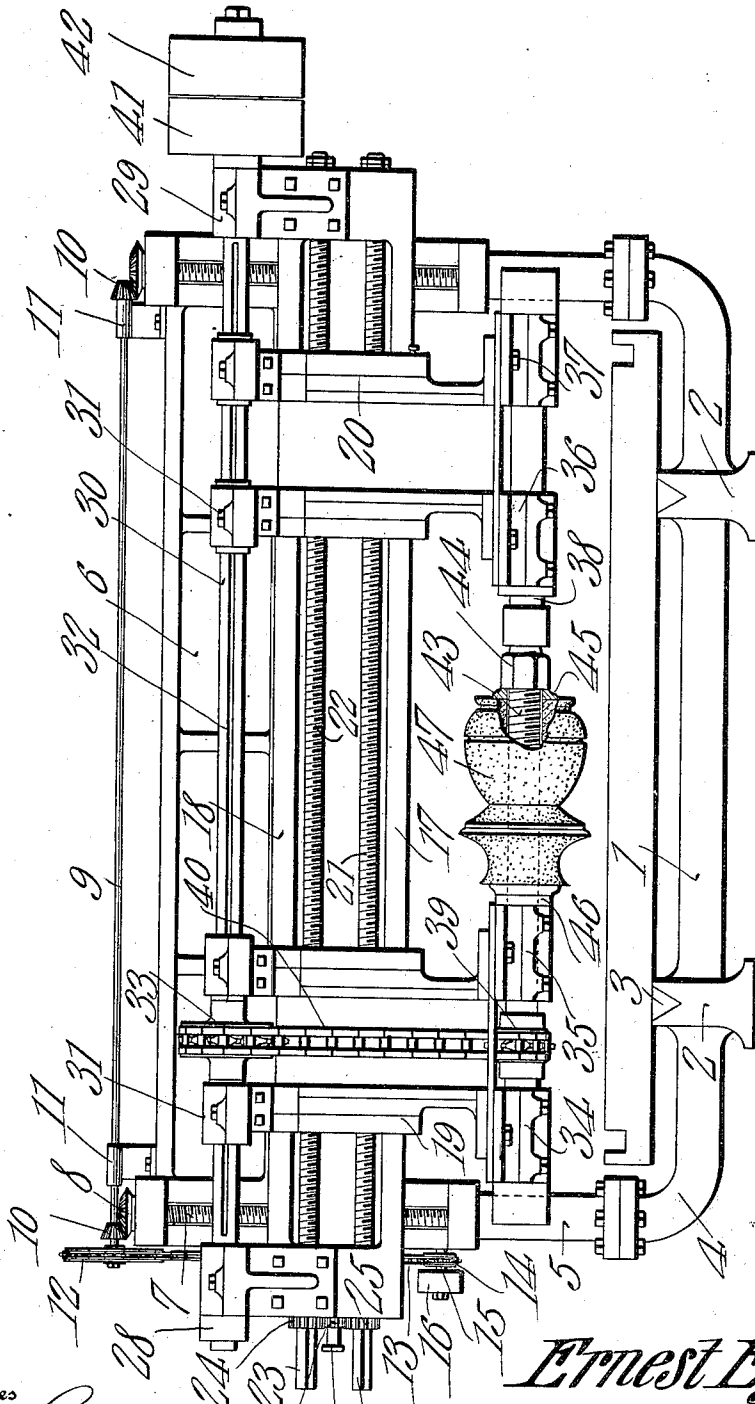


Fig. 1.

Witnesses
C. J. ...
F. J. Chapman.

Inventor
Ernest Eggers.

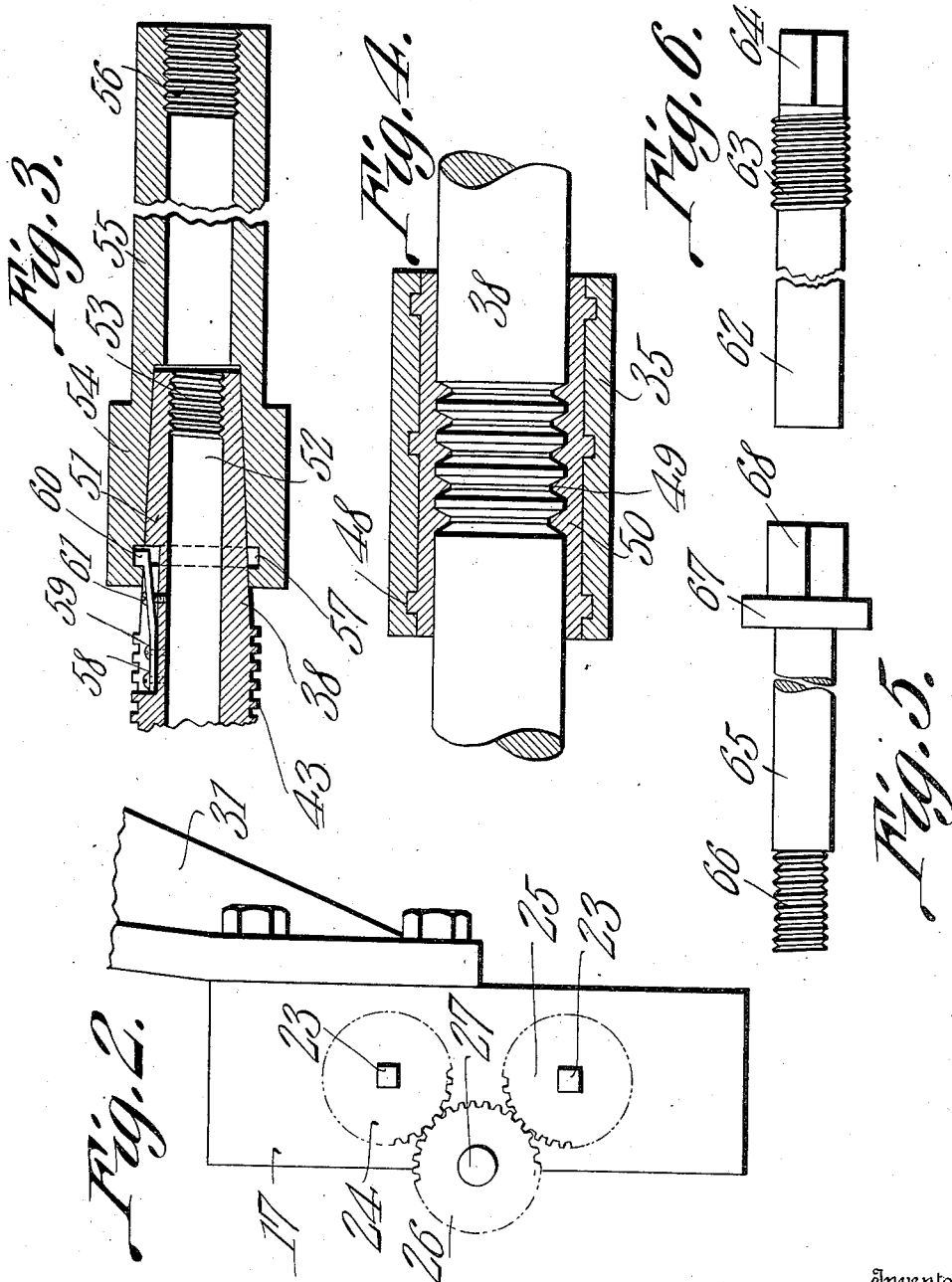
Chas. ...
 Attorneys

E. EGGERS.
 STONE SHAPING MACHINE.
 APPLICATION FILED MAR. 9, 1910.

997,764.

Patented July 11, 1911.

3 SHEETS—SHEET 2.



Witnesses

[Signature]
 F. T. Chapman

Inventor
Ernest Eggers.

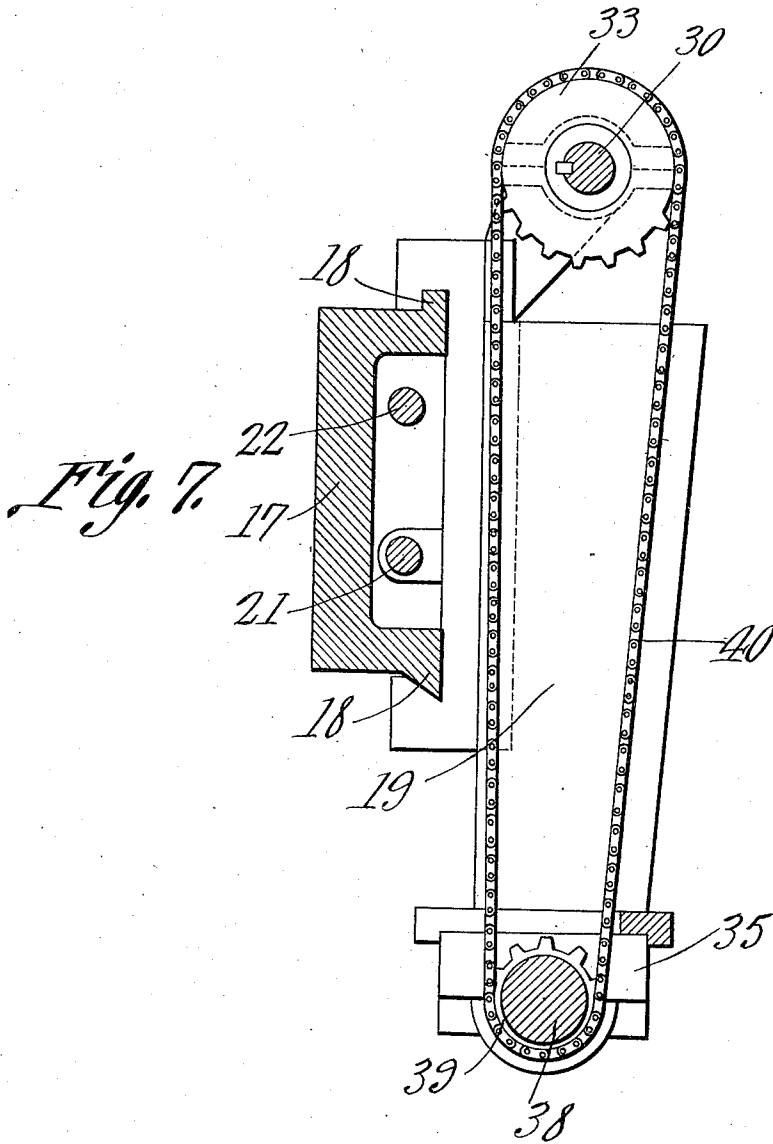
By *C. Brown & Co.*
 Attorneys

997,764.

E. EGGERS.
STONE SHAPING MACHINE.
APPLICATION FILED MAR. 9, 1910.

Patented July 11, 1911.

3 SHEETS—SHEET 3.



Witnesses

J. Thomas
Wason B. Lawton

Ernest Eggers

Inventor

by

C. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

ERNEST EGGERS, OF NEW YORK, N. Y., ASSIGNOR TO THE COLORADO-YULE MARBLE CO., OF NEW YORK, N. Y.

STONE-SHAPING MACHINE.

997,764.

Specification of Letters Patent. Patented July 11, 1911.

Application filed March 9, 1910. Serial No. 548,160.

To all whom it may concern:

Be it known that I, ERNEST EGGERS, a subject of the Emperor of Germany, residing at New York, in the county of New York and State of New York, have invented a new and useful Stone-Shaping Machine, of which the following is a specification.

This invention has reference to improvements in machines for shaping stone, especially for producing molding on marble although not restricted to such work.

The machine of this invention is designed to employ grinding wheels, especially carborundum wheels of suitable shape which when a marble slab is moved under such wheels will form therein molding designs of the predetermined shape in accordance with the dressing of the carborundum wheels. The present invention comprises means for the adjustment and feeding of the carborundum wheels to the work and means whereby the wheels may be mounted and when desired readily removed and replaced by other wheels.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,—

Figure 1 is an elevation, with parts in section, of a marble dressing machine embodying the present invention. Fig. 2 is an end elevation of a portion of the structure of Fig. 1 on a larger scale. Fig. 3 is a central longitudinal section of a portion of the grinder shafts. Fig. 4 is a longitudinal diametric section of one of the journal-boxes for the grinder shafts. Figs. 5 and 6 are views of tools used in operating the grinder shaft for the removal and replacing of grinding wheels. Fig. 7 is a transverse section showing in what manner the carriages are held for reciprocation longitudinally of the machine.

Referring to the drawings, there is shown a frame 1 in which there may be formed two spaced tracks 2 for a table 3 provided with the usual V guides movable in the tracks 2. The table 3 is designed to receive and to hold the marble or other stone slab to be operated upon. These parts may be the same as are ordinarily used in stone dressing machines of the character to which this

invention relates and therefore no detail showing or description is deemed necessary. 55

Extending from the tracks 2 are brackets 4 of sufficient breadth to underride the table 3 and upturned at the end where each bracket carries a post 5 and these posts may be connected at their upper ends by a suitable girder 6 serving to brace and strengthen the parts. Each post 5 carries a screw shaft 7 capable of turning about its longitudinal axis but held by any appropriate means from moving longitudinally, and at the upper end each shaft 7 terminates in a beveled gear 8. The two shafts 7 are coupled together for simultaneous movement by a shaft 9 carrying beveled pinions 10 meshing with the gear wheels 8 so that the direction of movement of one shaft 7 is always the same as the direction of movement of the other shaft 7. The shaft 9 is supported in journal-bearings 11 carried by the girder 6. One end of the shaft 9 carries a sprocket wheel 12 coupled by a sprocket chain 13 to another sprocket wheel 14 upon a short shaft 15 carrying a pulley 16 or other means for the application of power. It will be understood of course that the pulley 16 may be replaced by a hand wheel or crank. 80

Extending across the machine between the posts 5 and beyond the same is a beam 17 carried by the screw shafts 7 so that when these shafts are rotated the beam 17 with parts carried thereby will be elevated or depressed in accordance with the direction of movement of the said shafts. This beam is formed on one face with ways 18 and along these ways travel carriages 19, 20 each being engaged by screw shafts 21, 22, respectively, these shafts having bearings at the ends in the ends of the beam 17 and beyond one end of the beam 17 the shafts 21, 22 are extended and there squared as shown at 23 for the application of a manipulating crank. The shaft 22 adjacent to its squared end 23 carries a pinion 24 and the shaft 21 carries a like pinion 25 while these pinions have common engagement with an idler pinion 26 on an axle 27 along which the pinion 26 may be moved out of engagement with the pinions 24, 25 or into engagement therewith at will. The beam 17 carries near the ends journal bearings 28, 29 for a shaft 30 which also has journal bearings in the carriages 19, 105

20. The shaft 30 is provided with a longitudinal groove 32 for a spline in a sprocket wheel 33 on the carriage 19.

5 The lower ends of the carriages are provided with journal bearings 34, 35, 36 and 37, the carriage 19 having the bearings 34 and 35 and the carriage 20 having the bearings 36 and 37. Traversing these several bearings is a shaft 38 carrying between the 10 bearings 34 and 35 a sprocket pinion 39 coupled to the sprocket wheel 33 by a sprocket chain or belt 40.

The shaft 30 is provided with tight and loose pulleys 41, 42 for the application of 15 power through a suitable belt, or these pulleys may be taken as indicative of any means for the application of power to shaft 30. It will be understood that the belt pulleys 41 and 42 may be replaced by an 20 electric motor if such be desirable. The sprocket wheel 33 is splined to the shaft 30, the groove 32 being provided for the purpose, so that the sprocket wheel 33 may be moved longitudinally of the shaft 30 and 25 still rotate with the same. When power is applied to the pulley 41 then the shaft 30 is rotated and through the sprocket wheel 33, sprocket chain 40, and sprocket pinion 39 rotative movement is imparted to the 30 shaft 38.

Between the bearings 35 and 36 the shaft 38 is screw threaded for the greater portion of the distance as indicated at 43 and to this threaded portion is applied a nut 44 acting on a washer 45 while adjacent to the 35 bearing 35 the shaft 38 may be provided with a collar 46. The portion of the shaft 38 between the nut 45 and the collar 46 is designed to carry a grinding wheel 47 or a 40 series of such wheels suitably shaped to grind the design of molding in a slab carried by the table 3. The length of the threaded portion 43 of the shaft 38 permits clamping between the collar 46 and the nut 45 such wheels 47 as may be desired and a 45 great variety of such wheels may be employed within the range of the length of the shaft section 43.

The shaft 38 is prevented from moving 50 longitudinally in its bearings by a construction of one of the bearings, say the journal bearing 35 best shown in Fig. 4. The casing of the bearing is formed with grooves 48 while the shaft where traversing the 55 bearing is formed with a series of parallel circumferential grooves 49. Babbitt metal 50 may be introduced into the journal bearing 35 to fill the grooves therein and in the shaft 38 thus binding the shaft to the journal bearing against movement longitudinally therein but not interfering with the 60 rotative movement of the shaft 38 in the Babbitt metal binding. The end of the shaft 38 remote from the bearing 35 terminates in a tapered section 51 short of the 65

bearing 36 and this tapered portion may be hollow for a distance, as indicated at 52, the end of the shaft within the hollow portion 52 being threaded as indicated at 53. The tapered portion 51 of the shaft 38 is 70 adapted to a tapered seat in the enlarged end 54 of a hollow shaft section 55 constituting a continuation of the shaft 38 and adapted to the journal bearings 36 and 37, the shaft 55 at the end remote from the en- 75 largement 54 being provided with internal screw-threads 56, as shown in Fig. 3.

Within the tapered portion of the head or enlargement 54 there is formed a circumferential groove 57 and seated in a recess 80 58 in the tapered portion of the shaft 38 is a leaf spring 59 terminating in a block 60 adapted to enter the groove 57. The spring 59 is under the control of a screw 61 by means of which the spring may be moved 85 into the recess 58 for a distance sufficient to withdraw the block 60 from the groove 57.

When it is desirable to separate the shaft section 55 from the shaft 38, then there is introduced into the shaft section 55 a rod 90 62 shown in Fig. 6, this rod 62 having near its outer end a threaded section 63 adapted to the threaded portion 56 of the shaft section 55 and beyond the threaded portion 63 the rod 62 may be squared, as indicated at 95 64 for the application of a suitable tool for rotating the rod about its longitudinal axis. By introducing the rod 62 into the hollow shaft section 55 and then screwing the threaded portion 63 into the threaded portion 100 56 of the shaft section 55, the other end of the rod 62 is made to abut against the end of the shaft 38, and, the block 60 having been withdrawn from the groove 57 by a proper manipulation of the screw 61, the 105 longitudinal pressure of the rod 62 upon the end of the shaft 38 will tend to withdraw the shaft section 55 from the tapered portion of the shaft 38 thus separating these two parts. If, however, it be desired to draw 110 the shaft section 38 and the shaft extension 55 together, then a rod 65 illustrated in Fig. 5 is employed. This rod is provided at one end with screw threads 66 and at the other end with a collar 67 beyond which 115 the rod may be squared as shown at 68 for the application of a suitable tool. The rod 65 is introduced into the hollow shaft 55 but being of small enough diameter does not engage the threaded portion 56. The 120 threaded portion 66 of the rod 65 will however enter the threaded portion 53 of the interior of the tapered portion 51 of the shaft 38 and then the collar 67 abutting against the outer end of the shaft extension 125 55 will serve to draw the two parts 38 and 55 together until the block 60 is coincident with the groove 57 when by a proper manipulation of the screw 61 the block 60 is caused to seat in the groove 57 130

and so lock the shaft section 38 to the shaft extension 55. If now it be desired to treat a marble slab mounted on the table 3 then suitable wheels 47 are assembled on the shaft 38 and clamped thereon, the beam 17 having been first elevated by a proper manipulation of the wheel 16 which through the chain 13 will cause a rotation of the shaft 9 to rotate the shafts 7 in a direction to lift the beam 17 and the parts carried thereby.

In assembling the wheels 47 on the shaft 38 it is first necessary to remove the extension 55 and to leave room at the tapered end of the shaft 38 for the placing thereon of the wheels 47. To do this it is necessary to separate the carriages 19 and 20 and this may be accomplished by moving the gear pinion 26 out of mesh with the pinions 24 and 25 when by applying power to one of the shafts 21 or 22, say the shaft 21 the carriage 19 may be moved to the left as viewed in Fig. 1, and then by rotating the shaft 22 in the proper direction the carriage 20 may be moved toward the right as viewed in Fig. 1, thus leaving ample room between the tapered end of the shaft 38 and the journal bearing 36 for the introduction of the wheels 47. After the wheels 47 have been assembled on the shaft 38 then the extension 55 may be attached in the manner already described and the carriages 19 and 20 may be made to approach until in proper relation, this being accomplished by a suitable manipulation of the screws 21 and 22. Now by coupling up the gear pinions 24 and 25 through the idler pinion 26 the shafts 21 and 22 may be caused to rotate simultaneously in the same direction and the two carriages 19 and 20 will be fed in the direction of the length of the shaft 38 together and the grinding wheels 47 may therefore be located at any appropriate point on the block to be treated. By now lowering the wheels 47 into engagement with the slab by means of a suitable manipulation of the wheel 16, power may be applied to the shaft 30 by means of the pulley 41 and rotation imparted to the wheels 47 as they are brought into contact with the slab, and then by feeding the slab in the appropriate direction a groove conformable to the shape of the grinding wheels 47 will be formed in the slab, the depth of this cut depending upon the degree of movement of the grind-

ers toward the slab which may be controlled by the screw shafts 7.

What is claimed is:—

1. In a device of the class described, a grinder shaft; carriages supporting the grinder shaft; a screw threaded into each carriage separately; spaced pinions upon the screws; and a movable pinion slidable into and out of engagement with the screw carried pinions.

2. In a device of the class described, a supporting structure; a beam; means upon the supporting structure for raising and lowering the beam; carriages slidable longitudinally of the beam; means for sliding the carriages individually, or together, upon the beam; a grinder shaft mounted for rotation in the carriages; and means upon the carriages for imparting a rotation to the grinder shaft.

3. In a device of the class described, a supporting frame; a beam; screw shafts held against longitudinal movement in the supporting frame, and engaging the beam to raise and lower the same; frame supported means connecting the screw shafts for simultaneous rotation; carriages slidable along the beam; a grinder shaft mounted for rotation in the carriages; a screw threaded into each carriage separately; and beam-carried movable means for connecting the screws, and for rendering the same independently operable.

4. In a device of the class described, a supporting structure; screw shafts held against longitudinal movement therein; a beam engaged by the screws for raising and lowering; a shaft journaled for rotation upon the supporting structure; intermeshing pinions upon the last named shaft and the screw shafts; carriages individually slidable upon the beam; a grinder shaft journaled for rotation in the carriages; screws threaded into each carriage separately; spaced pinions upon the screws; and a movable pinion slidable into and out of engagement with the screw carried pinions.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNEST EGGERS.

Witnesses:

C. L. JEANES,
J. F. PARRISH.