Jan. 18, 1938. A. W. MALL 2,106,035

TERRAZZO GRINDING ANGLE SPINDLE

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FIG. 1.

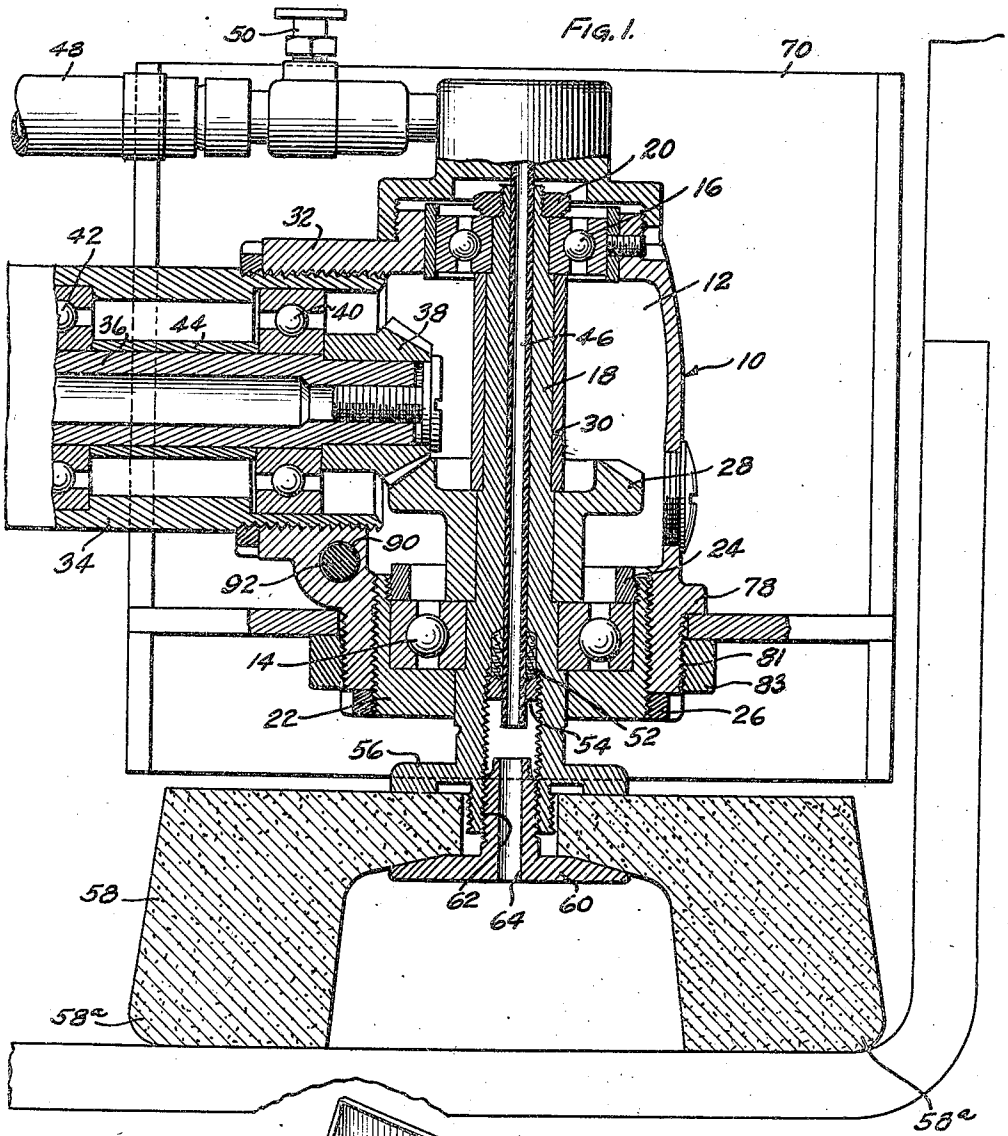
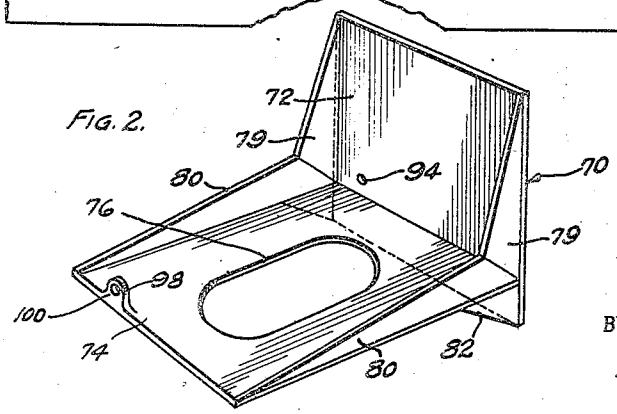


FIG. 2.



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FIG. 3.

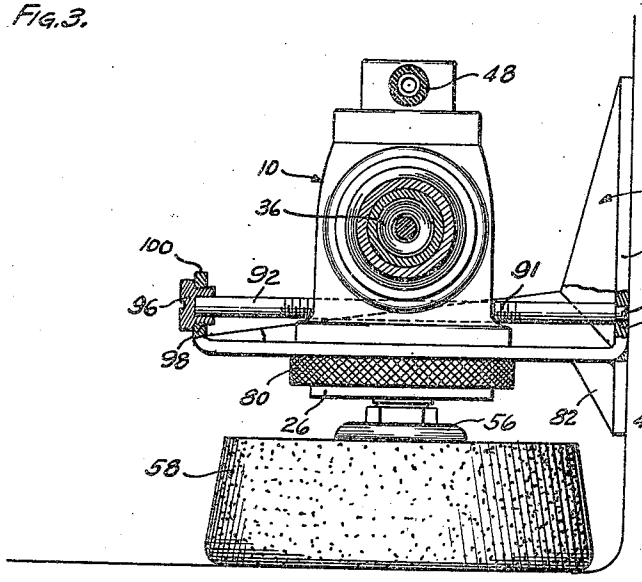


FIG. 5.

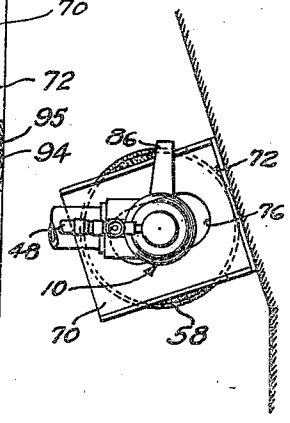


FIG. 4.

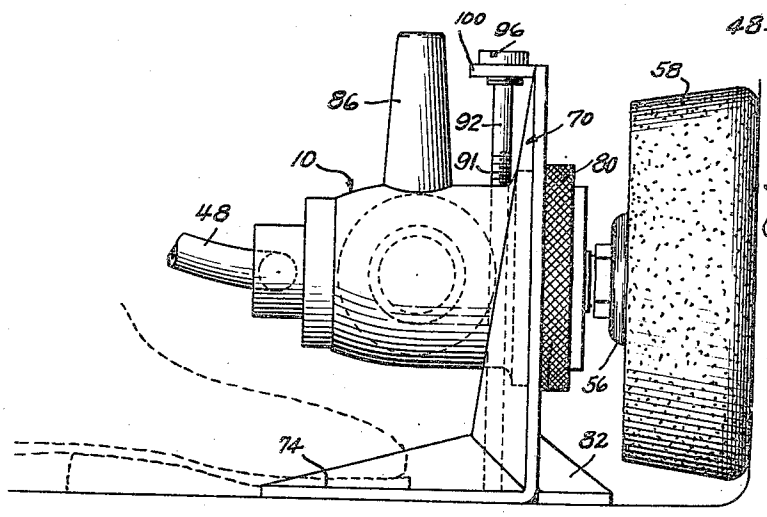
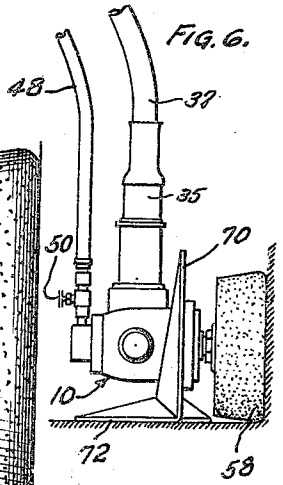


FIG. 6.



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TERRAZZO GRINDING ANGLE SPINDLE

Arthur William Mall, Chicago, Ill.

Application October 10, 1936, Serial No. 105,072

5 Claims. (Cl. 51—177)

My invention relates to improvements in angle spindles and similar devices for supporting grinding wheels.

My invention relates more particularly to angle spindles adapted for use on terrazzo floors and cove bases.

The principal object of my invention is to provide an improved angle spindle and grinding wheel for grinding wet cove bases associated with terrazzo floors.

A further object of my invention is to provide an improved spindle stand associated with an angle spindle capable of utilization both as a guard and support and as a gauge upon the work to be done.

A further object of the invention is to provide a guard of the type described capable of use on either the floor or the cove base or border.

A further object is to provide an improved grinding wheel capable of use with the gauge to machine grind the corner between the floor and the cove base.

A further object is to provide an improved angle spindle and grinding wheel capable of manipulation with either the hand or the foot.

A further object is to provide an improved device of the class described easily and cheaply made and one which is rugged and capable of long and hard use without becoming broken or out of order.

Other objects and advantages will be more apparent from the following description wherein reference is had to the accompanying two sheets of drawings, upon which

Fig. 1 is a vertical longitudinal section through my improved tool head or wet spindle showing the grinding wheel and improved guard or gauge member;

Fig. 2 is a front perspective view of the combined guard and gauge member;

Fig. 3 is a side elevational view of the parts shown in Fig. 1,

Fig. 4 is a similar side elevational view showing the manner in which the guard and gauge is employed in grinding the base cove;

Fig. 5 is a reduced plan view showing the grinder wheel and gauge on an angle wall, and

Fig. 6 is a plan view with the spindle in a different position.

The wet angle spindle which I have chosen to illustrate my invention may be generally similar to that shown in the patent to Arthur William Mall, issued August 28, 1934, Patent No. 1,971,790. The unit may include an angle casing 10 having its main body portion 12 provided with upper and lower bearings 14 and 16 which are shown to be of the ballbearing type for receiving the hollow tool spindle 18. The tool spindle 18 projects beyond the body portion of the casing 12 and is retained in place by an inner nut 20 threaded thereon which engages the upper bearing 16.

A closure cap 22 is threaded onto the outer end of the casing 12 and has in turn threaded therein a nut 24 for engaging the inner face of the outer bearing 14. The cap 22 closes the outer end of the casing and is held in its locked position by means of a screw threaded retaining ring 26. I provide a bevelled pinion 28 secured to the hollow spindle 18 in any preferred way and a spacer sleeve 30 positioned about the hollow spindle and interposed between the upper bearing 20 and the pinion 28. The laterally projecting part 32 of the casing 10 may have threaded therein the supporting sleeve 34. The sleeve 34 has in turn threaded therein a coupling sleeve 35 for receiving a flexible drive shaft 37. The flexible drive shaft and associated parts may be generally similar to those shown and described in the aforementioned patent and have therefore not been shown in any great detail.

I provide a pinion shaft 36 extending into the body portion 32 of the casing 10 and provided with a bevelled pinion 38 enmeshed with the pinion 28. I provide suitable ballbearing members 40 and 42 in the sleeve 34 for supporting the shaft 36 and also a spacing sleeve 44 for separating the respective bearings.

I provide a water feed tube 46 concentrically disposed in the hollow spindle 18 and extending downwardly to a point adjacent the lower end thereof. The tube may be connected at its upper end to a flexible water conduit 48 provided with a suitable valve 50 and controlling the flow of water therethrough. The lower end of the tube 46 is secured in the lower end of spindle 18 by means of a backing 52 and a gland member 54. The lower end of spindle 18 is formed with a circular flange portion 56 against which a grinding wheel 58 is secured by means of a clamp member 60 that is screw threadedly mounted in an internal tap 62 in the spindle 18. The clamp 60 is provided with an axial bore 64 which is aligned with the water tube 46.

As thus far described, the wet spindle may be generally similar to that shown in my above mentioned patent.

In order to carry out the objects of the invention as hereinbefore set forth I provide a combined gauge and guard member 70 that is pro-

vided with a wall member 72 and a right angle member 74 extending therefrom. The member 74 is provided with an elongated opening 76 which is capable of mounting on the angle spindle 10 beneath a flange member 78. The outer wall of angle casing 10 is adapted to be screw threaded as shown at 81 so that a suitable nut member 83 may securely clamp the combined guard and gauge plate in position. Suitable reinforcing members 79, 80 and 82 are provided to give the necessary rigidity to the member 70. While I have shown this member as formed of flat plates suitably welded together, it will be obvious that a die casting or stamping or any other desirable form or shape may be employed.

In operation with the combined guard and guide plate in position, it will be apparent that the grinding wheel may be moved to a point in the exact corner of a base cove. As the corners of base coves are ordinarily slightly rounded, I have shown the grinding wheel 58 with the rounded lower corner 58*a* so that the same can be utilized to grind out the corner. It will also be apparent that the grinder can be placed in a vertical position as shown in Fig. 4 for grinding the vertical walls with the base cove and the same may be moved forward against the wall and manipulated by either the foot which is placed on the portion 72 of the combined guide and guard, or by grasping the hand lever 86. The elongated opening 76 is provided for the purpose of moving the gauge plate backward or forward to accurately determine the position of the same depending upon the size of the grinding wheel employed. In order to rigidly hold the same in position on the angle casing, I provide a bolt member 90 which extends through a suitable opening 92 in the casing and is anchored at its respective ends in an opening 94 in the plate 72 and a lock nut 96 that is screw threadedly mounted in a tapped opening 98 in a boss 100 at the forward end of the member 74. The bolt member 90 may be screw-threaded as shown at 91 and the opening 92 may be tapped so by inserting a tool such as a screw-driver in slot 95 and revolving bolt 90, the spindle housing is moved back or forth in opening 76.

In using the above described device for grinding border or cove base wet, it is necessary to use a considerable amount of sand, spreading it about in small dabs along the surface to be ground. Upon approaching the sand, it is preferable to lift the wheel and bring it down over the center of the pile so that the same is forced to dress the wheel and grind the terrazzo floor before the sand can escape due to centrifugal force. The speed of grinding will depend a great deal upon the amount of sand used by the operator.

With the improved gauge guide slide arrangement on the angle spindle, the operator fatigue is eliminated in grinding the usual upright six-inch base, as the entire unit now rests upon the floor and is only guided by the operator instead of being held as was necessary with the spindles of the past.

It will be apparent to those skilled in the art that a highly improved construction of terrazzo grinder of the type described has been provided by the provision of the combined guide and gauge. It is now a simple matter to effectively grind the floor to the wall and include the wall radius and then by placing the angle spindle and grinding wheel in a vertical position, thus resting the same on the floor, it is capable of being used for grinding the vertical wall.

In Fig. 5 I have illustrated the manner in which the device may be employed on an angle wall. Here the angle spindle is not threaded on the bolt 90 and is capable of rotation to a desired position.

In Fig. 6 I have shown the angle spindle turned at 90 degrees to the showing in Fig. 4. This position is sometimes desired if the water supply and source of power for the flexible shaft are elevated. It will be apparent from the foregoing that by the use of my improved gauge and support the angle spindle is capable of use in a great many situations heretofore impossible.

While I have illustrated and described a specific embodiment of my invention, it will be apparent to those skilled in the art that numerous changes and modifications may be made in the exact details shown, and I do not wish to be limited in any particular; rather what I desire to secure and protect by Letters Patent of the United States is:

1. A terrazzo grinder comprising an angle shaped casing, a spindle therein, a grinding wheel thereon, means for rotating said grinding wheel and a combined bracket and gauge for supporting said casing and associated parts in a working position, said bracket secured to said casing adjacent the lower end thereof and comprising a plate, a member attached at right angles thereto and adjustable to gauge the distance the grinding wheel may be moved toward said wall.

2. A grinder for terrazzo base coves comprising an angle-shaped casing, a spindle mounted therein, a grinding wheel carried thereby, a flexible drive for said spindle, and a combined bracket and gauge for supporting said grinding wheel adjacent a base cove to be ground, said bracket secured to said casing adjacent the lower end thereof and comprising a gauge plate and a member extending at right angles therefrom connected to said casing and adjustable thereon.

3. A grinder for the vertical wall of terrazzo base coves comprising an angle spindle, a grinding wheel carried thereby, a flexible drive for said spindle and a combined bracket and gauge member for supporting said grinding wheel in a vertical working position adjacent a base cove to be ground, said member including a horizontal base plate and a vertical supporting arm.

4. A grinder for the vertical wall of terrazzo base coves comprising an angle spindle, a grinding wheel carried thereby, a flexible drive for said spindle and a combined bracket and gauge member for supporting said grinding wheel in a vertical working position adjacent a base cove to be ground, said member including a horizontal base plate and a vertical supporting arm, said angle spindle vertically adjustably mounted in said supporting arm.

5. A terrazzo grinder comprising an angle shaped casing, a spindle therein, a grinding wheel thereon, means for rotating said grinding wheel and a combined bracket and gauge for supporting said casing and associated parts in a working position, said bracket secured to said casing adjacent the lower end thereof and comprising a plate, a member attached at right angles thereto and adjustable to gauge the distance the grinding wheel may be moved toward said wall, the adjusting means including a bolt member screw-threadedly engaged in a tapped opening through said angle housing and anchored in a lock nut secured to said combined bracket and gauge.

ARTHUR WILLIAM MALL.