Nov. 21, 1933. A. DE MARCHI 1,936,449

TERRAZZO GRINDER

Filed July 27, 1927

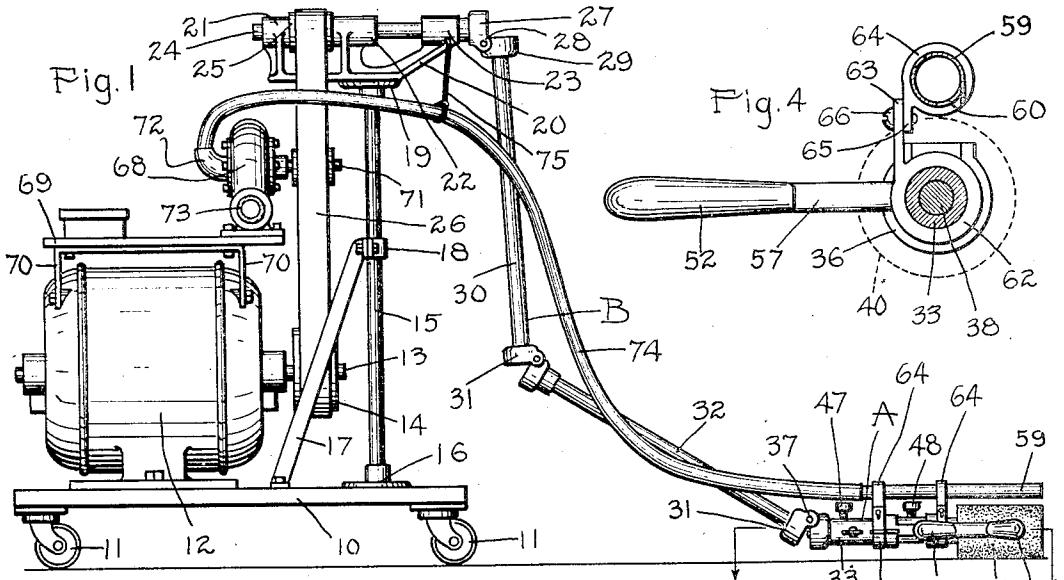


Fig. 1

Fig. 4

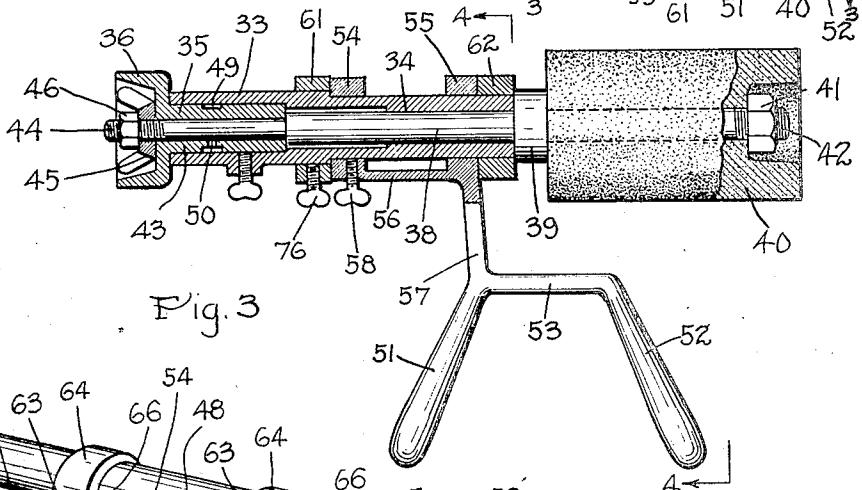


Fig. 3

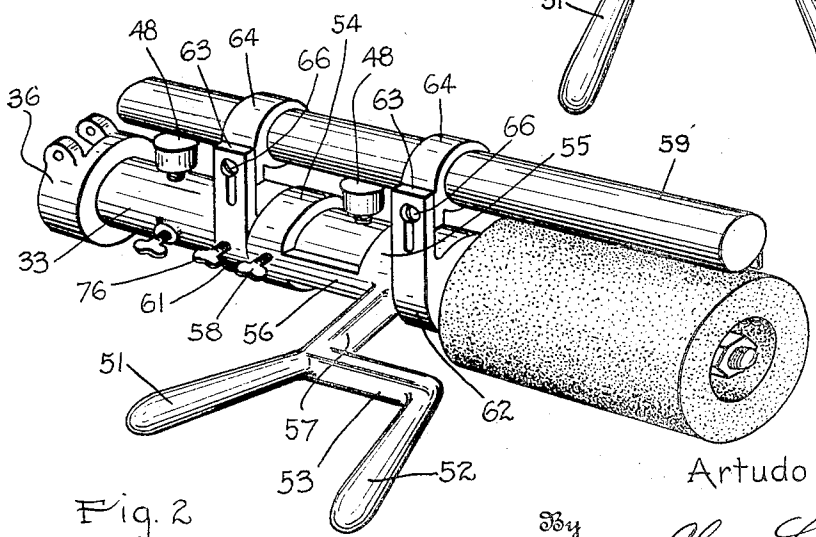


Fig. 2

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TERRAZZO GRINDER

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6 Claims. (Cl. 51—176)

My invention relates to terrazzo grinders and has for its object to provide a portable grinding rig in which all of the dust occasioned in the grinding of the terrazzo may be collected and removed as the grinding continues.

An object of the invention resides in providing a grinding head including a sleeve and spindle mounted therein, said spindle carrying a grinding wheel and in positioning along said grinding wheel a suction nozzle connected to a suitable exhaust blower.

Another object of the invention resides in providing said sleeve with a handle rotatably mounted thereon, and in further providing a revoluble support on said sleeve carrying said suction nozzle, said handle and support being rotatably adjusted relative to one another and to said sleeve to permit of operating the grinder at various angles and in corners and other inaccessible places.

A feature of the invention resides in adjustably supporting said nozzle on said support so as to permit of moving the same radially to bring the nozzle in proper position relative to the grinding surface of the grinding wheel regardless of the amount of wear or shape of the same.

Another object of the invention resides in providing a portable platform carrying a motor and having a pulley and a standard issuing upwardly from said platform adjacent the pulley end of said motor, said standard journaling a jack shaft driven from said motor pulley through a belt, and in further providing brackets on said motor carrying a table, said table supporting an exhaust blower having a pulley driven by said belt, said jack shaft driving said grinder head, and said exhaust blower being connected by a suitable suction hose with said suction nozzle.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawing:

Fig. 1 is a side elevational view of my improved invention indicated in its entirety.

Fig. 2 is a perspective view of the grinding head detached from the source of power.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1 and drawn to a larger scale.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

In the use of the ordinary portable grinding rig as customarily employed in conjunction with terrazzo floor grinding for grinding floor coves, bases and other special work where the usual surfacing machine cannot be employed, a dry grinding wheel is preferably used, which causes clouds of dust from the substance ground, and when used in small rooms or in confined places, the atmosphere becomes so heavily laden with dust that the workmen find it almost intolerable. My invention provides a simple and effective device for removing the dust as the same is produced so as to leave the air free from dust, thereby allowing the workmen to work in comfort and execute their work in a more satisfactory manner.

For the purpose of illustrating the application of my invention, I have shown a portable grinding rig which consists primarily of a portable platform 10 mounted on caster wheels 11 so that the same may be readily moved from place to place. This platform carries at one end an electric motor 12 having an armature shaft 13 provided at one end with a pulley 14. Adjacent the pulley 14 is attached to the platform 10 a standard 15 which is secured to said platform by means of a flanged base 16 and rigidly supported thereon through braces 17 attached to said standard by means of a clamp 18 and bolted to the top of the platform 10. This standard carries at its upper end a flanged plate 19 on which is rigidly bolted a casting 20 including three bearings 21, 22 and 23. In these bearings is journaled a jack shaft 24 which carries a pulley 25 disposed between the bearings 21 and 22. A belt 26 passing over the pulleys 14 and 25 drives the jack shaft 24 from the motor shaft 13.

For the purpose of driving the grinder head from the jack shaft 24, a flexible power transmission device is employed which is indicated in its entirety at B. Attached to the bearing 23 is a gear housing 27 which has hingedly connected to it at 28 a similar gear housing 29. The gear housing 29 has attached to it a tube section 30 which terminates in a gear housing 31 identical with the gear housing 27. A similar tube section 32 is hingedly connected to the tube section 30 and terminates in a grinding head A, which will be presently described in detail. These tube sections are preferably swivelly connected to the respective gear housings so that a flexible structure is provided which may be conveniently moved to any desired position within its range of movement. Within the various tube sections 30 and 32 are journaled shafts terminating in bevel gears, which bevel gears are adapted to mesh with one another and to drive the respective shafts to which they are secured from the jack shaft 24 when the motor 12 operates. The hinges 28 are

disposed at the centers of the teeth of the respective gears so that a driving relation is at all times present between the two sets of gears to drive the shafts within the flexible driving mechanism so formed at all times. This construction being well known in the art has not been disclosed in detail in this application.

The grinding head A which is shown in detail in Fig. 3 comprises a sleeve 33 which is bored at one end to form a bearing 34 and which is counterbored at its other end to receive a bushing 35 forming a second bearing. The bushing 35 carries a gear housing 36 identical with the gear housing 31 of the tube sections 30 and 32 and is hingedly connected at 37 to the last geared housing 31 of the tube section 32. Within the bearings 35 and 34 is journaled a spindle 38 provided adjacent the outer end of the bearing 34 with a collar 39. Upon the end of this spindle is mounted a grinding wheel 40 which is held in place thereon by means of a nut 41 turned upon the threaded end 42 of said spindle. The spindle 38 is preferably reduced at its end 43 passing through the bushing 35 and is threaded at its extreme end 44 to receive the driving gear 45 which is tapped to allow the same to be screwed upon the threaded end 44. By means of this construction the end play in the spindle 38 may be taken up by turning the gear 45 upon the threaded end 44 of said spindle so as to cause the collar 39 to bear against the end of the sleeve 33. For holding the gear 45 in proper adjusted position, a lock nut 46 is employed which may be tightly screwed against said gear.

As shown in Fig. 1, suitable oil cups 47 and 48 may be employed which are mounted in the sleeve 33. The oil cup 48 feeds the bearing 34 directly while the oil cup 45 communicates through a groove 49 in the bushing 35 and through radial holes 50 within said bearing. It will be readily comprehended that the spindle 38 is driven through the various elements of the power transmission B from the jack shaft 24 and that the same may be readily moved and manipulated to operate at any location within the range of its movement.

For holding and guiding the operation of the grinding head A two handles 51 and 52 are employed which are connected together by means of a yoke 53. These handles are supported on two collars 54 and 55 which are journaled upon the outer periphery of the sleeve 33. A bar 56 connects these two collars together and is also connected to an arm 57 joining the yoke 53 supporting said handles. By means of a thumb screw 58, the handles 52 and 53 can be locked in any desired position relative to the sleeve 33.

The invention proper consists of a tubular suction nozzle 59 which is constructed with a longitudinal slot 60. This suction nozzle is adapted to be disposed along the periphery of the wheel 40 with the opening 60 thereof facing said wheel. The nozzle 59 is supported as follows: Upon the exterior of the sleeve 33 are arranged two collars 61 and 62 which lie adjacent the collars 54 and 55 for the handles 51 and 52. These two collars are rotatable relative to said spindle and are formed with outwardly extending arms 63 which lie substantially tangential thereto. The nozzle 59 is provided with bands 64 surrounding the same, which terminate in lugs 65 adapted to be clamped to the arm 63 by means of bolts 66. It will be noted that the bolts 66 pass through slotted holes 67 in the said arms so that the nozzle 59 may be adjusted radially to bring the nozzle opening 60 thereof sufficiently close to the grinding wheel 40 to collect all of the dust produced by the same.

For operating the nozzle 59 an exhaust blower 68 is employed which is mounted upon a table 69 supported on brackets 70 secured to the motor 12. This exhaust blower is provided with a pulley 71 which is arranged to contact with the belt 26 and to cause the said blower to operate upon rotation of the motor shaft 13. The blower 68 is provided with an inlet 72 and an outlet 73, the inlet 72 having connected to it a flexible suction hose 74 which is connected at its other end to the end of the nozzle 59. This hose may be supported through one or more cords 75 attached to the machine wherever convenient so that the said hose follows the flexible power transmission device B and does not become clumsy or awkward, or in any way impair the workmen in handling the machine. The outlet 73 from the blower 68 is connected by means of a suitable hose connection with a dust collecting device not shown in the drawings. Any suitable dust collector may be employed such as a bag or a centrifugal dust collector, or any other device such as is now in common use.

In the operation of the device the entire rig is moved toward the particular locality which the grinding is to take place. The grinding wheel 40 is then positioned at the surface to be ground and the handles 51 and 52 adjusted by means of the set screw 58, so that the grinding head A may be conveniently manipulated. The nozzle 59 is next adjusted, first by means of the bolts 66 to bring the suction opening 60 at the proper distance from the surface of the wheel. The same is secondly adjusted by means of a set screw 76 in the collar 61 so as to bring the said nozzle as close to the grinding surface of the wheel as possible without interfering with the manipulation of the device. The motor 12 is then started and the grinding proceeded with in the usual manner, all of the dust being drawn through the nozzle 59 and discharged through the outlet 73 of blower 68 into the dust collecting device and from there disposed of wherever desired. When the particular work being ground requires the relocation of the grinding head, the handles 51 and 52, as well as the nozzle 59 may be again readjusted to suit the requirements.

The advantages of my invention are manifest. An extremely simple and effective device is provided whereby the buildings in which the terrazzo grinding is taking place may be maintained in a sanitary and comfortable condition for the workmen so that the workmen may work in safety and with greater ease. The nozzle and handles in conjunction with the grinding head may be readily adjusted to allow the device to be used in all instances where the ordinary grinding head may be employed so that the same degree of versatility exists with the dust collector attached thereto as before.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A terrazzo grinder comprising a source of power, a grinding head including a sleeve and a spindle journaled therein, said spindle carrying a grinding wheel, a flexible power transmission device for driving said spindle from said source of power, a member revoluble on said sleeve, a

handle connected to said member and a pair of spaced collars lying adjacent said member and revoluble upon said sleeve, said collars having arms extending outwardly therefrom in tangential relation, a suction nozzle situated along said grinding wheel, said nozzle being formed with lugs thereon, and means for adjustably attaching said lugs to said arm to support said nozzle in radially adjustable relation to said grinding wheel.

2. A terrazzo grinding head comprising a sleeve, a spindle journaled therein, a grinding wheel carried by said spindle, a flexible power transmission device for driving said spindle, a support upon said sleeve revoluble relative thereto, a handle issuing outwardly from said support, a pair of supports on said sleeve revoluble relative thereto and positioned one on each side of said first named support, and a suction nozzle mounted upon said last named supports and rotatably adjustable relative to said handle and said sleeve.

3. A terrazzo grinding head comprising a sleeve, a spindle journaled therein, a grinding wheel carried by said spindle, a flexible power transmission device for driving said spindle, a support upon said sleeve revoluble thereto, a handle issuing outwardly from said support, a pair of supports on said sleeve revoluble relative thereto positioned one on each side of said first named support, and a suction nozzle mounted upon said last named supports and rotatably adjustable relative to said handle and said sleeve, a grease cup positioned in said sleeve between said last named supports, and an annular recess formed in said first named support for permitting adjustment of said handle relative to said sleeve without interference with said grease cup.

4. A terrazzo grinding head comprising a sleeve, a spindle journaled therein, a grinding wheel carried by said spindle, a flexible power transmission device for driving said spindle, a support upon said sleeve revoluble thereto, an arm issuing outwardly from said support, said arm having an offset portion adapted to overlie said grinding wheel, a pair of spaced handles secured to said offset portion, a pair of supports revoluble relative to said spindle and positioned on said sleeve and disposed one on each side of said first named support, and a suction nozzle attached to said last named supports.

5. A terrazzo grinder comprising a bearing, a spindle revoluble in said bearing, a grinding wheel driven by said spindle, a handle issuing outwardly from said bearing and revoluble relative thereto, a suction nozzle positioned adjacent said grinding wheel a support for said nozzle, said support being revoluble relative to said bearing independently or conjointly with said handle.

6. A terrazzo grinder comprising a bearing, a spindle revoluble in said bearing, a grinding wheel driven by said spindle, a handle issuing outwardly from said bearing and revoluble relative thereto, the axis of said spindle and handle being concentric, a suction nozzle positioned adjacent said grinding wheel, a support for said nozzle, said support being revoluble relative to said bearing independently or conjointly with said handle, the axis of said support being concentric with respect to the axis of said spindle.

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