Dec. 11, 1934. P. VINELLA 1,984,205

TERRAZZO COVE GRINDER

Filed Nov. 8, 1930 3 Sheets-Sheet 1

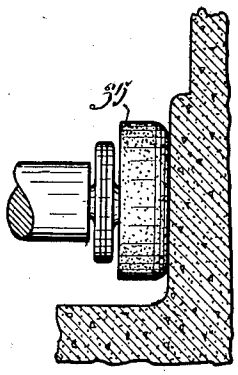


Fig. 1

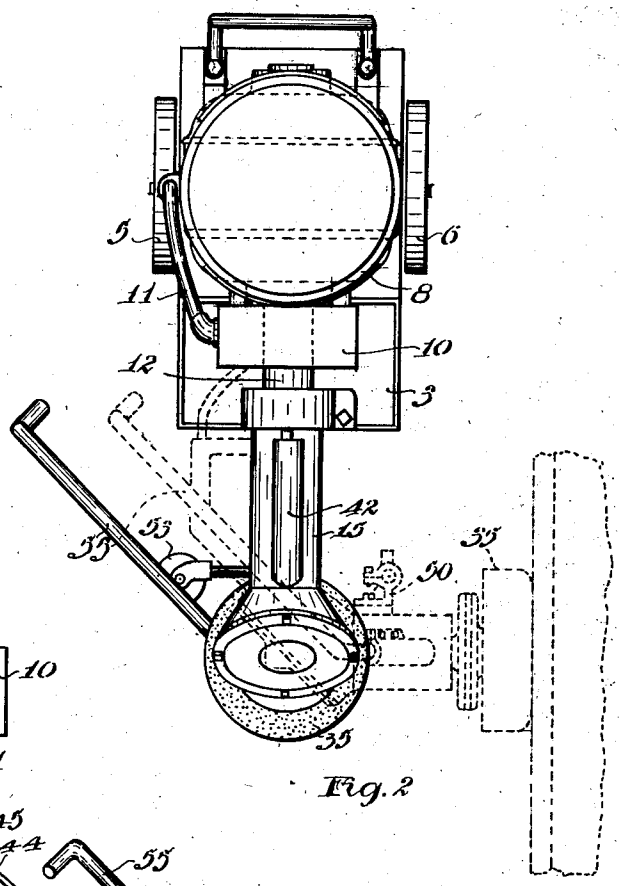


Fig. 2

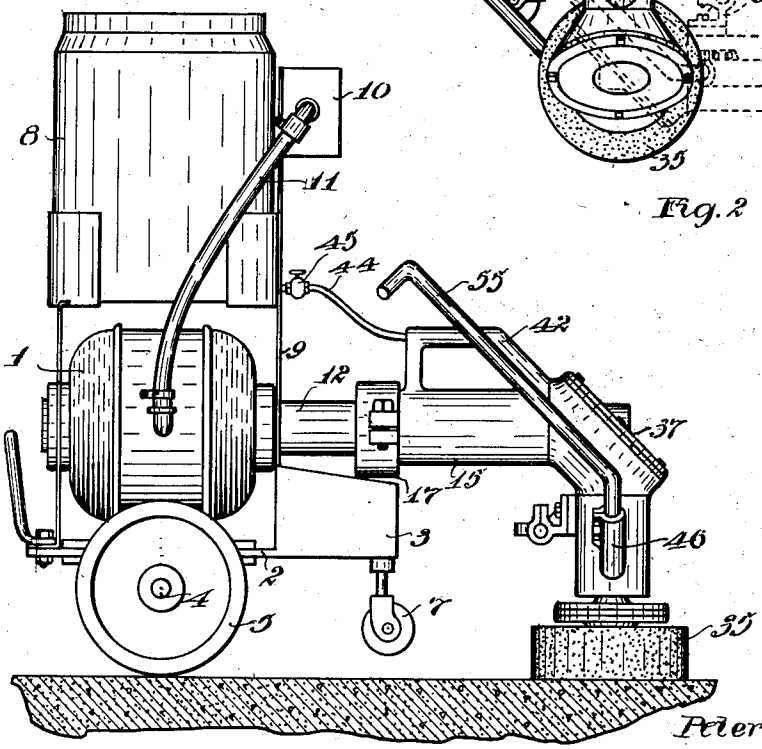


Fig. 3

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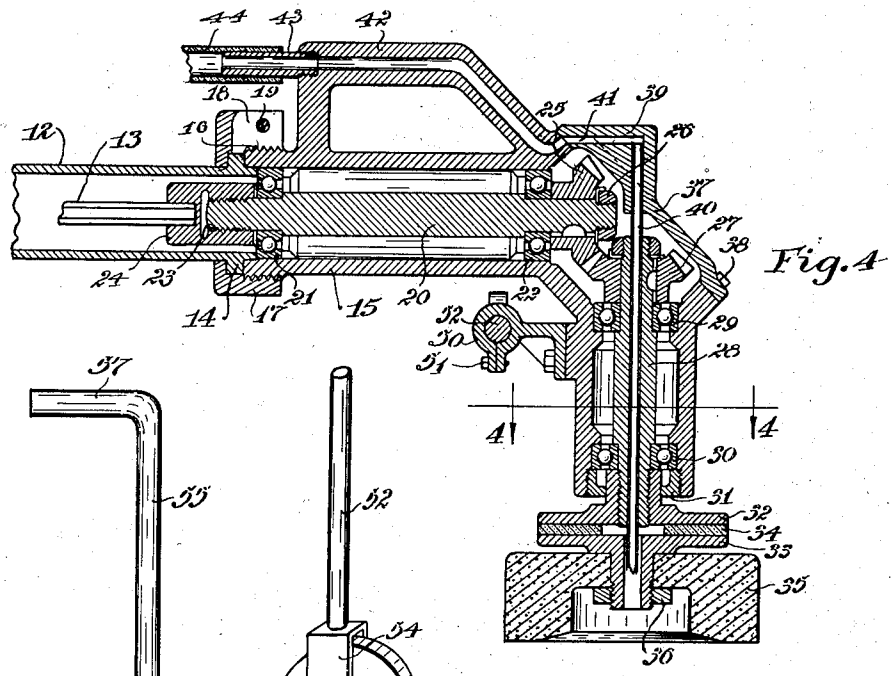


Fig. 4

Fig. 6

Fig. 5

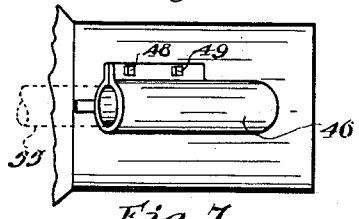


Fig. 7

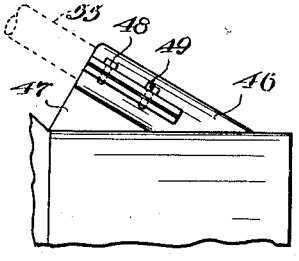


Fig. 8

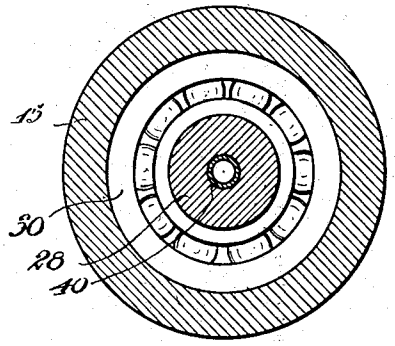


Fig. 9

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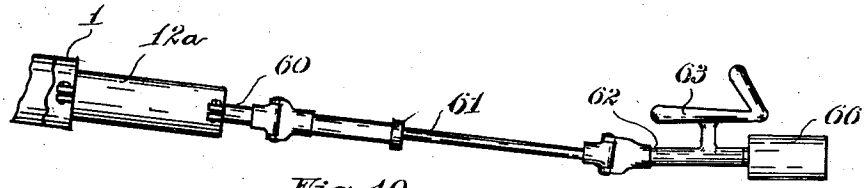


Fig. 10

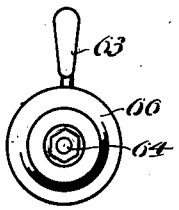


Fig. 11

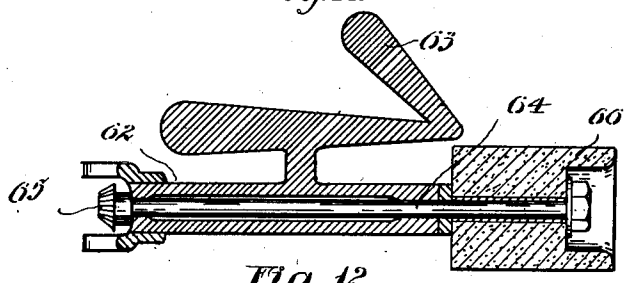


Fig. 12

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UNITED STATES PATENT OFFICE

1,984,205

TERRAZZO COVE GRINDER

Peter Vinella, Minneapolis, Minn.

Application November 8, 1930, Serial No. 494,308

1 Claim. (Cl. 51—177)

The present invention relates to a terrazzo cove grinder.

In the making of terrazzo flooring it is customary to carry the terrazzo work up the wall a short distance so as to make the lower portion of the wall continuous with the flooring material. It is necessary to grind this vertical portion to give the terrazzo work a finished appearance, and, in order to do this, it is necessary to hold a grinding wheel against this wall portion. Also it is necessary to grind the cove which usually is provided at the juncture of the floor and this wall portion.

Several types of grinders are employed for this purpose, and it is desirable in grinders for this work to have the grinding head adjustable so as to facilitate performing this wall grinding operation and also to permit the machine to grind into corners as well as to grind a cove at the bottom of the lower side of the wall portion, as desired.

An object of the present invention is to make an improved and simplified cove grinding mechanism.

In order to attain this object, there is provided, in accordance with one feature of the invention, a drive motor mounted upon a wheeled carriage having a drive shaft housing secured to the motor housing so as to be co-extensive with the shaft of the motor. A grinding head is adjustably mounted on the drive shaft housing so as to be rotatably adjustable thereon, and a handle for manipulating the device is adjustably mounted upon the grinding head. A caster support for supporting the driving head at a predetermined distance from the floor is adjustably mounted on the grinding head and a grinding wheel is secured to a rotatable shaft in the grinding head to rotate in a plane parallel to that of the shaft of the motor.

These and other features of the invention will be more fully brought out in the following description and the accompanying drawings, wherein:

Figure 1 is a view in side elevation of the grinding wheel of a mechanism embodying the present invention, a portion of a wall being shown in sectional view.

Figure 2 is a view in top elevation of the mechanism, the grinding head being shown in solid lines in position for a floor grinding operation, and in dotted lines in position for a wall grinding operation.

Figure 3 is a view in side elevation of the device shown in Figure 2.

Figure 4 is a longitudinal sectional view of the grinding head and associated parts.

Figure 5 is a view in perspective of a caster for supporting the driving head.

Figure 6 is a view in side elevation of an operating handle.

Figure 7 is a view in side elevation of the lower end of the driving head showing a socket for receiving the handle shown in Figure 6.

Figure 8 is a view in side elevation of the structure shown in Figure 7.

Figure 9 is a sectional view on the line 9—9 of Figure 4.

Figure 10 is a view in side elevation of an articulated shaft for driving a cove grinding attachment.

Figure 11 is a view in elevation of the cove grinding head shown in Figure 10; and

Figure 12 is a longitudinal sectional view of the cove grinding head shown in Figures 10 and 11.

Referring to the drawings in detail, an electric motor 1 is mounted upon a metal base 2 which may be of cast iron, with a tool box 3 cast integrally therewith and located forwardly of the motor 1. An axle 4 is secured to the lower side of this base and is provided with a pair of wheels 5 and 6 mounted one on each end of the axle. A small caster wheel 7 may be provided forwardly of the wheels 5 and 6 to support the device when it is tilted forwardly when using a cove grinding attachment. A water reservoir 8 is mounted above the motor upon legs 9 which may be of strap or angle iron and an electrical switch box 10 may be mounted upon the forward side of the water reservoir to control electrical current supplied to the motor. A flexible conductor cable 11 may be connected from the switch 10 to the motor and a flexible cord, not shown, may be connected from the switch 10 to an electrical outlet plug, or other source of electrical energy, not shown. A drive shaft housing 12 is securely connected to the motor housing 1 to extend forwardly therefrom and a drive shaft 13 having driven connection with the shaft of the motor is mounted therein. The forward end of the drive shaft housing is flanged as at 14 and fits against the rearward end of a driving head housing 15. The rear end of this driving head housing is threaded as at 16 and an internally threaded cap 17 is adapted to screw onto this rear end of the driving head housing to grip the flange 14 to hold the driving head against rotation relative to the drive shaft housing. This cap is split as at 18 and is provided with a bolt 19 by means of which this cap may be tightened to prevent rotation with respect to the driving head housing. A shaft 20 is mounted in the

driving head housing and is supported on roller bearings 21 and 22. The rear end of this shaft 20 is threaded as at 23 and a connecting member 24 is threaded thereon to rotate with said shaft. The rear end of this member 24 is keyed or otherwise securely fastened to the drive shaft 13 to rotate therewith. A bevel gear 25 is splined to the forward end of the shaft 20 and is held in position thereon by means of a nut 26. The bevel gear 25 has driving connection with a second gear 27 which is splined to a hollow shaft 28 supported in ball bearings 29 and 30. An internal nut 31 holds the shaft 28 and the roller bearing 30 in position therein. A plate 32 is threadedly secured to the lower end of the shaft 28 and is secured to a second plate 33 in a customary manner with a cushioning member 34 of rubber or other resilient material therebetween so as to provide a flexible driving connection between the shaft 28 and a grinding wheel 35 which is secured to an extension in the lower face of the plate 33 by means of a nut 36. A plate 37 is secured over the gear housing portion of the driving head and is secured in position thereon by means of bolts 38. This cover plate is provided with an upwardly extending portion 39 in which a water supply tube 40 is securely mounted to extend downwardly through the hollow center of the shaft 28.

A drilled aperture 41 extends rearwardly from the upper end of this opening in which the tube 40 is inserted and is in open communication with a cored opening in a handle 42 which is preferably cast integral with the driving head housing. A plug 43 is threaded into the rear end of this handle to be in open communication with this cored opening, and a flexible tube 44 is connected to this plug. The other end of the flexible tube 44 is connected to a valve 45 which controls the flow of water from the water reservoir 8 to the grinding wheel.

On each side of the lower portion of the driving head is mounted a socket 46 which is preferably cast integral with the driving head and is provided with a reinforcing fin 47 extending from this socket to the driving head. This socket is preferably split lengthwise and is provided with a pair of bolts 48 and 49 by means of which a handle 55 may be securely fastened in either of these sockets, as required. A caster support 50 is bolted to the rear face of the lower portion of the driving head and comprises a split collar with bolts 51 for securing the shaft 52 of a caster therein. The caster comprises a shaft portion 52 and a lower wheel portion 53 mounted in a fork 54 which is securely connected to the shaft 52. By loosening the bolts 50 the caster may be adjusted to a required height and alinement. A handle for guiding and manipulating the mechanism comprises a tube 55 bent as at 56 and having a transverse hand grip portion 57 bent over at the upper end thereof.

In operating the device, the caster 53 is set to bring the grinding wheel 35 at the proper height with respect to the floor and the proper grinding wheel may be mounted thereon for the work to be done. Several types of grinding wheels are available for this purpose, depending upon the type of cove required, and as these wheels are familiar to the art, it is not deemed necessary to describe the different types in detail, as they form no portion of the present invention. The driving head 15 is then adjusted to the right or left side of the carriage, as required, and the handle 55 is inserted in the socket 46 provided therefor and is locked in a desired position by means of the bolts 48 and 49. The handle is preferably mounted to extend laterally outward from the device, as illustrated in Figures 1 and 2, so that in operating the device pressure may be maintained to hold the driving wheel against the surface to be ground and at the same time advance the mechanism forwardly to produce the desired result. The entire mechanism may be wheeled along the wall, being guided by the caster, and the wheeled carriage 2 to perform the desired grinding operation. When a corner is reached it may be necessary to reverse the grinding head, and this is accomplished by loosening the bolt 19 which binds the split cap 17 to the threaded rear portion 16 of the driving head, and upon loosening the cap 17 the entire driving head may be swung to a desired position. The cap 17 is again tightened to bind the flange 14 on the forward end of the driving shaft housing 12 to the rear face of the driving head housing 15, whereupon the bolt 19 may be again tightened to hold the parts against rotary displacement. The handle 55 is then mounted in the socket 46 on the opposite side of the driving head and the caster 53 is readjusted to extend in the opposite direction and the mechanism is ready to proceed with the work.

The flexible shaft attachment shown in Figures 10 to 12 inclusive, is illustrated to show the means of using this attachment on the present mechanism. Flexible shafts of this general character are used in the art at present and are desirable for certain phases of the work.

The attachment comprises a drive shaft housing 12*a* which is secured to the motor housing 1 in the same manner as the housing 1*w* in the arrangement shown in Figures 2, 3, and 4.

Connected to the outer end of the drive shaft housing 12*a* is a tubular drive shaft housing 60. To the outer end of this housing 60 is pivotally connected a second tubular housing 61 and to the outer end of the housing 61 is pivotally connected a third housing 62 having a handle 63 extending upwardly therefrom. The housings 60 and 61 each have a drive shaft rotatably mounted interiorly thereof, with a bevel gear on each end of the shafts, the pivotal connection between the housings being laterally offset from the center thereof so as to permit pivotal movement of the shafts and housings while keeping the bevel gears in driving engagement with each other. This type of construction is well known to the art and it is, therefore, deemed unnecessary to illustrate it in detail. The outer housing 62 is shown in vertical longitudinal section in Figure 12. A shaft 64 is rotatably mounted in the housing 62 and is provided with a bevel gear 65 which meshes with a gear, not shown, connected to the drive shaft, not shown, mounted in the housing 62. A cove grinding wheel 66 is connected to the shaft 64 to rotate therewith. The entire flexible shaft assembly may be readily removed by removing the housing 12*a* and replaced by the driving head shown in Figures 2, 3, and 4.

The device comprises a simple and efficient mechanism for all phases of terrazzo cove grinding and one which is readily adaptable for all of the different conditions of the work to be performed thereby.

I claim:

A terrazzo floor grinder, comprising a wheeled support, a drive motor mounted thereon, a housing extending laterally from said motor and

secured thereto in adjustable, swiveled relation, said housing having a portion extending at right angles therefrom, drive shafts mounted in said housing and said right angle extension, said shafts being operatively connected to each other and to said motor, a grinding wheel mounted beyond the free end of said lateral extension and operatively connected to said drive shafts, and a pair of handle sockets mounted one on each side of said lateral extension and disposed at an acute angle to the axis thereof, and a handle having an end portion insertible in either of said sockets, said handle having an acute angle bend therein substantially equal to the angle between the axis of said sockets and the axis of said lateral extension.

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