My invention relates to improvements in grinding machines for plastic flooring and the object of the invention is to devise a machine which will contact a maximum area of floor surface, which may be handled by the operator with a minimum amount of effort and readily moved from one location to another, in which the grinding units may be easily gotten at for the purpose of removal and renewal and in which means is provided for easily supplying water to the grinding units, and it consists essentially in the arrangement and construction of parts as hereafter more particularly explained.

Fig. 1 is a perspective view of my device in the grinding position.

Fig. 2 is a similar view to Fig. 1 showing my device in position for removing or renewing the grinding stones.

Fig. 3 is a perspective detail of the carriage.

Fig. 4 is an end elevation of my device.

Fig. 5 is an enlarged plan view of the gear box with the cover removed.

Fig. 6 is a sectional view on line 5—5 Fig. 5.

In the drawings like characters of reference indicate corresponding parts in each figure.

The body of the grinder consists of a gear box 1. A base plate 2 connected together by end walls 3 and 4 and bearing sleeves 5 recessed at their ends at 6 and 7 to receive upper and lower bearings 8 and 9 in which are mounted the grinder shafts 10 supported from vertical movement by the annular enlargement 11 resting on the upper bearing 12 and the side standards 13.

To the upper end of each shaft 10 is secured a spiral gear 14 and to the lower end is secured the grinding element 15 provided with radial grinding stones 16 which contact with the surface to be ground.

Each grinding element 15 is connected to a disc 17 suitably secured to the shaft 10 to revolve therewith. Discs 18 of flexible material are interposed between the discs 17 and grinding elements.

The discs 17 are provided with suitably spaced bosses 19 to which the discs 18 are secured by bolts 20. The units 19 are provided with bosses 21 to which the discs 18 are secured by bolts 22, and 23 intermittently between the bosses 19. 19 is a spiral spring extending between the disc 18 and the grinding elements.

I do not describe this connection further in detail as it is covered by a prior patent, save to say that it allows the grinding stones accommodating themselves to the surface of the floor.

The base 2 is surrounded by a sheet metal guard 24. The gear box 1 is divided into transverse compartments 15 and 20 each containing a pair of gears 25, each pair being driven by a worm 26 secured to a driving shaft 22 mounted in bearings 23 and 24. The bearing 24 is provided with a cone bearing 25 and the bearing 23 with ball bearings 26 and 27.

The transverse compartments 15 and 20 are separated by the wall 25 recessed at 26 for the passage of the shaft 22 and provided at each side of such recess with an orifice 27 from each of which extends a horizontal orifice 28.

Studs 29 and 30 are provided with reduced inner portions 31 and 32 extending through the orifices 27 into the orifices 28 and have screwed therein securing nuts 33 to hold the studs 29 and 30 securely in place. The outer ends of the studs are reduced at 34 and 35 for a purpose which will hereafter appear.

The gear case 1 is provided with a cover 35 on which is mounted and secured a driving motor 36, the shaft 41 of which is provided with a pulley 42 connected by belts 43 to the pulley 44 secured to the shaft 22. 45 is a switch box for controlling the current supply to the motor. A water supply pipe 46 to which a hose or other means of supplying water thereto leads through the wall 25 to the centre of the base 2 through which it extends to a discharge 47 for supplying lubricating water to the surface of the floor and to the grinder units.

I will now describe the carriage by which the grinder is moved from one room or location to another.

The carriage consists of a lever frame comprising side members 33 and 34 connected together by transverse rods 35 and 36 and intermediate between rods but closely adjacent the rod 35 by a transverse angle bar 37. From the ends of the angle bar 37 extends arms 38 and 39 having upwardly extending ends 40 and 41 having forked extremities 42 and 43 into which the reduced stud portions 31 of the studs 35 and 38 fit so as to rotate therein between the ends of the studs and the washers 39 secured on the studs by the nuts 40.

Stud shafts 51 and 52 extend outwardly from the bars 38 and 39 just below the transverse rod 35 and on which are mounted the rubber tired carrier wheels 53 and 54, forming the fulcrum point on which the lever frame swings. The outer or operative end of the carrier frame is provided with laterally extending handles 55 and 56. Therefore, when the handles 55 and 56 are depressed the carriage frame fulcrums on the 55
wheels 63 and 64 raising the opposite end of the lever frame formed by the forked ends 57 and 58 to raise the grinder body.

A counterweight 67 is slidably mounted between the side members 48 and 49 which rest in the operative position of the machine against the buffer pins 65 and 66, the movement of which are yieldably resisted by any suitable means such as a spring within the tubular sockets 70 and 71. In the position of the counterweight 67 as shown by full lines in Fig. 1 the weight of the body of the machine is to a certain extent balanced so that the friction between the grinding members and the flooring would not be too great and oppose the motor to such an extent as to cause it to burn out.

When the weight 67 is drawn by the handle 67a into the dotted position at the upper end of the frame and when the machine is not in operation, it serves to further counterbalance the weight of the machine and allow of the operator easily forcing down the upper end of the carrier frame by means of the handles 65 and 66 to lift the machine away from the flooring and the grinding members out of contact therewith. When in this position the brackets 67b bear against the lower ends of the frame members 48 and 49 and the machine may be rolled on the carrier wheels 63 and 64 to any new location.

When the counterweight is raised to the dotted line position shown in Fig. 1 by pulling up on the handle 67a the inclined end 72b of the pivot rod 72 engages the pin or bolt 73 raising the latch so that the notch 14 thereof drops in engagement with the pin or bolt 73 locking the weight in its upper position. When it is desired to change the grinding stones when they become broken or worn, the handles 65 and 66 are further depressed to the position shown in Fig. 2.

When the motor is in its normal position as in Fig. 1 a stop projection 75 extends upward therefrom. By depressing the handles 65 and 66 to the floor level and by then rotating the body of the machine on the studs 34 and 35 in the forks 57 and 58 in the direction of arrow, the stop 75 is carried into engagement with the cross rod 50 in the position shown in Fig. 2, holding the body of the machine in an inverted position with the grinding units exposed and readily gotten at. By this means any stooping or awkward manoeuvring on the part of the operator to remove and replace a grinding stone is avoided.

If desired the carriage may engage the body from either end as circumstances require.

What I claim as my invention is:

1. A grinding machine for plastic flooring comprising a grinder body, grinder units mounted in the body to rotate beneath the same, means carried by the body for rotating the units, a lever frame, carrier wheels upon which the frame is fulcrumed, arms extending inward from the fulcrum point and at each side of the grinder, a weight adjustable longitudinally of the frame for counterbalancing the grinder body and means for automatically locking the counterbalancing weight when adjusted to the outer end of the frame.

2. A grinding machine for plastic flooring comprising a grinder body, grinder units mounted in the body to rotate beneath the same, means carried by the body for rotating the units, a lever frame, carrier wheels upon which the frame is fulcrumed, arms extending inward from the fulcrum point and at each side of the grinder, a weight adjustable longitudinally of the frame for counterbalancing the grinder body, means for automatically locking the counterbalancing weight when adjusted to the outer end of the frame, and buffers at the inner end of the frame for receiving the counterweight when released from the locking means.

3. A grinding machine for plastic flooring comprising a grinder body, suitably driven grinder units mounted in the body, a lever frame, carrier wheels upon which the frame is fulcrumed, arms extending inward from the fulcrum point and at each side of the grinder, means for pivotally mounting the body between the arms whereby the body when raised from the floor by the lever frame may swing to an inverted position, a projection extending upward from the body and a cross bar carried by the frame with which the projection engages to hold the body stationary when in an inverted position and the grinding units in convenient position for replacement.

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