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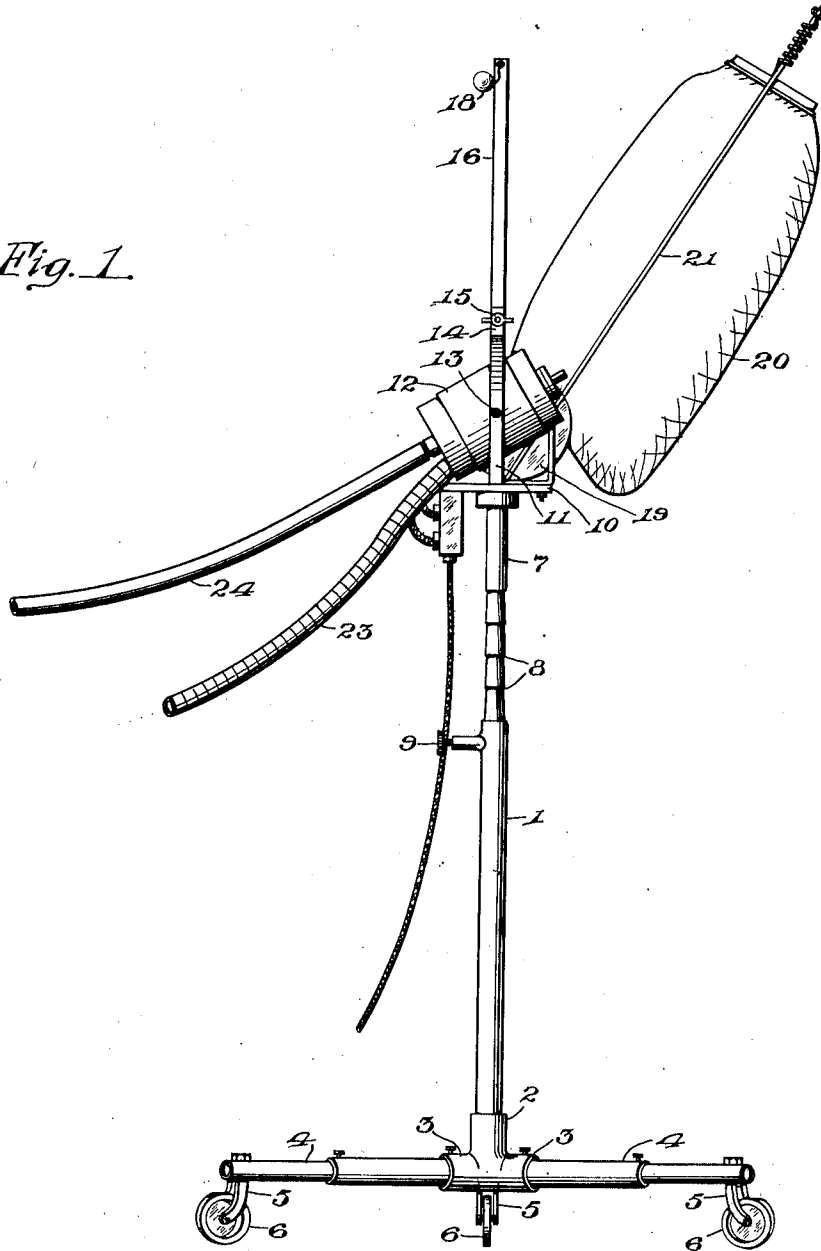
R. T. GARDNER
RESURFACING MACHINE

1,728,487

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4 Sheets-Sheet 1

Fig. 1.



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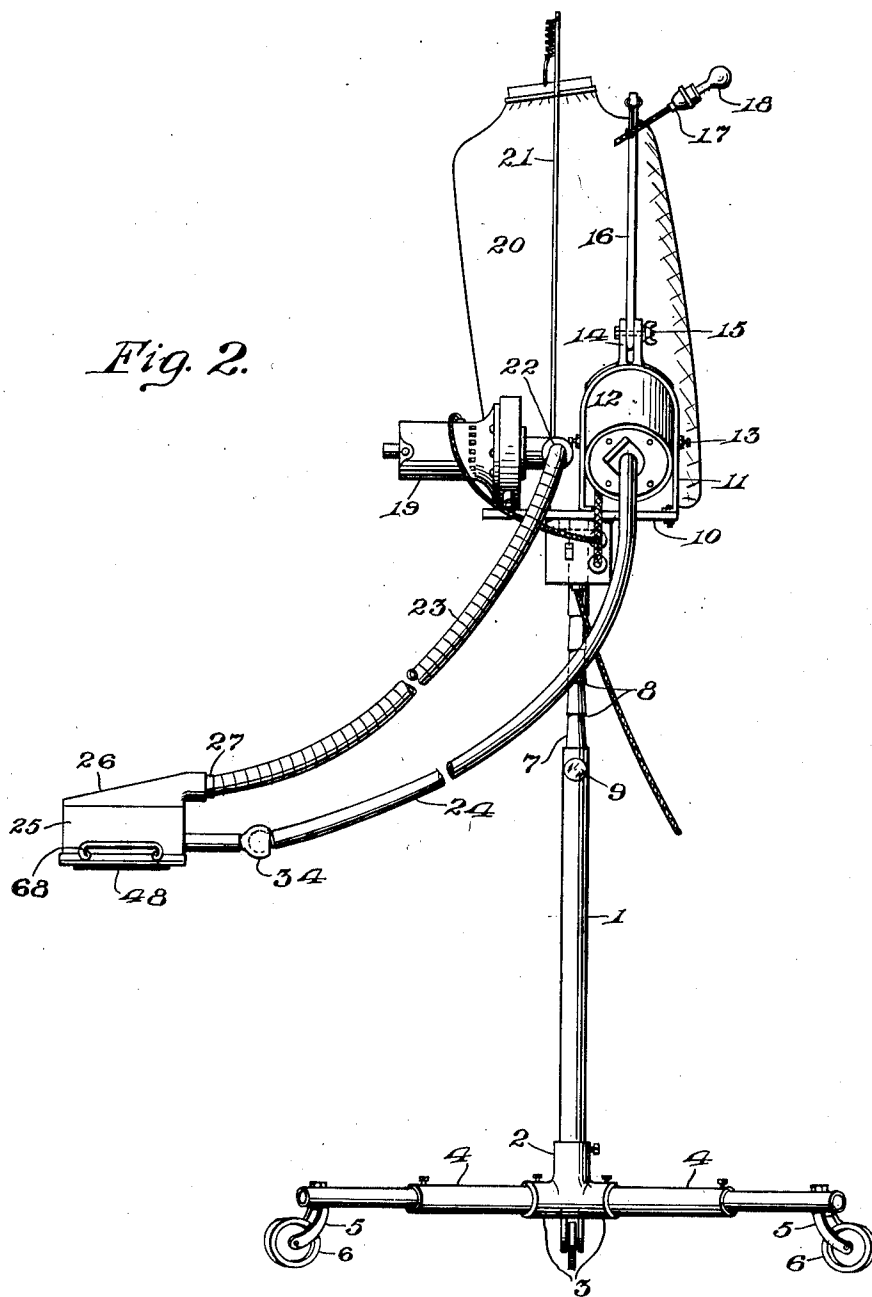
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Fig. 2.



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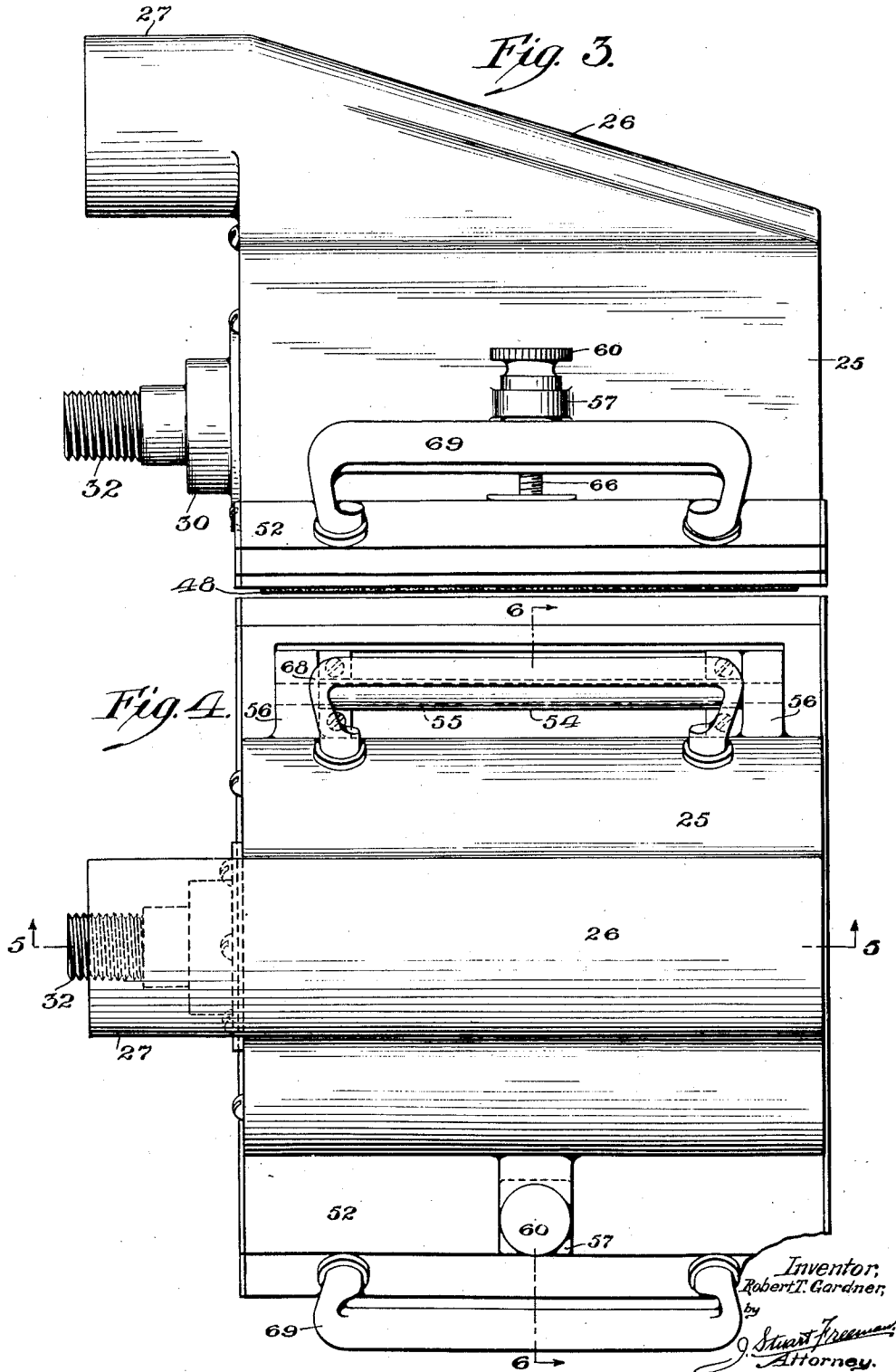
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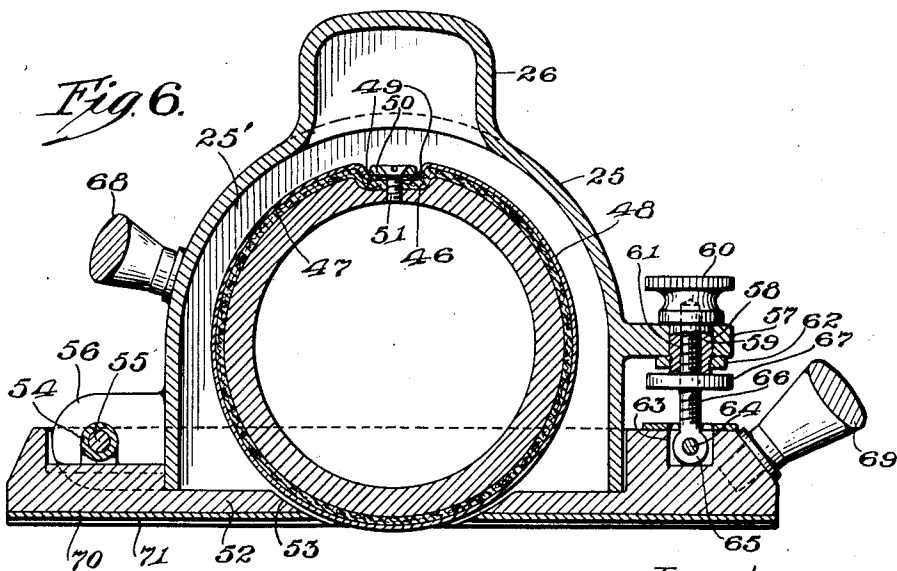
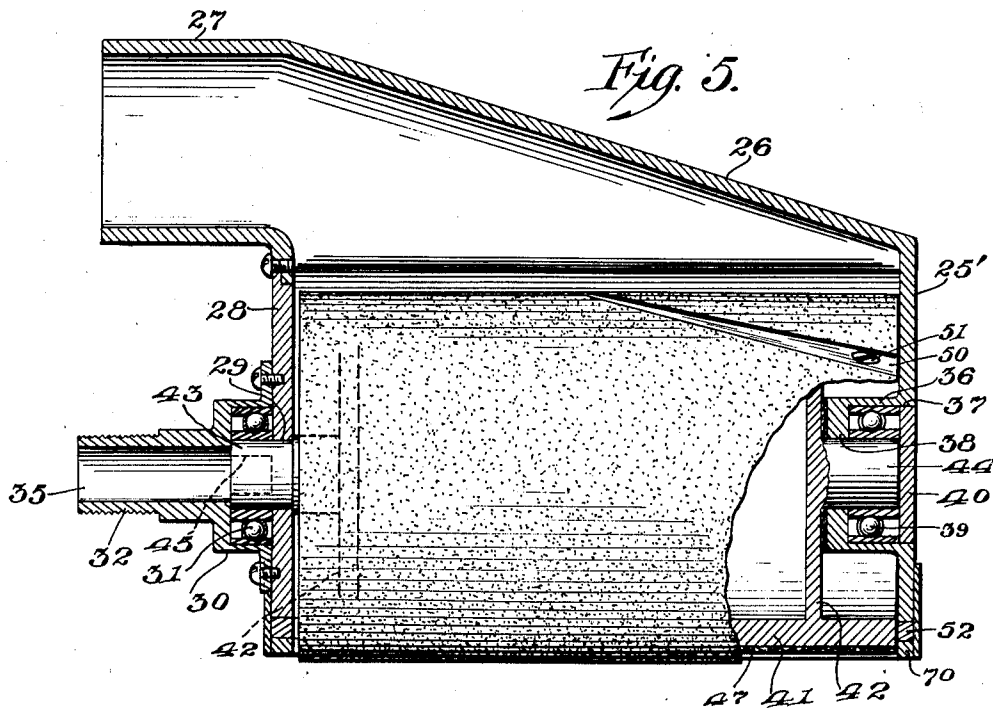
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RESURFACING MACHINE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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RESURFACING MACHINE

Application filed March 2, 1928. Serial No. 258,531.

An object of the invention is to provide improvements in resurfacing machines and particularly in machines designed and adapted for use in the resurfacing of slate and other types of blackboards, desks and table tops, mosaic and terrazzo mosaic, and various other surfaces.

Another object is to provide a device of this character which is readily portable, can be controlled and manipulated by a single operator, and in the case of upright surfaces such as blackboards can be manually propelled across such surfaces in both horizontal and vertical directions with ease, evenness and regularity.

A further object is to provide a portable support, an angularly movable motor, an angularly adjustable lamp-supporting bracket, and a pneumatic suction-producing device mounted upon said support, a manually movable head embodying a rotatable abrading or polishing element, a power transmission medium connecting said motor with said element, and a hollow medium connecting said head with said suction-producing device and adapted to convey away from said head particles of such material set free by the action of said element.

Still another object is to provide in the foregoing a head comprising a hollow casing open upon one side, a rotatable element supported by anti-friction means in said head, a closure for the otherwise open side of and pivotally carried by said head and provided with an aperture through which a portion of the periphery of said element protrudes, and means normally securing said closure in operative position and adjustable to vary the distance said element protrudes through said closure aperture.

And a still further object is to provide the closure of such a device with a facing of such material as wood or a similar substance, preferably grooved and of such nature as to preclude the tendency of the device to scratch the surface being refinished, as particles freed from such surfaces collect beneath the device, said grooves providing recesses into which liberated particles can

pass and from which they can ultimately fall.

In addition to the foregoing, the present invention embodies further details of construction and operation such as are fully brought out in the following description, when read in conjunction with the accompanying drawings in which Fig. 1 is a front elevation of one embodiment of the invention; Fig. 2 is a side elevation of the same; Fig. 3 is a side elevation of an enlarged detail showing the resurfacing head; Fig. 4 is a top plan view of the same; Fig. 5 is a vertical longitudinal section on the line 5—5 of Fig. 4; and Fig. 6 is a vertical transverse section on the line 6—6 of Fig. 4.

Referring to the drawings, the preferred embodiment of the invention comprises a preferably tubular standard 1, removably secured at its base in the upwardly extending branch 2 of a coupling, which also comprises a plurality of lateral branches 3 into which are removably and adjustably secured sets of telescoping, laterally extending legs 4, or the like, to the outermost free end portions of which are rotatably secured bifurcated brackets 5, in which are rotatably mounted rollers 6 of any desired type. Into the uppermost end portion of the standard 1 is removably and adjustably secured a telescoping rod 7, which is provided throughout a portion of its length with a series of lugs, grooves, flanges or other suitable forms of surface irregularities 8, adapted to cooperate with a set-screw 9 to adjustably support a platform 10 carried by the rod 7 at varying heights.

Upon the said platform 10 there is secured an inverted U-shaped frame 11, between the opposite sides of which is adjustably mounted an axially movable motor casing 12 upon suitable trunnions 13, while from the uppermost portion of said frame there extends a bifurcated bracket 14, in which is adjustably secured by means of a set-screw 15 an angularly adjustable member 16, to the outer free end of which is secured in any suitable manner a bracket 17, supporting an electric lamp or the like 18.

The platform 10 also supports any suitable type of electrically driven suction-producing device 19, which discharges into a suitable bag 20 of any well-known type and construction, said bag being removably carried by an arm 21 likewise secured to said platform. The casing of the suction device 19 is provided with an intake 22, from which extends a flexible tubular member 23, while a flexible shaft or other means of power transmission 24 extends from the motor 12.

Referring to Figs. 3 to 6 inclusive, there is provided a refinishing or resurfacing head, which comprises a hollow U-shaped casing 25, having an integral longitudinally extending offset 26, which increases in depth in one direction and at its greatest depth merges into a tubular outlet 27, which is normally connected with the free end of the flexible tube 23 leading to the suction device 19. Said casing at one end is normally closed by a disc 28, provided with an aperture 29 and upon its outer surface being provided with a housing 30, including an anti-friction bearing 31, and its outer portion merging into a reduced portion 32, which is externally threaded to receive the coupling 33 which in turn is connected to the flexible shaft 20 through the medium of any well-known and suitable universal joint 34, the threaded reduced portion 32 being provided with an axial bore 35 through which rotatably extends the free end portion of said flexible shaft.

The end 25' of the casing 25, opposite to the closure disc 28, is provided with an inwardly extending cylindrical flange 36, surrounding an aperture 37 and inwardly terminating in a radial inwardly extending flange 38. Within the flange 36 there is mounted a suitable anti-friction bearing 39, which is secured in position and protected by means of a disc 40, which is removably secured in any suitable manner within the aperture 37. Within said casing there is rotatably mounted a preferably hollow cylindrical drum 41, provided with transversely extending walls or partitions 42, beyond which the end portions of said drum extend into rather close relation with the longitudinally opposite ends of said casing, said partitions being provided respectively with axially extending trunnions 43 and 44, the former of which extends through the aperture 29 in the closure disc 28 and is supported by the anti-friction bearing 31 and provided with a suitable preferably polygonally shaped aperture 45, adapted to receive the correspondingly shaped end portion of the flexible shaft 24, while the other trunnion 44 extends through the centrally apertured flange 38 and is supported by the other anti-friction bearing 39.

The outer surface of the drum 41 is pro-

vided at one portion of its periphery with a spirally extending groove 46, while the entire surface of the periphery of said drum is covered by a layer of felt 47. Outside of said felt and also extending around said drum is a removable sheet of sandpaper, emery cloth, or other desired form of flexible abrasive material 48, the opposite ends 49 of said material being cut on the bias to correspond with the direction taken by the groove 46, and in fact are pressed into and secured within said groove by means of a bar or strap 50 removably secured in position by any suitable means, such for instance as the flat head bolts 51, so that said bar and bolts are positioned radially within the path of rotation of the outer surface of the abrasive material 48.

The casing 25, opposite to the outlet offset 26, is open, but is normally closed by means of a closure 52, provided with a central aperture 53 and pivotally supported by means of a tube or lugs 54, surrounding a rod 55 which extends between a pair of apertured lugs 56, comprising integral extensions of the casing 25. The opposite side of said casing is also provided with an integral laterally extending lug 57, having an aperture 58 through which extends the shank 59 of a set-screw, which comprises a manually rotatable head 60 and is provided with an internally threaded axial bore 61, the end of said shank opposite to said head being externally threaded and provided with a suitable nut 62, which serves to prevent the set-screw from becoming accidentally lost from its operative position as shown in Fig. 6.

The closure member 52, in turn, is provided with a recess 63 across which extends a pin 64, which is surrounded by an apertured end portion 65 of a threaded stud 66, the upper free end portion of which is normally within and surrounded by the set-screw shank 59, said stud also being surrounded by a manually rotatable lock nut 67 which is adjusted so as to frictionally bind against the free end of the shank 59, after the set-screw has been rotated into such position that the cylindrical abrasive surface 48 extends the desired distance through the aperture 53 in the closure 52.

For the purpose of making the resurfacing element as a unit readily portable, and movable manually over a surface being treated, suitable handles are provided and these may comprise any well-known and serviceable type of handle 68 carried by a portion of the casing 25 and a second handle 69 carried by the lateral edge portion of the closure 52 opposite to the pivotal support of the latter. Furthermore, the exposed surface of said closure 52 is preferably provided with a facing 70 of any suitable material such as wood and is preferably pro-

vided in turn with any suitable arrangement of grooves 71, for while the suction produced by the device 19 tends to draw particles freed from the surface being treated outwardly through the offset 26 and discharge tube 27, it is obvious that many small particles will inevitably find their way beneath the surface of the closure 52.

Therefore, in order to take care of such particles, the grooves 71 have been provided, into which such particles can congregate and from which they are eventually precipitated, while the surface of the facing material 70 between said grooves is such that it will receive such of said particles which do not enter the grooves at once, and yield to them rather than cause them to scratch the surface being refinished. For this purpose, certain types of wood have thus far been employed to best advantage, but the principle is obviously not limited to the use of wood to the exclusion of other materials which might be found to be as good or better for the purpose.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:—

1. A resurfacing device, comprising a casing having an end provided with an aperture, a housing comprising a cylindrical flange surrounding said aperture and extending inwardly, and terminating in a radially inwardly directed plane flange having an aperture, an anti-friction bearing within said housing, the opposite end of said casing having an aperture, a housing removably secured to the outer side of said second end and itself having an aperture, an anti-friction bearing within said second housing, and a tool having shaft or trunnion extensions cooperating with said bearings in said housings, and adapted to be actuated by power transmission means extending through the aperture in said second housing.

2. A resurfacing device, comprising a casing having end walls, one of said end walls being integral and the other being removable, a dust-proof housing carried by each end wall, an anti-friction bearing in each housing, and an abrading tool supported by said bearings within said housings.

3. A resurfacing device, comprising a casing having end walls and an open side, one of said end walls being integral and the other being removable, a dust-proof housing carried by each end wall, an anti-friction bearing in each housing, an abrading tool supported by said bearings within said housings, a closure for said open side having an aperture through which said tool projects, and means to vary the relationship between said casing and said closure to vary the distance to which said tool protrudes.

4. A resurfacing device, comprising a casing having end walls, an open end and an

offset provided with an outlet, one of said end walls being integral and the other being removable, a dust-proof housing carried by each end wall, an anti-friction bearing in each housing, an abrading tool supported by said bearings within said housings, a closure for said open side having an aperture through which said tool projects, means to vary the relationship between said casing and said closure to vary the distance to which said tool protrudes, and means to exhaust air and particles of material freed by said tool from said casing through offset and outlet.

5. A resurfacing device, comprising a casing having end walls, and a cylinder adapted to be provided with an abrasive or cutting surface and provided with transversely extending partitions spaced inwardly from the ends of said cylinder, so that the ends of the cylinder overhang said partitions and closely approach the inner surfaces of said end walls.

6. A resurfacing device, comprising a casing having end walls, a cylinder adapted to be provided with an abrasive or cutting surface and provided with transversely extending partitions spaced inwardly from the ends of said cylinder, so that the ends of the cylinder overhang said partitions and closely approach the inner surfaces of said end walls, dust-proof housings carried by said walls, and anti-friction bearings within said housings and operatively supporting trunnion or shaft projections from said cylinder.

In testimony whereof I have affixed my signature.

ROBERT T. GARDNER.