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R. CAVICCHI

SURFACING MACHINE

Filed Nov. 21, 1923

Fig. 1.

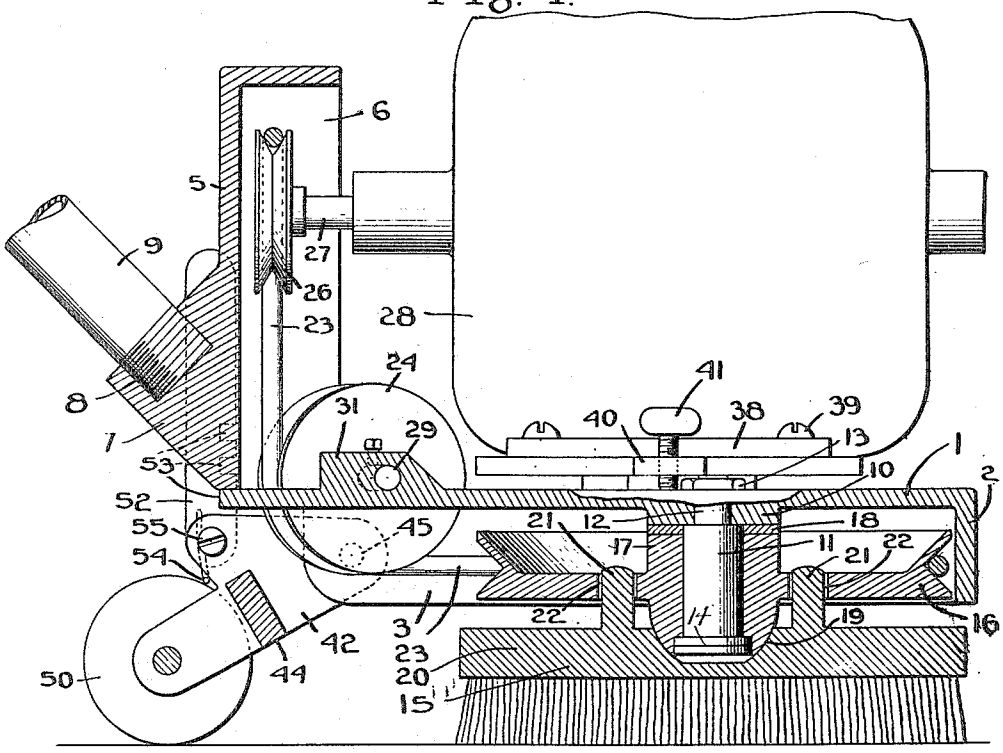
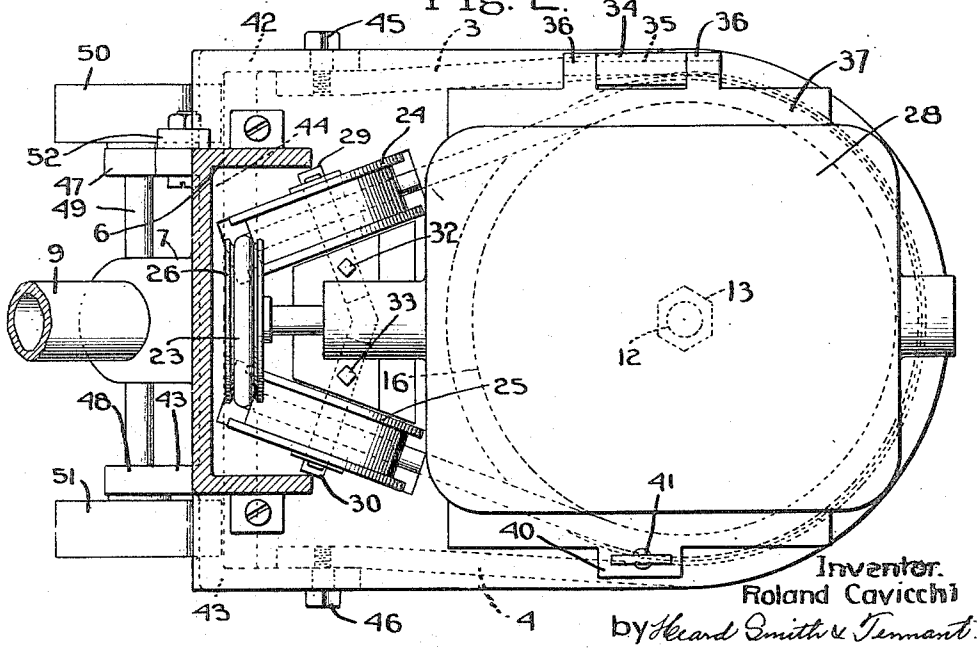



Fig. 2.




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## SURFACING MACHINE.

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This invention relates to improvements in surfacing machines and the object thereof is to provide a surfacing machine of relatively simple construction which will be effective in operation.

More particularly the invention relates to improvements in floor surfacing machines for finishing wooden floors which may be provided with an abrading disk, such as, a sanding disk, or alternatively with a rubbing device, such as, a brush or waxing device, and in which the surfacing tools can be readily exchanged or replaced.

A further object of the invention is to provide a floor polishing machine having a surfacing tool with means by which a motor, supported upon the base of the machine, may be caused directly to drive the surfacing device through an endless belt.

A further object of the invention is to provide a machine of the character above described with simple and effective means for adjusting the tension upon the endless belt.

A further object of the invention is to provide a surfacing device of the character described having guiding wheels with novel means for relatively adjusting the guiding wheels to the base of the machine in order to enable surfacing tools of different thicknesses to be properly employed.

Other objects and features of the invention will more fully appear from the following description and the accompanying drawing and will be particularly pointed out in the claims.

A preferred embodiment of the invention is shown in the accompanying drawing, in which,

Fig. 1 is a view, mainly in vertical longitudinal section, of a surfacing machine embodying the invention, the motor being shown conventionally in elevation;

Fig. 2 is in the main a plan view of the machine shown in Fig. 1 with the motor omitted and the standard shown in horizontal section to illustrate more clearly a portion of the power transmitting mechanism.

The floor surfacing machine illustrated in the accompanying drawing comprises a base 1 having at its front end a downwardly projecting flange 2, preferably of substantially semi-circular form, the flange desirably having slightly converging extensions 3 and 4 extending nearly to the front end of the base, these flanges providing a housing for a portion of the power transmitting mechanism or pulley which will hereinafter be more fully described. The rear end of the base is provided with an upwardly extending standard 5 having a forwardly extending peripheral flange 6 which provides a hood or housing for the power transmitting mechanism. The standard desirably is provided with a rearwardly extending lug 7 having a screw threaded socket 8 to receive the end of a preferably tubular handle member 9 for steering the surfacing machine.

The under face of the base is provided with a preferably integral downwardly extending boss 10 in which a shaft 11 is mounted about the axis of which the power transmitting member for actuating the surfacing device is rotated. The shaft 11 may be rotatably mounted in the boss, but in the preferred embodiment of the invention herein is fixedly secured to the boss being provided with an extension 12 of smaller diameter which projects upwardly through the base and is provided with a screw threaded upper end to receive a nut 13. The lower end of the shaft 11 is provided with an enlarged head 14 which retains the power transmitting member thereupon.

The surfacing tool may be in the form of a brush 15 as illustrated herein, or a sanding device, or other suitable tool for treating the surface to be operated upon and preferably is so mounted as to be rotated about the axis of the shaft 11 by the power transmitting member. The surfacing tool also is provided with a universal connection which will permit it to tilt when passing over uneven portions of the surface which is being operated upon.

In the preferred embodiment of the invention illustrated herein the power transmitting device is in the form of a pulley 16 having a hub 17 rotatably mounted upon the shaft 11 with anti-friction means, such as, a disk or roller bearing 18 interposed between the upper end of the hub and the lower end of the boss 10. The lower end of the hub of the pulley desirably is provided with a convex, preferably substantially spheroidal surface 19 which fits into a complementary concave surface in the upper face of the head 20 of the brush 15 forming a ball and socket connection therewith.

Suitable means are provided for rotating the surfacing device from the power transmitting means which as illustrated herein comprises lugs or studs 21 which extend up-

wardly from the head 20 of the surfacing device through elongated slots 22 in the power transmitting pulley 16, the slots being of sufficiently greater length than the width of the lugs or studs to permit the required tilting movement of the brush when passing over uneven surfaces.

The power transmitting member or pulley is actuated from a motor which is mounted upon the base. In the particular construction shown the pulley 16 is provided with a V-shaped grooved periphery which is engaged by a round belt 23 which passes over guide pulleys 24 and 25 and around a pulley 26 upon the shaft 27 of an electric motor 28 which is carried by the base.

The shafts 29 and 30 of the pulleys 24 and 25 are mounted in sockets in a boss 31 which extends upwardly from the forward portion of the base and preferably is integral therewith, the ends of the boss having faces of such inclination to the longitudinal axis of the machine as will position the shafts 29 and 30 of the pulleys in such position that the belt 23 will be properly guided over the motor pulley 20 and the power transmitting pulley 16.

The shafts 29 and 30 may be retained in place by set screws 32 and 33 respectively. In order to provide for the taking up of the slack in the belt the motor is so mounted as to be adjustable relatively to the base. In the preferred construction illustrated one of the sides of the base is provided with an upwardly extending boss or ear 34 in which a pintle 35 is mounted and upon which pintle ears 36 of a platform 37 are pivotally mounted. The base 38 of the motor frame is secured by suitable screws or bolts 39 to the platform. The opposite end of the platform is provided with an extension 40 in which an adjusting screw 41 is seated. The lower end of the adjusting screw abuts against the upper face of the base. By unscrewing and screwing up the adjustment screws 41 the platform which supports the motor may be lowered or raised relatively to the base, thus providing means by which the belt can be readily placed upon the driving pulley 26 of the motor and the power transmitting pulley 16 and as the belt stretches the adjusting screw may be screwed down sufficiently to impose the proper tension upon the belt.

The relative sizes of the motor pulley 26 and the power transmitting pulley 16 may be such as to enable the brush to be driven directly from the motor at a desired speed; for example, the relative sizes of the pulleys 26 and 16 may be as four to one, so that a motor driven at one thousand six hundred revolutions per minute will rotate the power transmitting pulley 16 and the surfacing tool at a rate of approximately four hundred revolutions per minute.

Obviously any desired speed of rotation of the surfacing device may be obtained by properly proportioning the sizes of the pulleys.

Inasmuch as the thickness of the surfacing device will decrease by reason of wear, and also because it may be desirable to employ surfacing devices of different thicknesses, adjustable means are provided for supporting the rear end of the surfacing machine to enable the surfacing tool to rotate about an axis normal to its surface.

In the preferred embodiment of the invention disclosed herein a frame, comprising arms 42 and 43 connected by a cross piece 44, is provided, the arms 42 being supported at their upper ends upon suitable studs 45 and 46 screwed into the end portions of the flanges 3 and 4 respectively. The frame is also provided with arms 47 and 48 in which a shaft 49 is mounted having at its ends rollers 50 and 51 which are located beyond the end of the base so that the weight of the motor, the base and the platform, upon which it is mounted, is substantially wholly imposed upon the surfacing tool. An arm 52 is pivotally mounted upon one or both of the arms 47 and 48 and is provided with a rack face presenting a series of notches 53 any one of which may be caused to engage the rear end of the base 1. Desirably a spring 54, coiled around the stud 55 upon which the arm 52 is pivoted and engaging at its ends respectively the cross bar 44 of the frame and the arm 52, acts normally to hold the notches 53 in engagement with the ends of the frame. By swinging the arm 52 out of engagement with the platform and raising and lowering the platform and releasing the arm 52 any suitable adjustment of the base may be provided to cause the surfacing tool to rotate about an axis substantially normal to the base.

It will be obvious from the above disclosure that the surfacing device is of simple and efficient construction and of a minimum number of parts.

Any suitable type of surfacing tool may be employed such as a sanding roller for surfacing wooden floors or a brush for polishing or waxing the floors, such brush being constructed in any suitable manner as for example of palmetto fibre, basine, or the like. The surfacing machine is particularly designed to provide a lamp socket tool which can be conveniently connected into the usual sockets of the lighting system and employed in the household to surface and wax the floors of a dwelling, an office, or bowling alleys, but obviously the device may be made of larger construction and adapted to surface and finish terrazzo, marble, and other floors.

In the operation of the device the rotation of the surfacing tool will usually produce

sufficient traction to cause the machine to travel over the surface at the desired speed, but the rate of movement of the machine over the surface may be controlled by the handle as well as the direction of movement.

It will be observed that in the construction illustrated the surfacing tool is not connected rigidly with the power transmitting mechanism so that when it is desired to substitute one surfacing tool for another it is merely necessary to press down upon the handle sufficiently to tilt the base of the machine about the line of contact between the rollers 50 and 51 and the floor whereupon the surfacing tool will remain upon the floor so that it may be readily removed and a new or different tool placed upon the floor and the frame lowered until the upwardly extending studs 21 engage the slots in the power transmitting pulley.

It will be understood that the embodiment of the invention disclosed herein is illustrative and not restrictive and that various modifications in form, construction and arrangements of parts may be made within the spirit and scope of the following claims.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A floor surfacing device comprising a base, a platform mounted on said base and movable substantially vertically relatively thereto, a motor having a horizontal shaft provided with a driving pulley mounted on said platform, a shaft projecting downwardly from said base, a horizontal power transmitting pulley rotatable about the axis of said shaft, an endless belt passing over said driving pulley and said power transmitting pulley with idle pulleys guiding said belt from vertical to horizontal position, a surfacing device connected to said power transmitting pulley and means for adjusting said platform toward and from said base to vary the tension upon said endless belt.

2. A floor surfacing device comprising a base, a motor carried by said base having a horizontal shaft provided with a driving pulley, a shaft projecting downwardly from said base, a horizontal power transmitting pulley rotatable about the axis of said shaft and having a hub provided with a convex end portion, a surfacing device having a concaved socket to receive the convex end portion of said pulley-hub and provided with means loosely engaging the web of said pulley whereby the rotation of said pulley will impart rotative movement to the surfacing device, but will permit the tilting thereof.

3. A floor surfacing device comprising a base, a platform pivotally mounted on said base and movable vertically relatively thereto, a motor having a horizontal shaft provided with a driving pulley mounted on said platform, a shaft projecting downwardly from said base and normal thereto centrally beneath said motor, a horizontal power transmitting pulley rotatable about the axis of said shaft, an endless driving belt passing over said motor pulley and said power transmitting pulley, and guide pulleys mounted on said base engaging the runs of said endless driving belt, means for adjusting said platform vertically about its pivot to tighten said belt and a surfacing member rotatable about the axis of said shaft having means detachably engaging said power transmitting pulley.

4. A floor surfacing device comprising a base having a downwardly extending peripheral flange and provided at its rear end with an upwardly extending hood, a motor mounted on said platform having a horizontal shaft provided with a pulley located within said hood, a shaft projecting downwardly from said base centrally beneath said motor, a horizontal power transmitting pulley rotatably mounted thereon and located within said peripheral flange, means for actuating said power transmitting pulley from said driving pulley and a surfacing device universally connected directly to said power transmitting pulley.

In testimony whereof, I have signed my name to this specification.

ROLAND CAVICCHI.