

March 9, 1926.

1,576,428

O. E. HADWIGER

FLOOR SURFACING MACHINE

Filed Sept. 11, 1922

4 Sheets-Sheet 1

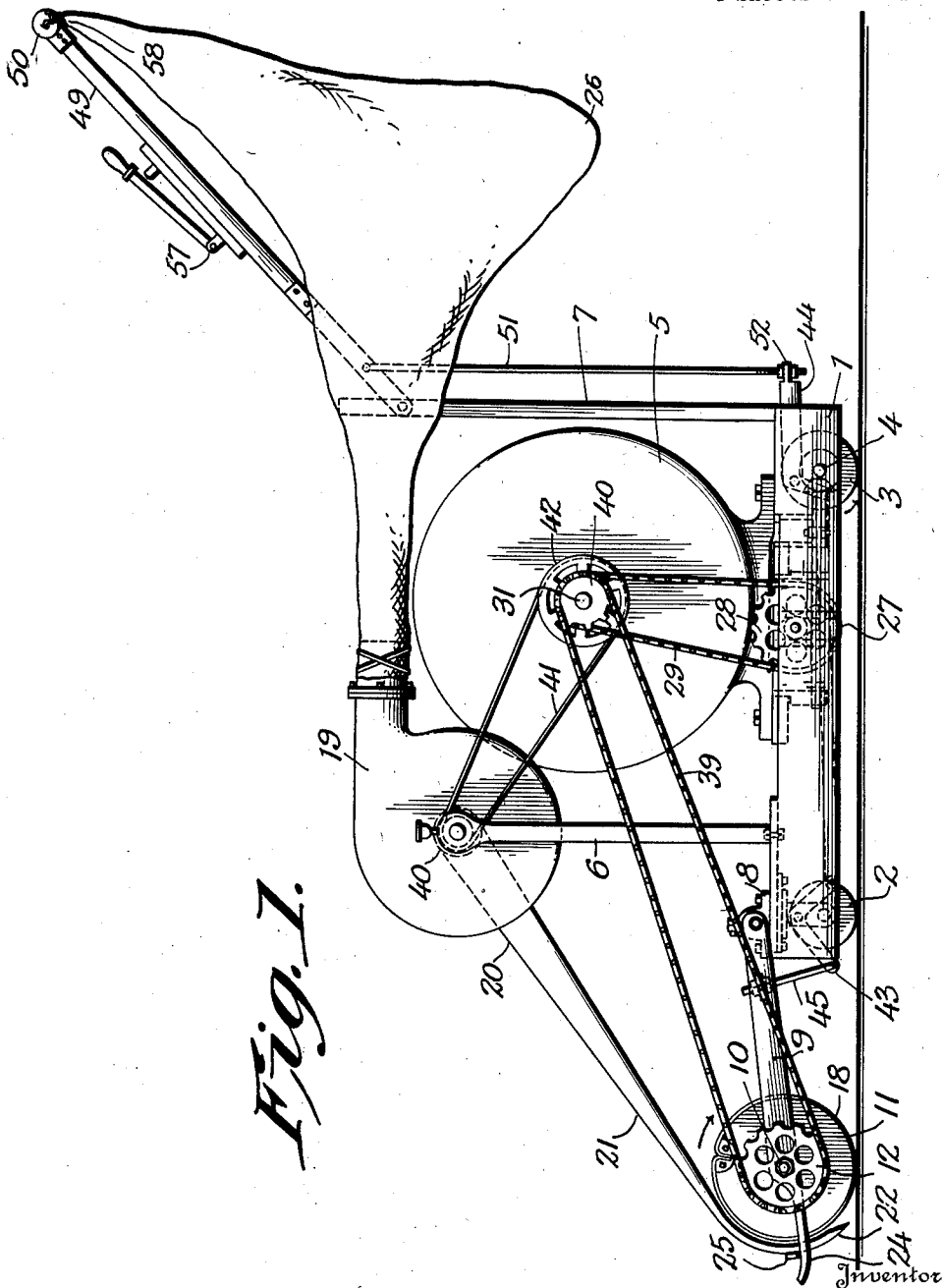


Fig. 1.

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4 Sheets-Sheet 2

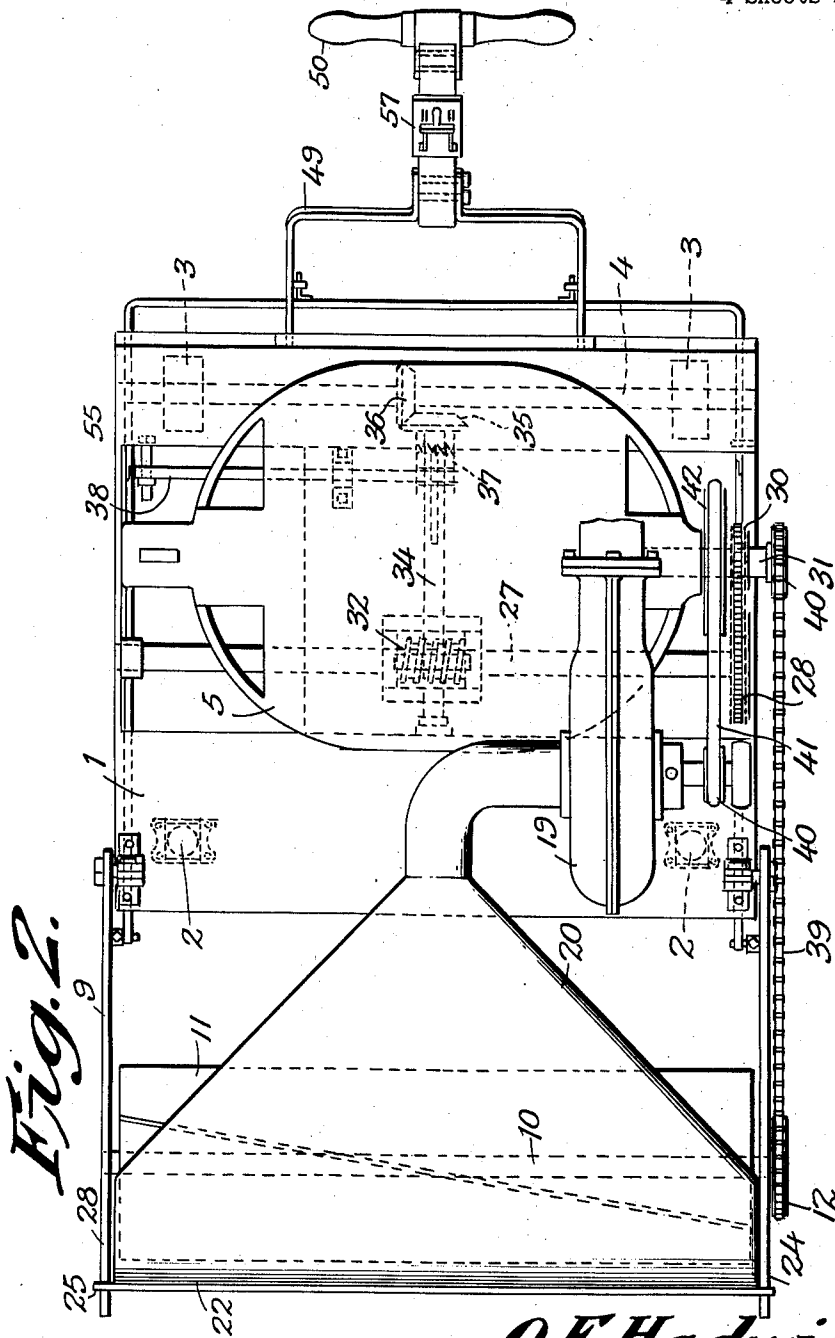


Fig. 2.

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4 Sheets-Sheet 3

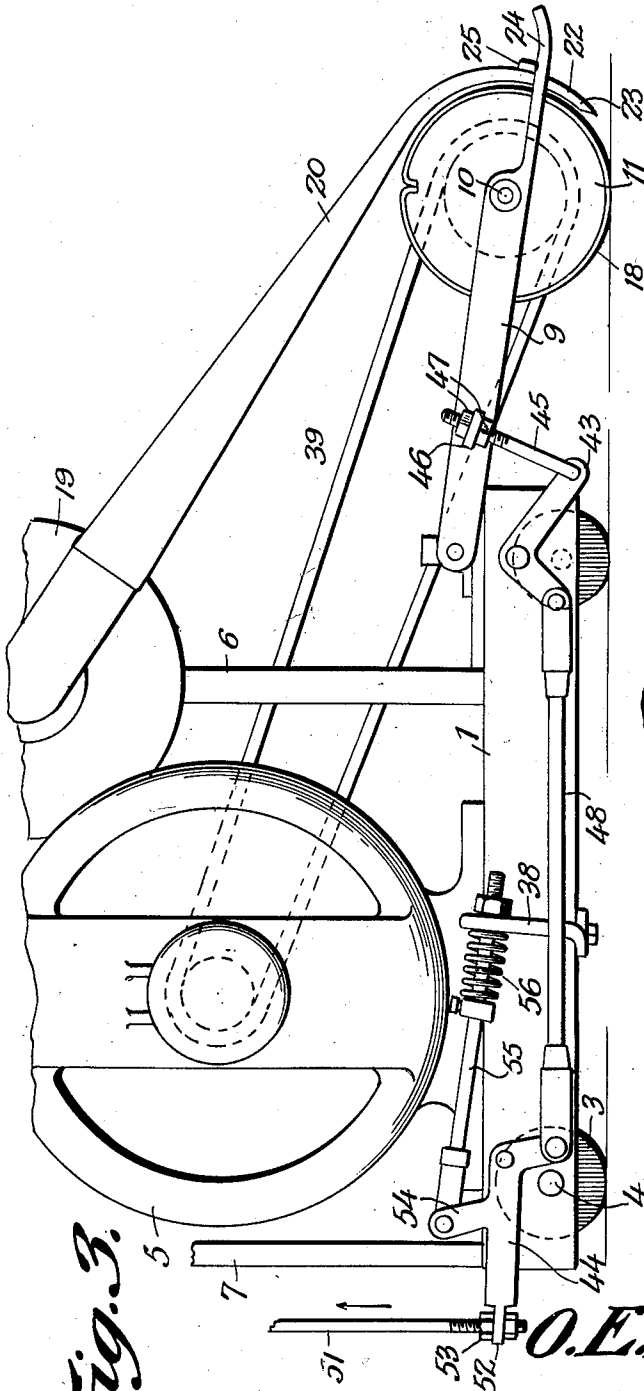


Fig. 3.

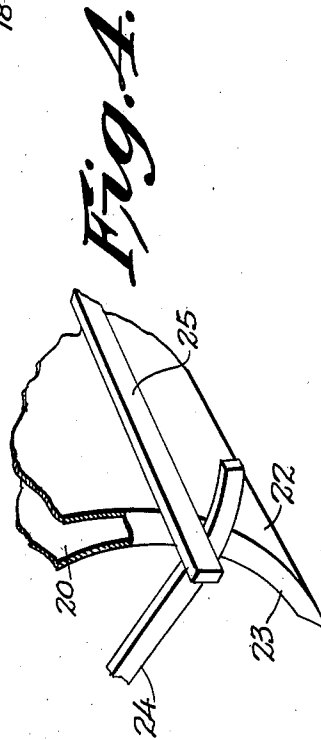


Fig. 4.

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4 Sheets-Sheet 4

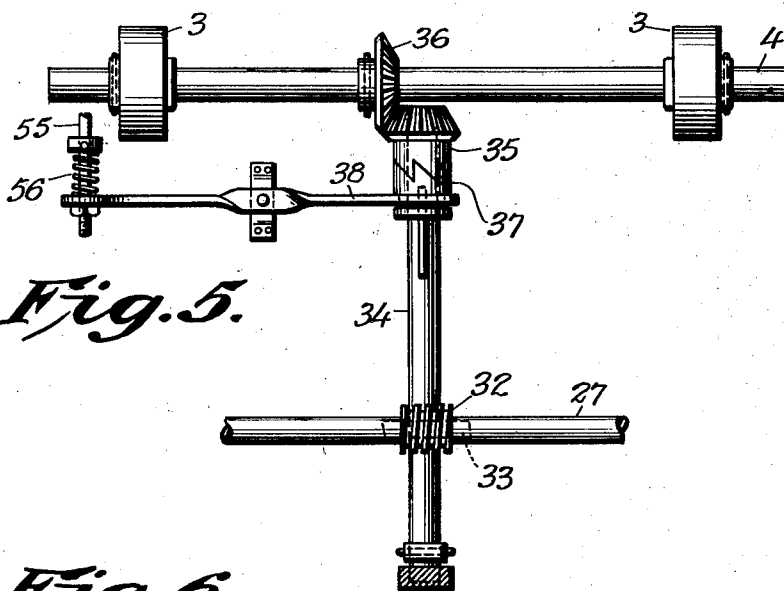


Fig. 5.

Fig. 6.

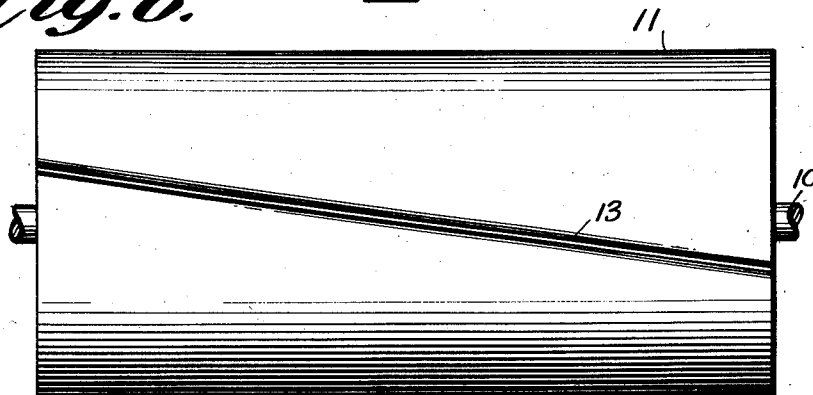
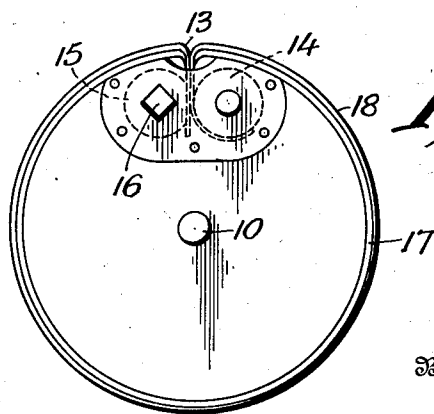


Fig. 7.



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UNITED STATES PATENT OFFICE.

OSCAR EARL HADWIGER, OF PUEBLO, COLORADO.

FLOOR-SURFACING MACHINE.

Application filed September 11, 1922. Serial No. 587,623.

To all whom it may concern:

Be it known that I, OSCAR E. HADWIGER, a resident of Pueblo, in the county of Pueblo and State of Colorado, a citizen of the United States, have invented certain new and useful Improvements in Floor-Surfacing Machines, of which the following is a specification.

This invention relates to an improvement in floor surfacing machines, and particularly to an electrically operated machine of the sander type.

An object is to provide a machine carrying a sander drum and including means by which contact of the drum with the floor and the movement of the machine over the floor can be manually controlled.

A further object resides in so constructing the control that when the drum is in contact with the floor, the machine will be positively propelled, thus avoiding too long contact of the sanding face of the drum with any part of the floor and consequent irregular surfacing.

Another object lies in providing a dust collector which will take up the particles of wood and dust immediately adjacent the contact line between the drum and floor.

A still further object is to so construct the machine that the parts are all supported on a movable carriage which is propelled during operation by the power means for the sander drum and that the propulsion and the direction of travel can be controlled and directed by the operator.

Still another object is to provide a sander drum which is constructed to have an abrasive covering removably fitted thereon, and in providing means by which the covering is stretched upon the drum and is held at its ends.

With these and other objects in view, which will be apparent from the drawings and specification, my invention consists in certain novel features of construction and combination of parts which will now be set forth.

In the drawings:

Figure 1 is a view in side elevation of a

machine constructed in accordance with my invention.

Fig. 2 is a top plan view of the machine with the dust bag removed.

Fig. 3 is a fragmentary side elevation to show the arrangement of the control means.

Fig. 4 is a fragmentary perspective view to better illustrate the manner of constructing and supporting the dust collector head.

Fig. 5 is a plan view showing the propulsion drive.

Fig. 6 is a side elevation of the sander drum, with the abrasive covering removed.

Fig. 7 is an end elevation of the drum, with the abrasive covering in place.

The machine is constructed upon a substantially rectangular base frame 1, which is supported at its forward end on caster wheels 2, and at its rear end upon drive wheels 3, these drive wheels being fixed on a shaft 4 journaled in suitable bearings upon the frame. An electric motor 5 is mounted on the frame, and a bearing stand-ard 6 extends up from the frame in advance of the motor, the uprights 7 being rigidly mounted on the frame in the rear of the motor.

Bearings 8 are provided on the forward end of supporting frame 1, and a drum frame 9 is pivotally connected in these bearings to extend forwardly from the supporting frame. The side bars of the drum frame have bearing openings to receive the ends of a shaft 10 which is thus mounted transversely in front of the frame 1 and is adjustable from and toward the floor on which wheels 2 and 3 travel through adjustment of the drum frame. The drum 11, best shown in Figs. 6 and 7, is fixed on the shaft 10, and a sprocket gear 12 is provided on the shaft for rotation of the same. The drum 11 has a diagonal channel 13 formed in its periphery, and the rollers 14 and 15 are provided at the sides of this channel with their faces slightly spaced, the end 16 of the roller 15 being preferably squared so that this roller can be rotated. In feeding the drum for use a felt covering 17 is stretched around the periphery of

the drum and an abrasive sheet 18, which can be of sand-paper or other suitable material, is stretched over the felt covering 17, and has its ends inserted between rollers 14 and 15. With the ends fitted loosely between the rollers, a wrench or other suitable implement is used to rotate the roller 15 and the ends of the abrasive drum covering 18 are drawn between the rollers, and this covering is tightened against the felt. By providing a diagonal channel in which the ends of the drum covering are held, I avoid a distinct line or break on the drum surface, and a better result is attained in use.

On the bearing standard 6 an exhaust fan 19 is supported, and a tube 20 from the eye of this fan has a dust-collector head 21 connected with its end. This dust-collector head is curved as at 22 to conform substantially to the outline of the drum 11, and has its intake mouth 23 disposed adjacent the tangent line between the drum and floor. To support the dust-collector head in this relation, I provide supporting arms 24 on the drum frame 9, and a cross-bar 25 on the head 21, extended at its ends to rest upon the arms 24. The ends of the arms 24 on the cross bar 25 can be tipped with rubber or other protective caps to prevent marring of standing woodwork, should these parts come in contact therewith when the machine is in use. The exhaust fan 19 discharges into a dust bag 26, which can be supported in any desired manner.

To accomplish propulsion of the machine, a power shaft 27 is mounted transversely across the supporting frame 1, and a sprocket gear 28 secured thereon carries a sprocket chain 29 which is extended around a sprocket wheel 30 on the shaft 31 of the motor 5. This power shaft has a worm 32 thereon in mesh with a worm gear 33 on the transmission shaft 34, mounted in suitable bearings on the supporting frame. A miter gear 35, loosely mounted on transmission shaft 34, meshes with a smaller gear 36 fixed on axle 4, and a clutch collar 37 is splined on transmission shaft 34 to be thrown into and out of mesh with a clutch face on the gear 35. A clutch lever 38 is provided to shift the clutch collar.

By the driving connection as set forth above, the wheels 3 are rotated in the direction indicated by the arrow in Fig. 1, to move the supporting or base frame 1 forwardly, and a sprocket chain 39, carried over the sprocket wheel 12 on the shaft 10, and a sprocket 40 on the motor shaft 31, causes the sander drum 11 to be revolved in an opposite direction. A belt pulley is fixed on the fan shaft and a belt 42 is carried over this pulley and a pulley 41' on the motor shaft 31. In this manner the various parts are connected to be driven from the motor 5, and the sander drum and exhaust fan are

constantly operated, the drive wheels being turned only when the clutch collar is thrown in mesh.

It is essential that means be provided to support the sander drum above the floor and to determine and vary the bearing contact with the floor in operation, and with this in view, I provide bell-crank levers 43 adjacent the forward end of the frame 1 and similar levers 44 adjacent the rear end. Rods 45 connected with arms of the bell-crank levers 43 are extended through ears 46 on the side arms of the drum frame, and are adjustably connected therewith by nuts 47. Rods 48 are connected with the remaining arms and these bell-crank levers and extend rearwardly to connect with arms of the bell-crank levers 44. A handle bar 49 is pivotally mounted on the upright standards 7 at the rear of the machine, and is provided with a suitable handle 50. Rods 51 are pivotally connected with the handle bar at points spaced from the pivot thereof and have the remaining ends extended through ears 52 on the bell-crank levers 44, nuts 53 being provided to adjustably connect the rods with the bell-crank levers.

One of the bell-crank levers has a short arm 54, and a rod 55 is pivotally connected therewith at one end, and is extended through an opening in the outer end of the pivoted clutch levers 38. A spring 56 and adjustable collars or nuts are provided on the rod 55 to give the desired adjustments for shifting the clutch lever, the spring acting to resiliently throw or move the clutch collar 37.

A switch 57 can be provided on the handle bar 49 to control the circuit to motor 5, and a hook 58 might be provided to support the dust-bag 26.

When the machine is in use, the handle bar 49 has sufficient weight from the drum to swing up around its pivotal mounting on the upright 7, and cause rods 51 to pull up upon the rear ends of bell cranks 44. These bell cranks 44 transmit movement through rods 48 to the bell crank levers 43, with which rods 45 are connected, and in consequence, the drum frame 9 is swung down causing the abrasive surface of the drum to come in contact with the floor. Also the arm 54 is pushed forward to cause rod 55 to push upon clutch lever 38, and engage the clutch collar 37 with the clutch face of miter gear 35, and thereby cause rotation of axle 4 and drive wheels 3. When the switch 57 is closed, the shaft 31 of motor 5, is rotated, and the exhaust fan 19 and drum 11 are operated, shaft 27 being also revolved. As the operator grasps the handle 50, and lowers or pulls back on the handle bars to swing the same around their pivotal mounting, the rear arms of the bell-crank levers 44 are lowered and rods 48 push upon the

bell-crank levers 43. Through rods 45 the drum frame 9 is swung up to bring the abrasive surface of the drum free from contact with the floor. At the same time arm 54 is swung back to pull upon rod 55 and clutch lever 38 is moved backwards to shift the clutch collar out of gear. Through the resiliency of the spring 56, the handle bars 48 can be raised past a clutch-meshing position, and the bearing of the sander drum upon the floor can consequently be increased. As caster wheels 2 are provided at the forward end of the frame, the operator can steer the machine in any desired course as it travels under propulsion by the drive wheels 3.

From the foregoing, it will be seen that I have provided a floor surfacing machine of the sander type, which is substantially dustless when in operation, and which is manually controlled as to its movement and direction of travel and as to the bearing or grinding pressure between the drum and the floor; and, while I have herein shown and described only one form of the various parts of the operating and control mechanism, it will be appreciated that changes and variations can be resorted to without departing from the spirit and scope of my invention, in view of which I wish to be limited only to such points as may be set forth in the claims.

I claim:

1. A floor surfacing machine comprising, with a movable frame, a motor for operating the moving parts of the machine, wheels by which said frame is carried and moved, surfacing means adjustably mounted on the frame to be thrown into and out of a surfacing position, and manually controlled means by which the surfacing means is moved to an operative position when the wheels are connected to move the frame.

2. A floor surfacing machine comprising, with a frame, propelling wheels on which said frame is mounted to be moved, a drum frame movably mounted on the supporting frame, a sander drum revolubly carried by the drum frame, power means on the supporting frame connected to operate the sander drum, a driving connection from the power means to the drive wheels including a shiftable clutch, and manually operable means on the frame to simultaneously shift the clutch to a driving position and to move the drum frame to bring the sander drum to an operative position.

3. A floor surfacing machine, comprising, with a frame, propelling wheels on which said frame is mounted to be moved, a drum frame movably mounted on the supporting frame, a sander drum revolubly carried by the drum frame and parallel with the axes of the propelling wheels, power means on the supporting frame connected to operate

the sander drum, a driving connection from the power means to the drive wheels including a shiftable clutch, manually operable means to simultaneously shift the clutch to a driving position and to move the drum frame to bring the sander drum to an operative position, an exhaust fan, and a dust collector head connected with said exhaust fan disposed adjacent to and movable with the sander drum.

4. A floor surfacing machine comprising, with a substantially rectangular supporting frame, caster bearing wheels carrying the forward end of the frame, a drive axle mounted at the rear of the frame and having drive wheels thereon to support the frame, a power unit mounted on the frame, a drum frame pivotally mounted at the forward end of the supporting frame, a sander drum revolubly mounted in the drum frame and parallel with the drive axle, a driving connection from the power unit to the sander drum, a driving transmission from the power unit to the driving axle including a clutch, a handle bar by which the movement of the supporting frame is directed, and means connected from said handle bar to simultaneously throw in the clutch to the drive wheels and move the drum frame to bring the sander drum against the floor.

5. A floor surfacing machine comprising, with a substantially rectangular frame, caster wheels by which the forward end of the frame is carried, an axle journaled at the rear of the frame, drive wheels on said axle to support the frame, a power unit mounted on said frame, a drum frame pivotally mounted at the forward end of the supporting frame and extending forwardly therefrom, a sander drum revolubly mounted at the outer end of the drum frame, supporting uprights on the supporting frame, a handle bar pivotally connected with one of said supporting uprights, a driving connection from the power unit to the sander drum, a drive shaft driven from the power unit, a fan operated by the same, a transmission shaft operated from the drive shaft, a clutch and gear connection from the transmission shaft to the drive axle, and means connected with and operated by movement of the handle bar to throw in the clutch and to lower the drum frame to simultaneously cause rotation of the drive wheels and contact of the sander drum with the floor.

6. A floor surfacing machine comprising, with a supporting frame, castor wheels by which the forward end of the frame is carried, drive wheels mounted at the rear of the frame to support the frame and move the same over a floor, a sander drum mounted at the forward end of the frame in advance of the castor wheels and movable into

and out of contact with the floor, a dust collector carried in front of the drum, driving means to revolve the drum to turn forwardly and upwardly toward the opening of the dust collector, a handle extending from the rear of the frame and movable with respect thereto by which the travel of the machine is steered, and connections from the drive wheels and the drum and operable by said handle to lower the drum when the drive is thrown into machine propelling relation. 10

In testimony whereof I hereunto affix my signature.

OSCAR EARL HADWIGER.