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2,454,650

SANDING MACHINE

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Fig. 3

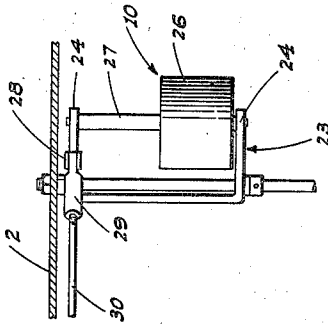


Fig. 2

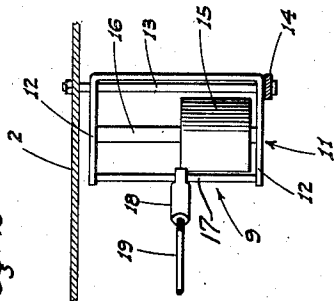
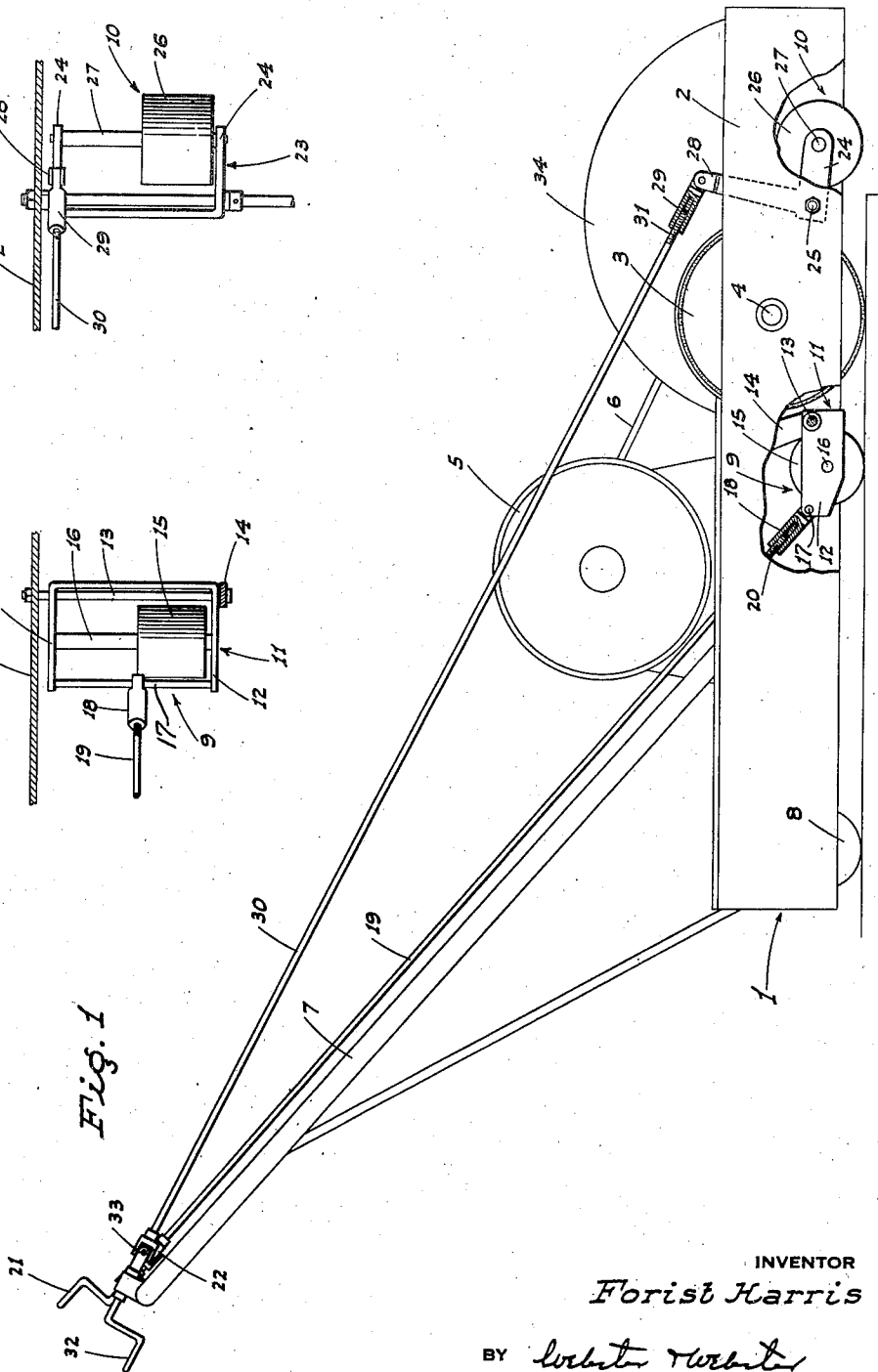


Fig. 1



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SANDING MACHINE

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6 Claims. (Cl. 51-176)

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This invention relates in general to improvements in power driven, floor sanding machines, and in particular the invention relates to, and it is an object to provide, a floor sanding machine especially designed for use in connection with bowling alleys.

Another object of the invention is to provide a floor sanding machine which is constructed in a manner to permit of sanding of the surface of bowling alleys for the full length thereof, including the end portion or pin deck immediately adjacent the pit; the machine being provided with a novel supporting roller assembly which permits the sanding drum to be run up to and across the pin deck of a bowling alley, while at the same time maintaining said drum in accurate working position.

A further object of the invention is to provide novel means adjustably mounting the supporting rollers on the main frame of the machine.

A further object of the invention is to provide a practical sanding machine which will be effective for the purposes for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a side elevation of the floor sanding machine, partly broken away and partly in section.

Fig. 2 is a fragmentary plan view of one of the adjustable, intermediate roller units.

Fig. 3 is a fragmentary plan view of one of the adjustable, forward roller units.

Referring now more particularly to the characters of reference on the drawings, the floor sanding machine comprises a horizontal rectangular frame, indicated generally at 1, and which frame includes transversely spaced side plates 2. Adjacent but short of its forward end the frame 1 supports a transversely extending sanding drum 3 including a shaft 4 journaled in connection with the side plates 2. The sanding drum 3 is driven from an electric motor 5 mounted on the frame 1 to the rear of said drum; the drive means between the motor 5 and drum 3 comprising an endless belt and pulley unit 6.

The machine is operator guided by means of a handle assembly 7 which is mounted on the frame 1 adjacent the rear thereof and extends upwardly at a rearward incline.

The machine is supported by a floor engaging roller assembly which includes a transversely spaced pair of rear roller units, a transversely

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spaced pair of intermediate roller units, and a transversely spaced pair of forward roller units, indicated at 8, 9, and 10, respectively. The intermediate roller units 9, and the forward roller units 10, are mounted closely adjacent the back and front, respectively, of the sanding drum 3.

The rear roller units 8 are non-adjustable and their mounting forms no part of the present invention. However, the roller units 9 and 10 include novel, adjustable mounts comprising the following:

The transversely spaced pair of intermediate roller units 9 are identical in construction and therefore a description of one will suffice. Each of the intermediate roller units 9 comprises a U-shaped yoke 11 disposed with the legs 12 thereof projecting rearwardly; said yoke being pivotally mounted, adjacent its forward end, on a cross shaft 13 supported between the adjacent side plate 2 and a rigid depending bracket 14 included in the frame. A wide face roller 15 is disposed within the yoke 11 and is fixed on a spindle 16 which extends between, and is turnably mounted in connection with, the legs of said yoke intermediate the ends of the latter. A cross pin 17 extends between the rear ends of the yoke legs 12, and a connector sleeve 18 is pivotally mounted on the cross pin 17. A control rod 19 is threaded axially into the connector sleeve 18, as at 20, and thence extends at an upward and rearward incline to connection with a hand crank 21 mounted on the handle assembly 7 at the top thereof, there being a toggle unit 22 interposed in the control rod 19. With the above described arrangement rotation of the crank 21 in one direction or the other will cause corresponding rotation of the control rod 19, with resultant axial shifting of the connector sleeve 18 and consequent vertical adjustment of the corresponding roller unit 9.

The transversely spaced pair of forward roller units 10 are identical in construction and therefore a description of one will suffice:

Each forward roller unit 10 comprises a U-shaped yoke, indicated generally at 23, which includes forwardly projecting legs 24. The yoke 23 is pivotally mounted adjacent its rear end on a cross shaft 25 which extends between the side plates 2 directly ahead of the sanding drum 3. A wide faced roller 26 is disposed in the yoke 23 and is fixed on a spindle 27 which is journaled in connection with and extends between the yoke legs 24 adjacent their forward ends.

A rigid upstanding lever 28 is formed on the laterally outermost yoke leg 24 and upstands to

a point above the frame 1. At its upper end the lever 28 is pivotally attached to a connector sleeve 29. A control rod 30 is threaded at its lower end axially into the connector sleeve 29, as at 31, and thence extends at an upward and rearward incline to the top of the handle assembly 7. At the top of the handle assembly 7 the control rod 30 is connected to a crank 32, and a toggle unit 33 is interposed in the rod adjacent said crank. With rotation of the crank 31 in one direction or the other the rod 30 is correspondingly rotated, causing axial shifting of the connector sleeve 29, which results in vertical adjustment of the corresponding roller unit 10. There is of course a pair of control rods 19 and 30, and handle-mounted cranks 21 and 31, for the roller units 9 and 10 on each side of the machine.

A dust retaining hood 34 is disposed over the sanding drum 3.

As the above described machine is designed primarily for use in connection with the surface conditioning of bowling alleys, a description of its use for this purpose is as follows:

When the machine is in use for sanding the long run of a bowling alley from its forward end to adjacent the pin deck, the intermediate roller units 9 are adjusted in clearance relation above the floor, while the forward roller units 10 are individually adjusted, in floor engagement, to support the sanding drum at proper transverse level and elevation. As the forward roller units 10 are mounted closely adjacent the sanding drum 3, very accurate adjustment of the latter can be obtained.

When the machine is being used adjacent and over the pin-deck of a bowling alley, which is at the end immediate the pit, the forward roller units 10 run off the alley and hang free above the pit, as is shown in Fig. 1. It is at this time that the intermediate roller units 9 are brought into play. Before the sanding machine makes any pass across the pin deck, i. e. across the end portion of the alley immediate the pit, said intermediate roller units 9 are adjusted downwardly until they ride the floor in positions to maintain the sanding drum 3 at its correct transverse level and elevation. Thus, when a pass is made across the pin-deck and the forward roller units 10 pass beyond the end of the alley and overhang the pit, the intermediate roller units 9 then properly support the sanding drum 3 for completion of the sanding operation.

When the machine is in use the operator walks behind the same with his hands in engagement with the top of the handle assembly, whereby to guide or steer the machine as it travels along the floor. By reason of the described adjusting means for the forward and intermediate pairs of roller units, including the cranks 21 and 32, the roller units of said forward and intermediate pairs may be selectively and independently adjusted by the operator without stopping the machine and from his station to the rear of the latter.

The combination of the forward and intermediate roller units with the sanding drum, in the relationship described, is advantageous or the reason that on the long runs or passes which the machine makes on an alley, greater accuracy is obtained if the forward roller units are adjacent but ahead of the sanding drum. Yet, when the pin-deck is sanded, the forward roller units are not usable, as described hereinbefore; and thus the intermediate roller units are useful to then effectively support the sanding drum.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent are desired:

1. A floor sanding machine comprising a frame, a power driven sanding drum mounted transversely on the frame adjacent its forward end, a transversely spaced pair of rear roller units mounted on the frame adjacent its rear end, a transversely spaced pair of forward roller units mounted on the frame adjacent its forward end, and a transversely spaced pair of intermediate roller units mounted on the frame intermediate said forward and rear pairs of roller units; the forward and intermediate pairs of units being independently vertically adjustable and disposed ahead and to the rear, respectively, of the sanding drum.

2. A floor sanding machine comprising a frame, a power driven sanding drum mounted transversely on the frame adjacent its forward end, a transversely spaced pair of rear roller units mounted on the frame adjacent its rear end, a transversely spaced pair of forward roller units mounted on the frame adjacent its forward end, and a transversely spaced pair of intermediate roller units mounted on the frame intermediate said forward and rear pairs of roller units; the individual roller units of the forward and intermediate pairs being selectively and independently vertically adjustable, and said pairs being disposed closely adjacent the front and rear, respectively, of the sanding drum.

3. A floor sanding machine which includes a frame, a power driven sanding drum on the frame, and vertically adjustable floor engaging roller units mounted in the frame; the mounting means for each roller unit comprising a U-shaped yoke having longitudinally extending, transversely spaced legs, a cross shaft in the frame, on which shaft the yoke is pivoted for vertical swinging movement, a roller in the yoke including a spindle extending between the legs of said yoke, the machine having an upstanding handle assembly at the rear, a rod extending from the handle assembly to adjacent the yoke, said rod being rotatable but axially immovable, hand means on the rod at its upper end to rotate said rod, and a connector sleeve pivoted in connection with the yoke, the lower end of the rod being threaded axially into said sleeve from its free end.

4. In a floor sanding machine which includes a frame, a power driven sanding drum on the frame, and vertically adjustable floor engaging roller units mounted in the frame; the mounting means for each roller unit comprising a vertically movable roller supporting member, a roller journaled on said member, a U-shaped yoke having longitudinally extending, transversely spaced legs, a cross shaft in the frame, on which shaft the yoke is pivoted for vertical swinging movement, a roller in the yoke including a spindle extending between the legs of said yoke, the machine having an upstanding handle assembly at the rear, a rod extending from the handle assembly to adjacent the member, said rod being rotatable but

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axially immovable, hand means on the rod at its upper end to rotate said rod, and a connector sleeve pivoted in connection with the member, the lower end of the rod being threaded axially into said sleeve from its free end.

5. In a floor sanding machine which includes a frame, a power driven sanding drum on the frame, and vertically adjustable floor engaging roller units mounted in the frame; the mounting means for each roller unit comprising a U-shaped yoke having longitudinally extending, transversely spaced legs, a cross shaft in the frame, on which shaft the yoke is pivoted for vertical swinging movement, a roller in the yoke including a spindle extending between the legs of said yoke, the machine having an upstanding handle assembly at the rear, a rod extending from the handle assembly to adjacent the yoke, said rod being rotatable but axially immovable, hand means on the rod at its upper end to rotate said rod, a rigid lever fixed on and upstanding from the yoke, and a connector sleeve pivoted on the lever at its upper end, the lower end of the rod being threaded axially into said sleeve from its free end.

6. A floor sanding machine comprising a frame, a power driven sanding drum mounted trans-

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versely on the frame adjacent its forward end, frame supporting rear roller units mounted on the frame, forward frame supporting roller units mounted on the frame adjacent its forward end, intermediate frame supporting roller units mounted on the frame between said rear and front roller units, the front and intermediate roller units being disposed closely adjacent the front and rear, respectively, of the drum, the front and intermediate roller units being separately vertically adjustable whereby they may be so adjusted that the weight of the frame may be selectively supported on the rear and intermediate roller units or on the rear and front roller units, respectively.

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