PIPE PALETTE CLEANING DEVICE
John Ambrose, Bird's Hill, Manitoba, Canada
Filed Apr. 11, 1966, Ser. No. 541,772
4 Claims. (Cl. 15—21)

ABSTRACT OF THE DISCLOSURE
The invention is for cleaning pipe palettes and includes a rotatable turntable together with a brush carrying arm which can be raised or lowered with respect to the turntable. The brush carrying arm carries brushes adjacent one end selectively engageable with the horizontal surfaces of the palette and a further arm is secured to the brush carrying arm at right angles thereto and carries brushes selectively engageable with the vertical surfaces of the palette.

This invention relates to new and useful improvements in pipe palette cleaning devices, particularly pipe palettes used in the precast concrete sewer pipe industry. In the manufacture of precast concrete sewer pipes, an important consideration is clean forms in order to ensure an accurate finish and to prevent the forms from adhering to the precast pipe while drying.

One of the most difficult items to maintain in a clean condition is the palette which forms the bell end of the concrete pipe and it will be appreciated one palette is required for every piece of pipe manufactured. These palettes must be clean and coated with an oil or other releasing agent so that they can be removed easily for cleaning and re-use.

In the average plant, the number of palettes required in any one day varies from approximately 600 for small diameter pipes down to approximately 150 for the larger diameter pipes. These palettes must be cleaned after one day's production and made ready for use for the following day.

The usual method of cleaning such pipe palettes is to use an electric grinder equipped with a wire cup wheel, but this requires considerable manual labor as well as a relatively large number of wire cup wheels.

The present device overcomes all of these disadvantages and reduces labor considerably so that one operator can clean as many palettes in half a day as two men could clean with grinders working a full day.

The brush used on the machine cost approximately 2/3 as much as the wire cup wheels and has lasted many times as long before replacement becomes necessary.

The device comprises basically a framework having a source of power therein rotating a vertical spindle upon which a turntable is mounted. The turntable is mounted with apertures which are engageable by the lugs upon the pipe palette so that the pipe palette can be rotated centrally upon the turntable. An arm or bar carrying a plurality of wire brushes is mounted for vertical pivotal movement above the turntable and can be raised and lowered by the operator so that the wire brushes contact all of the rotating outer surfaces of the palette thus cleaning same rapidly and efficiently.

The principal object and essence of the invention is therefore to provide a device of the character herewithin described which facilitates the cleaning of pipe palettes by the use of wire brushes adapted to contact the pipe palette which is rotated upon the turntable.

Another object of the invention is to provide a device of the character herewithin described in which the turntable is provided with a plurality of sets of radially situated apertures so that different sizes of pipe palettes can be cleaned on the same machine.

A further object in conjunction with the foregoing object is to provide wire brushes which are adjustable both as to height and position upon the bar so that they can engage a plurality of sizes of pipe palettes.

A yet further object of the invention is to provide a device of the character herewithin described which is simple in operation, economical in manufacture, and otherwise well suited to the purpose for which it is designed.

With the foregoing in view, and all those objects, purposes or advantages which may become apparent from a consideration of this disclosure and specification, the present invention consists of the inventive concept embodied in the method, process, construction, arrangement of parts, or new use of the same, as herein particularly exemplified in one or more specific embodiments of such concept, reference being had to the accompanying figures in which:

FIGURE 1 is a top plan view of the device.
FIGURE 2 is a side elevation of FIGURE 1.
FIGURE 3 is a sectional view of FIGURE 1, along the lines 3—3 of FIGURE 1.
FIGURE 4 is an isometric view reduced in scale of the turntable and associated pipe palette.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding therefore to describe the invention in detail, reference should be made to the accompanying drawings in which FIGURE 1 illustrates generally a supporting framework. This supporting framework comprises base members 11, upwardly inclined members 12, and an upper supporting plate 13.

Within the framework 10 is provided a source of power 14 in the form of an electric motor connectable to a source of electric power in the conventional manner and adapted to be operated by a switch 15 situated adjacent the base of the supporting framework.

This electric motor drives a reducing assembly 16, which in turn drives a vertical shaft 17 extending upwardly therefrom. This shaft is connected to a universal joint or flexible connector 18 and transmits the drive to the main drive shaft 19 which extends upwardly through the plate 13, being supported therein by a bearing showing in phantom at 20 in FIGURE 2 and in detail in FIGURE 3.

The shaft 19 extends upwardly through the plate 13 and the turntable assembly collectively designated 21 is secured to the upper end of this shaft and is rotated thereby.

The turntable assembly consists of a lower circular plate 22 and an upper plate 23, the plates being maintained in spaced and parallel relationship one above the other by means of spacers 24 extending therebetween and adjacent the perimeter 25 of the plates 23 and the perimeter 26 of the plates 22.

The upper plate 23 is provided with a plurality of sets of apertures 24", 24" and 24". These sets of apertures are radially situated upon the plate 23 and extend clear through this plate.

The associated pipe pallet collectively designated 27 is shown in detail in FIGURE 4 and comprises a cylindrical collar 28 and a flanged base 29 secured to and extending around one end of the collar 28. A plurality of lugs 30 are formed upon the side 31 of the base flange opposite to the collar 28 and these lugs engage within a set of apertures 24 upon the plate 23 thus mounting the pipe palette centrally upon the turntable assembly 21 for rotation thereby, it being understood that the weight of the palette holds the palette in position during the cleaning operation.

Friction reducing means take the form of rollers 32.
and are mounted upon the plate 13 by means of brackets 33, pins 34 journalling the rollers between the brackets. These rollers are situated adjacent the perimeter 26 of the turntable assembly 21 and support same for rotation upon the framework as shown in FIGURES 2 and 3.

Cleaning brush means collectively designated 35 are provided above the turntable assembly 21. This means 35 includes a cylindrical support 36 secured to and extending upwardly from the supporting framework and upon one side 37 thereof.

A brush mounting bar 38 is pivotally secured by one end 39 thereof by means of pin 40 to a collar 41 surrounding the support 36 so that the bar extends diametrically across the turntable 21 and said bar is provided with a handle extension 42 to enable the operator to manipulate the device vertically around the pivot pin 40. In this connection a cable 43 is provided extending from lug 44 situated intermediate the ends of the bar 38, said cable passing over a sheave 45 journaled at the upper end 46 of the support 36. This cable, after exiting around the sheave 45 the upper end of support 36 and is secured to a weight 47 (shown in phantom in FIG. 2) which moves up and down within the support 36 thus counterbalancing the assembly 35 for ease of manipulation.

Wires brushes 48 and 49 are secured to brackets 49' which in turn are secured to clamps 50 surrounding the bar 38. Brackets 49' are adjustable vertically within limits with relation to the clamps 50 by means of slots 51 and tightening means 52. The sleeves 50 are slidable along the bar 35 and are clamping in the desired position by means of tightening means 53.

These brushes are adjustable with relation to the horizontal surfaces 54 and 55 of the palette as clearly shown in FIG. 2 so that rotation of the palette by the turntable enables the brushes to engage the horizontal surfaces when the lever 35 is in the position shown in FIGURE 2.

A further brush mounting bar 56 is secured transversely to the bar 38 and at right angles thereto, intermediate the ends of bar 38 and sleeves 57 are adjustably secured to bar 56 by means of tightening means 58.

These sleeves carry brackets 58' which are adjustable vertically and in a manner similar to brackets 49 and these brackets in turn carry further wire brushes 59 facing inwardly towards one another and in a vertical position so that they can be adjusted to engage the vertical surface 60 of the palette being cleaned.

In operation, the palette 27 is placed upon the turntable with the lugs 30 engaging the corresponding aperture 24 therein.

The brushes 48 and 59 are adjusted by means hereinbefore described upon the bars 38 and 56 respectively so that they engage the aforementioned surfaces 54, 55 and 60 of the palette.

The foot switch 15 is activated thus rotating the turntable together with the palette and the operator grasps the handle 42 of the bar 38 and moves same into the position shown in FIGURE 2 so that the brushes engage the aforementioned surfaces 54, 55 and 60. When the palette is cleaned, the operator moves the bar 38 upwardly, the weight 47 assisting this motion so that, when the foot switch 15 is released, the palette can easily be removed and a further one placed on the turntable for cleaning.

The double-headed arrow 61 indicates the arc of travel of the bar 35.

Since various modifications can be made to the invention herein described within the scope of the inventive concept disclosed, it is not intended that protection of the said invention should be interpreted as restricted to the modification or modifications or known parts of such concept as have been particularly described, defined, or exemplified, since this disclosure is intended to explain the construction and operation of such concept, and not for the purpose of limiting protection to any specific embodiment or details thereof.

What I claim as my invention is:

1. A device for cleaning pipe palettes, said pipe palettes consisting of a cylindrical collar and a flanged base and lugs extending from said base on the side opposite to said cylindrical collar; said device comprising in combination a base framework, a turntable journaled upon said base framework for rotation thereon, a source of power for said turntable to rotate same, means on said turntable for detachably securing a pipe palette centrally thereon for rotation with said turntable, and brush cleaning means mounted on said framework for manual engagement and disengagement with the horizontal and vertical outer surfaces of said pipe palette, said cleaning brush means comprising a brush mounting bar, supporting means extending upwardly upon one side of said framework, said bar being pivotally mounted by one end thereof to said supporting means for vertical pivotal movement above said turntable, and at least one wire brush adjustably secured to said bar to contact selectively said horizontal outer surface of said palette, said cleaning brush means also including a further brush mounting bar secured to and extending upon each side of said first mentioned mounting bar and at right angles thereto and intermediate the ends thereof, and a wire brush adjustably secured to adjacent end of said further brush mounting bar to contact selectively the vertical surfaces of said palette.

2. The device according to claim 1 in which said means on said turntable for detachably securing said pipe palette thereto include a plurality of radially situated apertures formed through said turntable engageable by the lugs on the base of said palette.

3. The device according to claim 1 in which said turntable comprises a planar surface and a plurality of friction reducing means on said framework supporting said turntable for rotation and situated adjacent the perimeter of said turntable.

4. The device according to claim 2 in which said turntable comprises a planar surface and a plurality of friction reducing means on said framework supporting said turntable for rotation and situated adjacent the perimeter of said turntable.

References Cited

UNITED STATES PATENTS

1,267,905 5/1918 Richardson 15—21.2
2,783,531 3/1957 Eiser.

CHARLES A. WILMUTH, Primary Examiner.
R. I. SMITH, Assistant Examiner.