

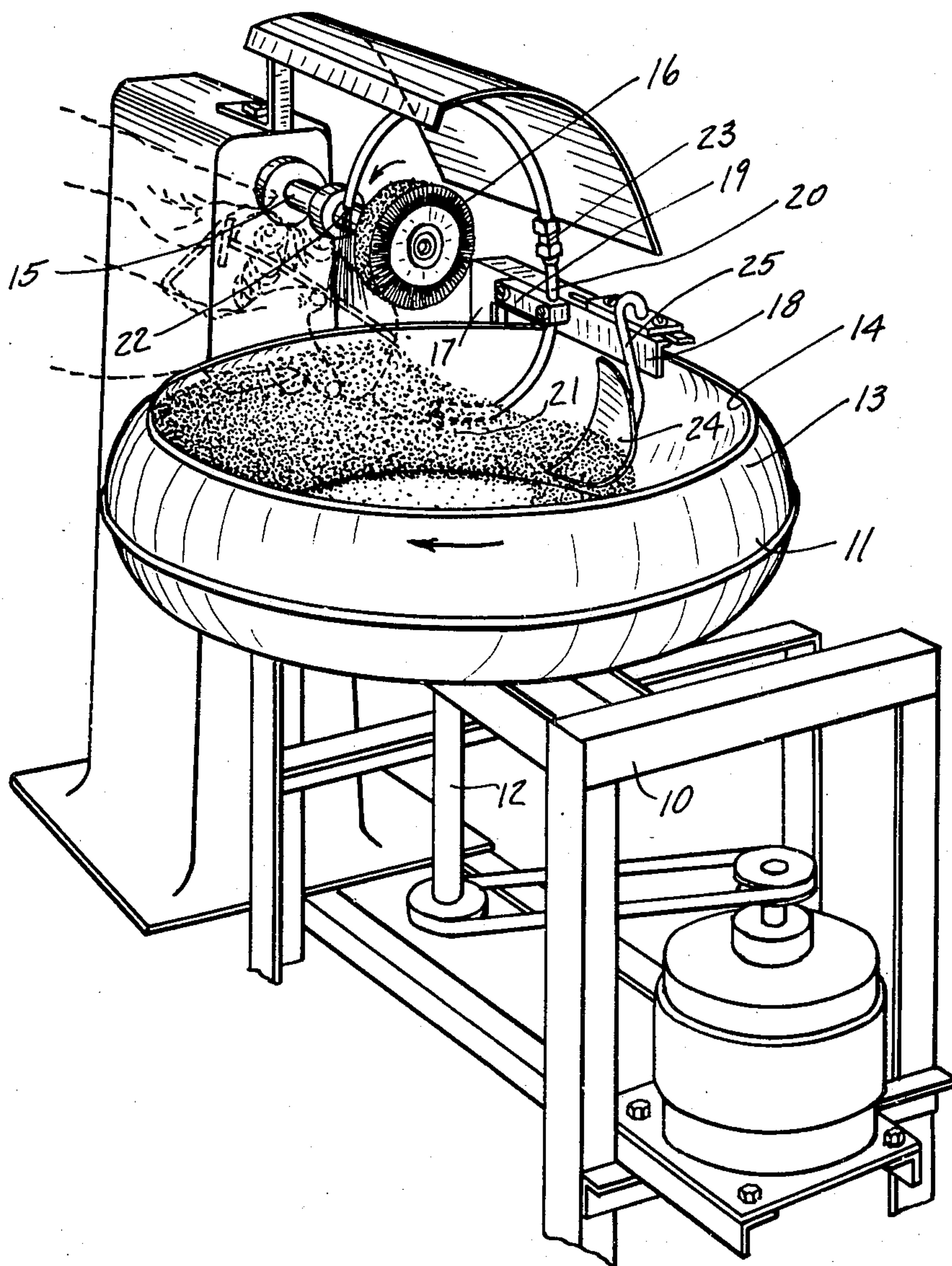
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ABRASIVE LUBRICANT SUPPLY DEVICE

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## ABRASIVE LUBRICANT SUPPLY DEVICE

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This invention relates to an abrasive lubricant supplying device.

The chief object of the present invention is to supply an abrasive lubricant to an article to be cleaned, polished and/or buffed upon a wheel of the appropriate character. Such a wheel may partake of many materials such as metallic wires, fibrous bristles, pads, etc. In use, however, such wheels wear away. The wheel portions so worn or torn from the wheel have mass, usually greater than the mass of the abrasive or polishing lubricant.

One such lubricant comprises an emulsion of finely powdered pumice and water. Such a lubricant obviously in time if used over and over again or continuously cycled will wear away any pressure device of centrifugal or reciprocating pump character.

The chief feature of the present invention resides in the use of relatively non-wearable means for effecting cycling of the lubricant.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:

In the drawing the figure is a perspective view of apparatus embodying the invention and the polishing end of a polishing wheel device used therewith.

In the drawing 10 indicates a support of table type for rotatably supporting a rotatable bowl 11 having a depending coaxial drive 12. Said bowl is of appreciable area and its outer portion is turned upwardly and inwardly as at 13 providing a comparatively large open mouth 14.

The drive 12 is rotated in one direction and at a speed of not less than 100 R. P. M. and preferably about 150 R. P. M. more or less. The speed employed is determined by the gravity of the lubricant and its flowability. The bowl when stationary contains about one fourth to one third of lubricant. When rotated at sufficient speed the greater volume of lubricant rides the side wall of the bowl.

A polishing and like machine includes a suitably supported power rotatable shaft 15, horizontally disposed, which herein at its free end mounts a polishing and like bristle brush 16. The free end of the shaft overlies the bowl rim a slight distance so that the wheel 16 is disposed over the bowl and over the near half thereof.

The bowl rotates clockwise and the wheel rotates counterclockwise. Extending upwardly

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from support 10 is the member 17 which adjustably supports transverse arm 18 provided with clamp 19 to clamp in position a C-shaped conduit 20 open at its lower and intake end 21 and open at its upper and discharge end 22.

End 21 is normally disposed below the lubricant level when the bowl is stationary. This conduit is directed forwardly so that it is opposed to the direction of bowl rotation. The end 22 is directed downwardly and terminates adjacent and immediately forward of the wheel. Hence the wheel rotation and lubricant discharge is in the same direction. Work presented to the lower forward quadrant of the wheel thus will be abrasively lubricated from the discharge 22 before engagement by the wheel.

The bowl is first started to rotate and the lubricant rendered in proper condition. Then the wheel is rotated. Then the work is presented to the wheel for polishing and the like. The particles removed by the wheel, the lubricant and particles from the wheel drop back into the bowl. Due to centrifugal force the heavy particles are caused to ride the bowl side wall above the liquid level and hence above the lubricant take off level at intake 21. Thus the lubricant is forced into the tube and beyond the highest elevation thereof, the force being more than sufficient to overcome pipe friction. This insures a positive stream of lubricant discharge. The tube or conduit made of copper and throughout its length is devoid of obstructions. Being of copper it can be bent for accurate directional discharge. Also there may be included above the support the swivel union 23 so that the upper portion of the conduit may be swung away for wheel replacement, etc.

Since there may be a tendency of the abrasive to deposit upon the bowl side wall there is provided a scraping diverter 24 which is carried by arm 25 in turn adjustably carried by overhanging arm 18. The diverter or deflector is disposed in trailing relation to the tube intake 21 so that the lubricant flow at the latter is not disturbed.

In wheel rotation the abrasive tending to accumulate upon the wheel is scraped therefrom and diverted inwardly. The lubricant stream picks it up and it again goes back into the lubricant for liquid flow. Thus the lubricant at all times has substantially constant concentration of abrasive therein. Wheel rotation furnishes the power for lubricant supply to the work. Wheel rotation also effects separation of contaminants,



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etc., in the lubricant that otherwise would clog the intake.

When the lubricant is a true emulsion or colloidal solution obviously the scraper need not be employed. In most polishing and buffing operations, however, the lubricant is more nearly a mechanical mixture so that the scraper usually is employed.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The embodiment described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. In a polishing and like machine having a substantially horizontally disposed rotatable shaft and a polishing and like wheel thereon, the combination therewith of a relatively large area bowl rotatable upon a substantially vertical axis, means for rotating the bowl at a rate at least sufficient for centrifugal force to be effective, the bowl side in radial section being directed upwardly and at its upper portion being directed inwardly, the bowl being disposed below said wheel, and the shaft projecting across the bowl upper portion at one side, a conduit open at both ends and supported so that its lower open end is disposed immediately adjacent the bowl interior and directed

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in opposition to the direction of bowl rotation and at a distance sufficiently remote from the bowl axis to cause an abrasive lubricant to enter the conduit and pass the highest elevation thereof, the other open end of the conduit discharging immediately contiguous to the wheel and in the direction of wheel rotation, the intake end of the conduit being disposed at an elevation below the level of the lubricant in the bowl when it is at rest and above the bottom of the bowl, and a scraping deflector for deflecting inwardly liquid adjacent the bowl side and scraping therefrom solids thereon and adhering to that side.

2. Structure as defined by claim 1 wherein a single support is disposed rearwardly of wheel and above the bowl for deflector in trailing relation to the bowl end of the conduit and conduit support.

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