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APPARATUS FOR AGITATING LIQUIDS

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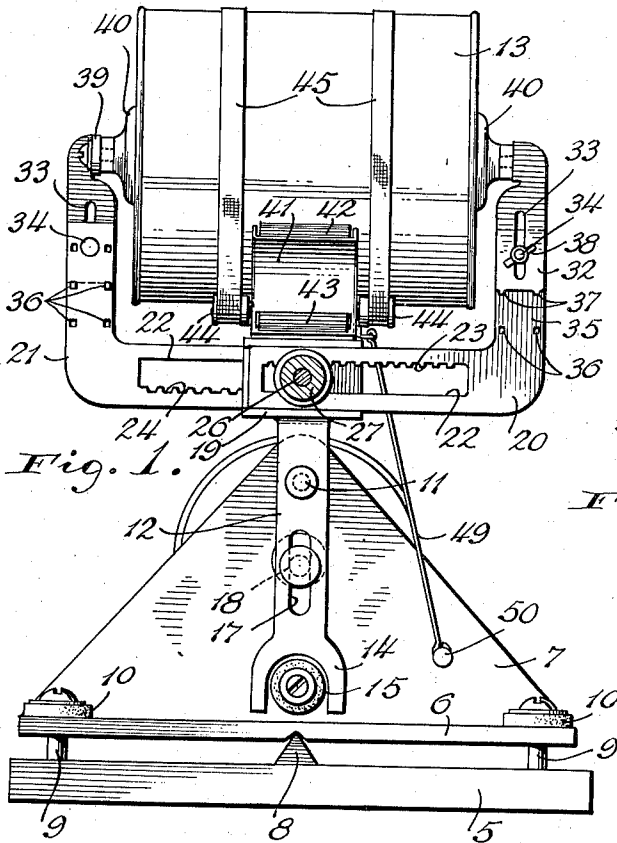


Fig. 1.

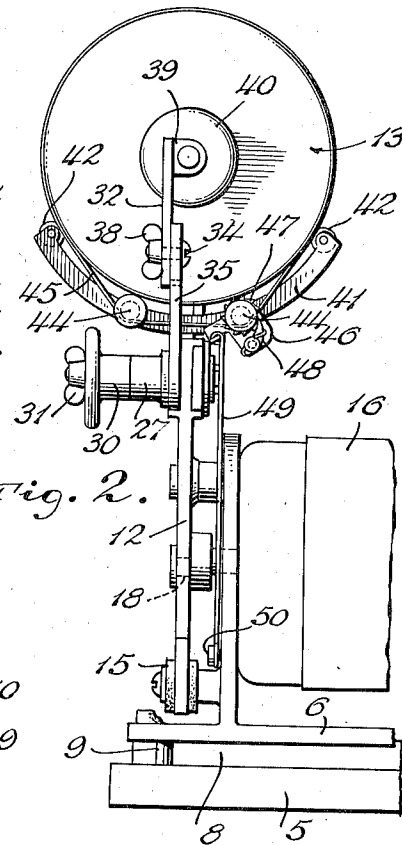


Fig. 2.

Fig. 3.

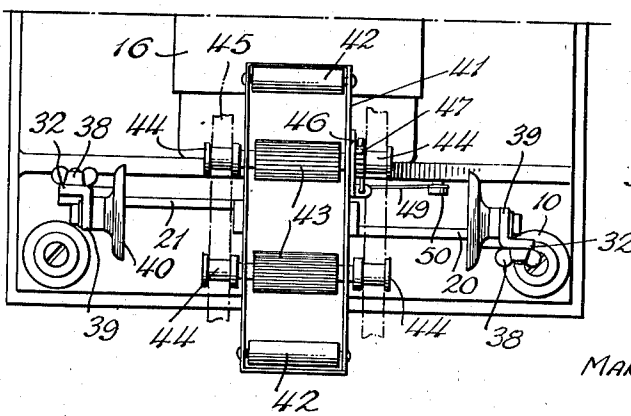
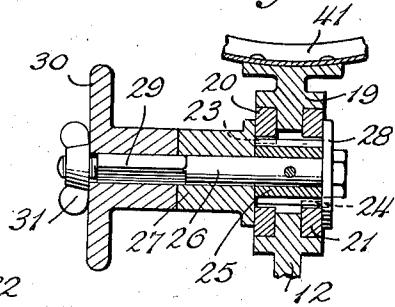


Fig. 4.



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APPARATUS FOR AGITATING LIQUIDS

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3 Claims. (Cl. 259-72)

This invention relates to improvements in apparatus for agitating liquids and has particular reference to a paint conditioning mechanism.

An object of the invention is to provide an improved apparatus of simple and practical construction wherein a liquid containing receptacle is agitated to thoroughly mix and condition for use the liquid contents of said receptacle by imparting coordinate movements to the latter in different planes.

Another object is to oscillate the receptacle, and, at the same time, impart thereto an intermittent rotary movement.

The above and other objects will appear more clearly from the following detailed description when taken in connection with the accompanying drawing which illustrates a preferred embodiment of the inventive idea.

In the drawing:

Figure 1 is a front elevation of an apparatus constructed in accordance with the invention.

Figure 2 is a fragmentary side elevation thereof.

Figure 3 is a fragmentary top plan view with the receptacle removed, and

Figure 4 is a fragmentary sectional view showing a detail construction.

Referring more particularly to the accompanying drawing, the numeral 5 indicates the base of the apparatus upon which is disposed an angular mounting plate consisting of the horizontal and vertical portions 6 and 7, respectively. The mounting plate is disposed above the base proper by means of a knife-edge 8, and is connected thereto by the posts 9, in the form of screws, which carry the rubber washers 10 interposed between the portions 6 and the heads of the posts. This construction of mounting is provided for the purpose of absorbing vibrations as much as possible, which are imparted to the mounting plate when the apparatus is in operation.

The vertical portion 7 of the mounting plate has pivotally connected thereto at 11 a vertically disposed lever 12 constituting a part of the support for the receptacle 13, the liquid contents of which are to be agitated by the operation of the apparatus. The lower end of the lever 12 terminates in a yoke 14, which straddles a rubber bumper 15, and is spaced therefrom sufficiently to permit the lever to oscillate about its pivot 11. Such movement is transmitted to the lever through the medium of an electric motor 16, or other prime mover, supported behind the portion 7 of the mounting plate and having its shaft ex-

tending through said plate, and also through an elongated slot 17 in the lever 12. The outer end of the motor shaft engaged in said slot is eccentrically disposed to the main portion of the shaft as indicated at 18, so that as the shaft is rotated an oscillatory movement will be imparted to the lever 12.

The upper end of the lever 12 terminates in a guide head 19 which provides a carrier for a sectional and adjustable supporting frame for the receptacle 13. This frame comprises two angular members 20 and 21, which are adjustable horizontally relative to each other to vary the effective length of the frame, so that receptacles 13 of different sizes may be retained in the frame. To accomplish this purpose, the horizontal portions of the members 20 are provided with elongated slots 22, with rack teeth 23 formed along the upper edge of the slot in the member 20, and similar teeth 24 formed along the lower edge of the slot in the member 21. Extending through the slots 22 is a pinion 25 (Fig. 4) which engages with the teeth 23, 24. Said pinion is fixed on a shaft 26 which is rotatable in a bearing 27 that abuts the member 20, said bearing cooperating with a head 28 on the inner end of the shaft 26 to retain the members 20, 21, in adjusted positions. On a squared portion 29 of the shaft 26, there is mounted an adjusting nut 30, and on the outer extremity of the said shaft there is threaded a wing nut 31. By loosening the wing nut, the adjusting nut 30 may be turned in either direction to rotate the pinion 25 and thus transmit to the members 20, 21 movements in opposite directions to extend or shorten the effective length of the supporting frame. After such adjustment has been made, the wing nut 31 is again tightened against the nut 30 causing the members 20, 21 to be clamped between the bearing 27 and the head 28, so that said frame members will be retained in their adjusted positions.

The vertical portions of the frame members 20, 21 are of sectional formation so that the effective height of the frame may be varied. For this purpose each of said vertical portions includes an arm 32 longitudinally slotted at 33 to receive a bolt 34 carried by the vertical extension 35 of each frame member. Pairs of small openings 36 are formed in each extension 35 to receive lugs 37 on the lower end of the arm 32 to retain the latter in a vertically adjusted position, and after being so adjusted, the arm is secured by a wing nut 38. The upper end of each arm 32 is provided with a lateral extension 39 which

rotatably supports a rubber clamping head 40, which may be in the nature of a friction cup, designed to centrally engage the adjacent end of the receptacle 13 after the associated arm 32 has been adjusted to the proper height.

To further support the receptacle 13, the head 19 of the lever 12 carries an arcuate cradle 41, having rollers 42 mounted in the ends thereof, and further having disposed therein the friction rollers 43, all of said rollers engaging the periphery of the receptacle 13, as clearly shown in Figure 2. Should the receptacle 13 be of such a small diameter that the same will not engage the end rollers 42, the same will nevertheless be supported by the intermediate rollers 43. The shafts of the rollers are extended on opposite sides of the cradle 41 and terminate in pulleys 44 in which are engaged the endless drive elements 45, which may be of any suitable elastic material, and which are designed to be extended about the periphery of the receptacle 13, so as to impart to the latter rotary movement about the longitudinal axis of the receptacle, as will appear from the following description.

The rotary or axial movement of the receptacle 13 is accomplished in coordination with the oscillatory movement transmitted thereto through the medium of the lever 12 and, to this end, the shaft of one of the rollers 43 has pivotally mounted thereon a small bell crank lever 46 and, adjacent said lever, said shaft is provided with a ratchet 47 adapted to be engaged by a spring pressed pawl 48 carried by the lever 46. One end of a connecting link 49 is joined to the lever 46 and the other end of said link is fixed at 50 to the vertical portion 7 of the mounting plate. With such construction, it will be apparent that as the receptacle is moved to the left, as viewed in Figure 1, by the operation of the lever 12 relative to the mounting plate, an upward pull will be exerted upon the connecting link 49 and, as a consequence, the bell crank lever 46 will be turned in a counterclockwise direction, as viewed in Figure 2, thus causing the pawl 48 to advance the ratchet 47 one step. This advancement is translated, through the drive elements 45, into a rotary or axial movement of the receptacle 13 in a clockwise direction. Then when the receptacle is moved to the right by the lever 12, the movement of the bell crank lever 46 will be reversed with the result that the pawl 48 will engage the next succeeding tooth of the ratchet 47, so as to again turn said ratchet to produce the intermittent rotary movement of the receptacle 13 when the lever 12 again swings the receptacle 13 to the left.

What is claimed is:

1. An apparatus for agitating liquids comprising, in combination, a mounting plate, a lever pivoted thereto and terminating at one end in a head, means to oscillate said lever, a recepta-

cle carrier including relatively movable members slidable in said head and having sections thereof slotted with edges of said slots provided with rack teeth, a pinion supported in said head and engaging said teeth to slide said members relative to each other, a cradle carried by said head and including an arcuate frame extending transversely relative to said movable members and peripherally with respect to a receptacle supported by said carrier, rollers in said frame engaging said receptacle, pulleys on said rollers, endless drive elements extending about said pulleys and said receptacle, and means to intermittently drive said elements to rotate said receptacle as said lever is oscillated.

2. An apparatus for agitating liquids comprising, in combination, a mounting plate, a lever pivoted thereto and terminating at one end in a head, means to oscillate said lever, a receptacle carrier including relatively movable members slidable in said head and having sections thereof slotted with edges of said slots provided with rack teeth, a pinion supported in said head and engaging said teeth to slide said members relative to each other, a cradle carried by said head and including an arcuate frame extending transversely relative to said movable members and peripherally with respect to a receptacle supported by said carrier, rollers in said frame engaging said receptacle, pulleys on said rollers, endless drive elements extending about said pulleys and said receptacle, and operating means for said drive elements including a connection between said mounting plate and one of said pulleys and actuated by the oscillation of said lever to rotate said receptacle.

3. An apparatus for agitating liquids comprising, in combination, a base, an angular mounting plate supported by said base and having a vertically disposed portion, a lever pivoted to said vertical plate portion, a prime mover having a cam shaft extending through said plate portion and engaging said lever to oscillate the latter, a receptacle carrier including movable members mounted to slide relative to each other in said lever and having sections thereof slotted with edges of said slots provided with rack teeth, a pinion supported in said head and engaging said teeth to slide said members relative to each other, a cradle carried by said head and including an arcuate frame extending transversely relative to said movable members and peripherally with respect to a receptacle supported by said carrier, rollers in said frame engaging said receptacle, pulleys on said rollers, endless drive elements extending about said pulleys and said receptacle, and means to intermittently drive said elements to rotate said receptacle as said lever is oscillated.

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