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APPARATUS FOR CLEANING AND DRYING PAINT BRUSHES AND ROLLERS

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3 Sheets-Sheet 2

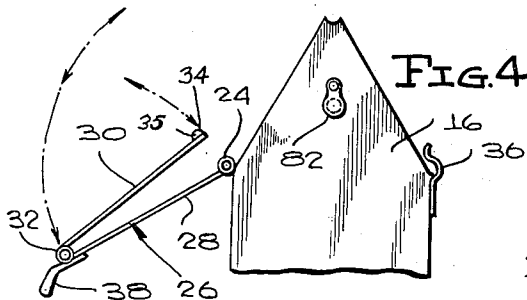
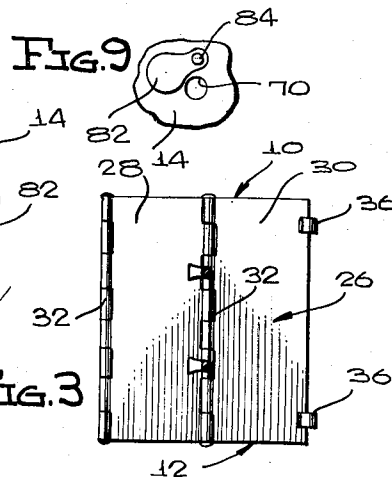
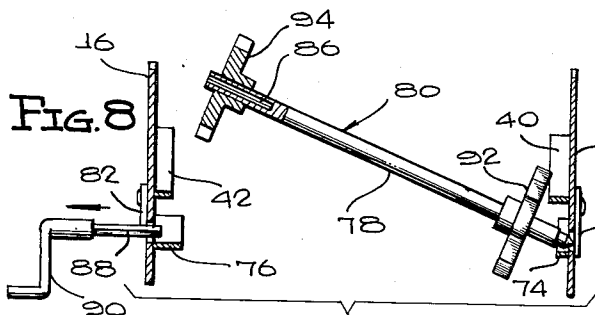
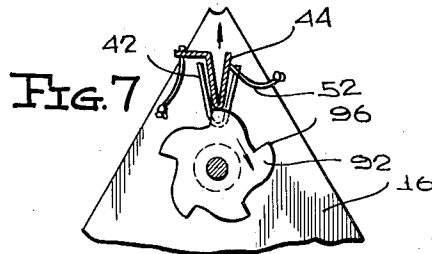
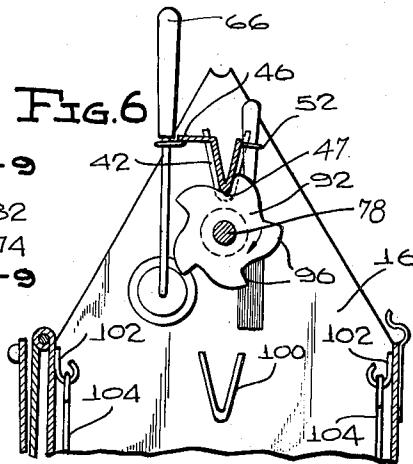
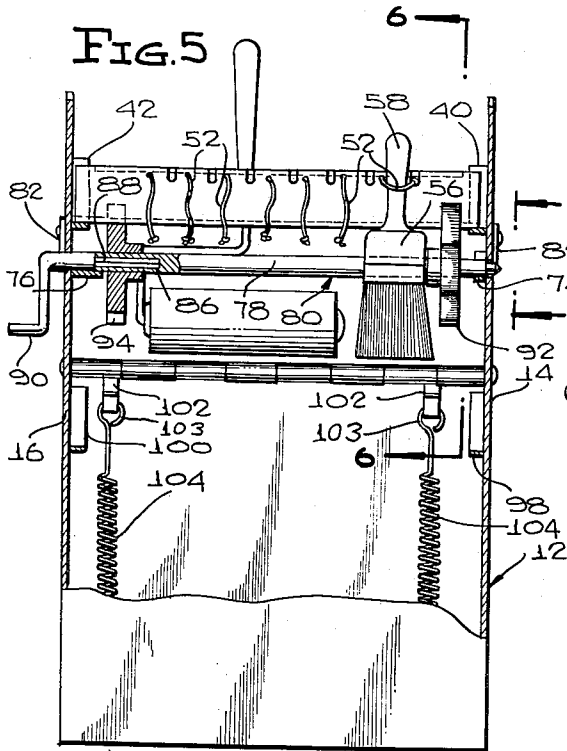
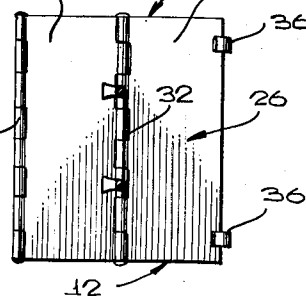


FIG. 3



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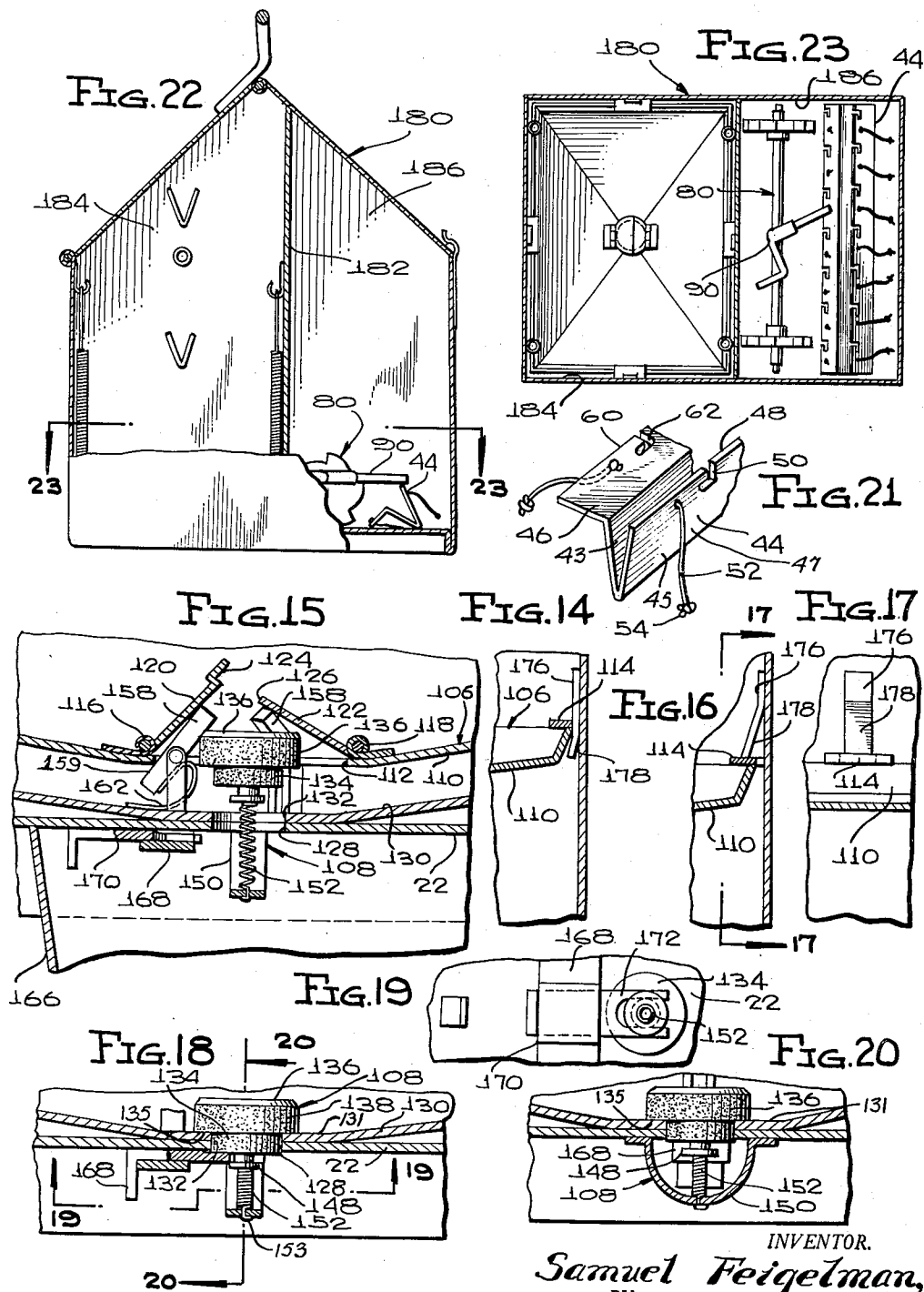
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APPARATUS FOR CLEANING AND DRYING PAINT BRUSHES AND ROLLERS

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2 Claims. (Cl. 134—135)

This invention relates to an improved apparatus for cleaning and drying paint brushes and rollers.

The primary object of the invention is to provide practical and efficient apparatus of this kind which comprises a housing or tank for cleaning solvent, means for suspending paint brushes and rollers in and out of the solvent, means for agitating or shaking the brushes and rollers while out of the solvent, and drain plug means controlling a drain hole in the bottom of the housing or tank, which is normally closed but is arranged to be opened as an incident to accumulation on a component of the plug means of a certain amount of sludge deposited thereon in the course of a cleaning operation.

A further object of the invention is to provide in apparatus of the character indicated, a separate compartment for storing various parts of the apparatus.

These together with other objects and advantages which will become apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout the several views, and in which:

Figure 1 is a vertical longitudinal sectional view taken through apparatus of the invention;

Figure 2 is a vertical transverse sectional view taken substantially on line 2—2 of Figure 1;

Figure 3 is a top plan view, on a reduced scale, of Figure 2;

Figure 4 is a fragmentary end elevational view, on a reduced scale, showing the cover of the housing of the apparatus opened to provide access to the interior of the housing;

Figure 5 is a side elevational of the apparatus, broken away to show suspension of a paint brush and a paint roller on a shaker assembly in the housing, the cover of the housing being open;

Figure 6 is a fragmentary vertical transverse sectional view taken substantially on line 6—6 of Figure 5;

Figure 7 is a fragmentary sectional view similar to Figure 6, showing further details of the shaker assembly;

Figure 8 is a fragmentary sectional view similar to Figure 5, showing the shaker assembly shaft removed;

Figure 9 is a fragmentary end elevational view looking substantially from line 9—9 of Figure 5, showing a cover plate for a journal hole in the housing end wall;

Figure 10 is an enlarged fragmentary vertical longitudinal sectional view showing details of the drain plug assembly;

Figure 11 is a fragmentary top plan view, taken substantially on line 11—11 of Figure 10;

Figure 12 is a fragmentary top plan view taken substantially on line 12—12 of Figure 10;

Figure 13 is a fragmentary horizontal sectional view taken substantially on line 13—13 of Figure 10;

Figure 14 is an enlarged fragmentary vertical transverse sectional view taken substantially on line 14—14 of Figure 1;

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Figure 15 is a sectional view similar to Figure 10 showing the parts positioned for draining accumulated sludge and cleaning solvent into an underlying container;

Figure 16 is a sectional view similar to Figure 14, showing another position of the parts;

Figure 17 is a fragmentary elevational view, partly in section, looking substantially from line 17—17 of Figure 16;

Figure 18 is a fragmentary sectional view similar to Figure 5, showing the plug latched in closed position;

Figure 19 is a fragmentary horizontal sectional view taken substantially on line 19—19 of Figure 18;

Figure 20 is a fragmentary vertical sectional view taken substantially on line 20—20 of Figure 18;

Figure 21 is a fragmentary perspective view of the support bar of the shaker assembly;

Figure 22 is an end elevational view, partly broken away and in section, of another form of the invention; and,

Figure 23 is a horizontal sectional view taken substantially on line 23—23 of Figure 22.

Referring to the drawings in detail, and first to Figures 1 to 21 thereof, the apparatus therein shown, and indicated generally at 10, comprises an elongated rectangular housing 12 having end walls 14 and 16, front and rear walls 18 and 20, and a bottom wall 22. The end walls 14 and 16 include triangular upper end portions 15, see Figure 2, which extend above the front and rear walls. On and extending along the upper edge of the rear wall 20 is a hinge assembly 24 to which is secured the lower edge of the rear panel 28 of a cover 26 which includes a front panel 30 which is pivoted at its upper end to the upper end of the panel 28 at 32. The lower edge 34 of the front panel 30 has thereon a projection 35 adapted to be engaged beneath displaceable latch means 36 on the outer surface of the front walls 18. On and extending above the upper edge of the rear panel 28 at the connection 32 between the panels 28 and 30, is a handle 38.

As shown in Figures 2 and 4, the cover 26 can be pivoted and folded to an open and withdrawn position wherein free access to the interior of the housing 12 is provided.

Suitably secured in opposed relationship on the inner sides of the triangular upper portions 15 of the end walls 14 and 16 are V-shaped upper support brackets 40 and 42, respectively, which removably receive therein the ends of a support bar 44, which has a V-shaped configuration, see Figure 21, and has on the upper edge of one side 43 thereof a laterally extending horizontal plate 46. The upper edge 48 of the side 45 of the support bar 46 incorporates a plurality of L-shaped notches 50 longitudinally spaced therealong for receiving intermediate portions of flexible wires, cords, or the like, indicated at 52, which have one end secured to the bar side 45 in spaced relationship from a related notch 50, the other ends of the flexible members 52 being knotted at 54 for retention thereof in the notches 50. A paint applicator, such as a paint brush 56, can be suspended with its handle 58 disposed at the outer side of the side 45 of the support bar 44 with a flexible cord 52 circumposed thereabout and secured in a notch, as clearly seen in Figures 5 and 6. A plurality of paint applicators, such as brushes and rollers, can be suspended from the support bar 44 in this manner. The flange or plate 46 of the support bar has extending into the free edge 60 a plurality of longitudinally spaced L-shaped notches 62 which cooperate with flexible cords or wires 64 suitably secured at one end on the flange 46, whose other ends are knotted for retention in notches 62, for suspending additional applicators on the flange 46.

The triangular upper portions 15 of the end walls 14 and 15 of the housing 12 have therein horizontally aligned

apertures 70 and 72, respectively, see Figure 1, located immediately beneath the upper brackets 40 and 42. Secured around the aperture 70 on the inner side of the end wall 14 is an annular bearing 74. Secured to the inner side of the end wall 16 around the aperture 72 is an upwardly opening arcuate bearing 76, the bearings 74 and 76 receiving therein the opposite ends of a shaker or agitator shaft 78 of a shaker or agitator assembly, indicated generally at 80, see Figure 8. When the shaker assembly 80 is not installed in the housing, the apertures 70 and 72 can be closed by means of closure plates 82 which are pivoted at 84 on the outer sides of the end walls 14 and 16, see Figure 9.

The shaft 78, see Figure 5, has an axial polygonal bore 86 extending therein which opens to one end of the shaft to receive a suitably formed end portion 88 of a crank 90 extended through the aperture 72 for rotating the shaft 78. The bore 86 and the crank end portion 88 have polygonal cross sections, square, for example. Fixed in spaced relationship on the shaft 78 are cam wheels 92 and 94 each of which includes a plurality of circumferentially spaced radially extending cam lobes 96, which, when the shaft 78 is rotated in a clockwise direction, see Figure 6, engage the apex 47 of the support bar 44 so that the bar 44, and paint applicators suspended thereon, are shaken or reciprocated vertically in the upper brackets 40 and 42, so that entrained liquefied paint on the paint applicators is shaken therefrom into a body of solvent S present in the lower part of the housing 12. After a shaking operation, the paint applicators and the bar 44 can be removed from the housing 12, as well as the shaker assembly 80, as clearly seen in Figure 8.

Suitably secured in opposed relationship on the inner sides of the end walls 14 and 16 and spaced below the upper ends of the front and rear walls 18 and 20 are V-shaped lower brackets 98 and 100, respectively, like the brackets 40 and 42, for receiving opposite ends of the support bar 44, after the same has been removed from the upper brackets 40 and 42. As seen in Figure 1, when the support bar 44 is disposed in the lower brackets 98 and 100, the paint applicators are disposed in the solvent solution S for thinning out any paint or the like remaining in the paint applicator.

Secured in any suitable manner in longitudinally spaced relationship to each other on the inner sides of the front and rear walls 18 and 20 adjacent the upper edges thereof are pairs of upwardly opening hooks 102 over which are engaged loops 103 on the upper ends of coil springs 104. The springs 104 are stretched and their lower ends are suitably secured at 115 to the forward and rear edges of a dished sump plate, indicated generally at 106, which extends between the walls of the housing 12. The sump plate 106 is freely suspended by the springs 104, and is arranged to receive on the upper surface thereof paint sludge and the like which falls through the solvent body S from the paint applicators. As the amount of accumulated sludge on the plate 106 increases, the plate 106 subsides and automatically operates a plug assembly, indicated generally at 108, positioned beneath the plate 106. The sump plate 106 includes a central depressed portion 110 which converges toward a relatively large central drain hole 112. On the front and rear edges of the plate 106 are inwardly extending lugs 114, the purpose of which is described hereinafter in detail. Secured on the upper side of the plate 106 at the front and rear sides of the drain hole 112 are hinge assemblies 116 and 118 which respectively support closure plates 120 and 122 for the drain hole 112, see Figures 10 and 11. The closure plate 120 has on its free edge an upset flange 124 which is arranged to overlie the free edge 126 of the plate 120 in the closed positions of these plates. Until the closure plates 120 and 122 are raised, as shown in Figure 15, paint sludge accumulates on the upper surface of the plate 106 and on the closure plates 120 and 122.

The bottom wall 22 of the housing 12 has thereon a central drain opening 128. Between the sump plate 106 and the bottom wall 22 of the housing is a stationary plate 130, dished like the plate 106, and having a depressed central portion 131 resting upon the bottom wall 22 and having a central round opening 132 in alignment with the drain opening 128.

Engageable in the hole 128 and the opening 132 is the cylindrical lower end portion 134 of a vertically displaceable plug 136 of any suitable material, such as a rubber or the like. The plug 136 has an enlarged diameter head 138 defining with the lower end portion 134 a shoulder 135 which is engageable on the upper surface of the stationary plate 130 around the opening 132. The plug head 138 has a metal plate 140 on its upper surface. A vertical axial bore 144 extends through the plug, see Figure 10, which receives a stem 146 having on its lower end an annular flange 148. Secured to the underside of the housing bottom wall and extending diametrically across and beneath the drain opening 128 of the bottom wall 22 is a depending U-shaped yoke 150, see Figure 20. A vertical expanding coil spring 152 has its lower end secured at 153 to the bight portion of the yoke 150 and its upper end engaged with the lower end of the stem 146, so as to urge the plug 136 upwardly out of the openings 128 and 132.

Secured on and rising from the upper surface of the stationary plate 130 and circumferentially spaced around the opening 132 are brackets 154, see Figure 12, whose upper ends are traversed by pivot pins 156, which traverse intermediate portions of latch bars 158, having inner end portions 160 which are arranged to bear down on the upper end of the plug head 138. U-shaped springs 162 are compressed between the outer ends 159 of the latch bars 158 and the upper surfaces of the plates 130, see Figure 10, which urge the inner end portions 160 of the latch bars 158 downwardly onto the plug head 138 and keep the plug 136 depressed in closing relation to the openings 128 and 132. The drain hole 112 in the plate 106 is large enough to permit the plug 136, see Figure 15, to pass therethrough. However, the central portion 110 of the plate 106 surrounding the drain hole 112 can engage the outer end portions 159 of the latch bars 158 when the plate 106 is moved downwardly by the weight of the accumulated sludge and the like thereon. Normally the springs 162 overcome the resistance of the spring 152, so that the plug 136 is retained in a closing position relative to the openings 128 and 132, in the absence of upward pivoting of the latch bars 158 by the plate 106 in the manner described, as seen in Figure 10.

As shown in Figure 15, whenever enough sludge accumulates on the sump plate 106 to depress the plate 106, the latch bars 158 are pivoted upwardly so as to release the plug 136 to be elevated by the spring 152 out of closing relation to the openings in the plate 130 and in the housing bottom wall 22, and open the closure plates 120 and 122, so that accumulated sludge and solvent S drain through the openings into a bucket or the like, indicated at 166, positioned beneath the bottom wall drain hole 128, as shown in Figure 15.

Secured to the underside of the housing bottom wall 22 at one side of the drain hole 128 is a sleeve 168 which reciprocally supports therein a latch bolt 170 having a bifurcated inner end portion 172, see Figure 13, which when the latch bolt 170 is pushed inwardly, engages around the stem 146 above the flange 148 on the stem 146, so as to hold the plug 136 down in closing position, and against automatic operation.

When the solvent, sludge, etc. has drained out of the housing 12, the cleaned paint applicators can be hung to dry within the housing on the support bar 44.

In order to hold the plate 106 down in position to actuate the plug 136, a plurality of leaf springs 176 are secured on the housing walls and bear down on the lugs 114 on the plate 106. The springs 176 must be man-

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ually displaced from the lugs 114 in order to permit the coil springs 104 to raise the plate 106 to the position shown in Figure 1, for example. When the coil springs have raised the plate 106 to the position shown in Figure 1, the leaf springs 162 are effective to urge the latch bars 158 down onto the upper surface of the plug head 138 so as to depress the plug and close the apertures in the plate 130 and in the housing bottom wall 22.

The form of the invention shown in Figures 22 and 23 comprises a housing 180 which has therein a longitudinal vertical partition 182 which divides the interior of the housing into separate compartments 184 and 186. The compartment 184 contains the structure for treating paint applicators, as described in detail relative to Figures 1 through 21, and the compartment 186 provides a storage space wherein the support bar member 44, the crank handle 90 and the shaker assembly 80, can be stored. In all other respects the form of the invention disclosed in Figures 22 and 23 functions in the same manner as that of Figures 1 to 21, and includes all of the structure in the compartment 184 contained in the housing 12.

The foregoing is considered as illustrative only of the principles of the invention. Since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, as fall within the scope of the appended claims.

What is claimed is:

1. In apparatus for cleaning paint applicators, an elongated rectangular housing having front and rear walls having upper edges, end walls, and a bottom wall, a pair of horizontally aligned upper brackets on opposed walls of the housing, a pair of horizontally aligned lower brackets on opposed walls of the housing and spaced below said upper brackets, said housing being adapted to contain cleaning solvent in the housing beneath said lower brackets, and a paint applicator supporting bar having ends removably engageable in the lower brackets for suspending applicators in the body of solvent, said

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supporting bar being removable from the lower brackets and engageable in the upper brackets for suspending applicators above the body of solvent, journal bearings secured to opposed walls of the housing in line with and beneath said upper brackets, a shaker shaft having ends removably journaled in said bearings, said shaft having cam wheel means thereon engageable with the supporting bar, and rotating means connectible to said shaft for rotating the shaft to shake the supporting bar.

2. In apparatus for cleaning paint applicators, a housing having front and rear walls and end walls, a pair of horizontally aligned upper brackets on the end walls and spaced from said front and rear walls, a paint applicator support bar having ends removably seated in said brackets and free to move vertically in the brackets, journal bearings on said end walls beneath said brackets, a rotary shaker shaft having ends journaled in said bearings and having cam wheel means engageable with the support bar, and rotating means for said shaft, said bar being of V-shaped configuration and having on the upper edge of each side spaced means for suspending support applicators therefrom.

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