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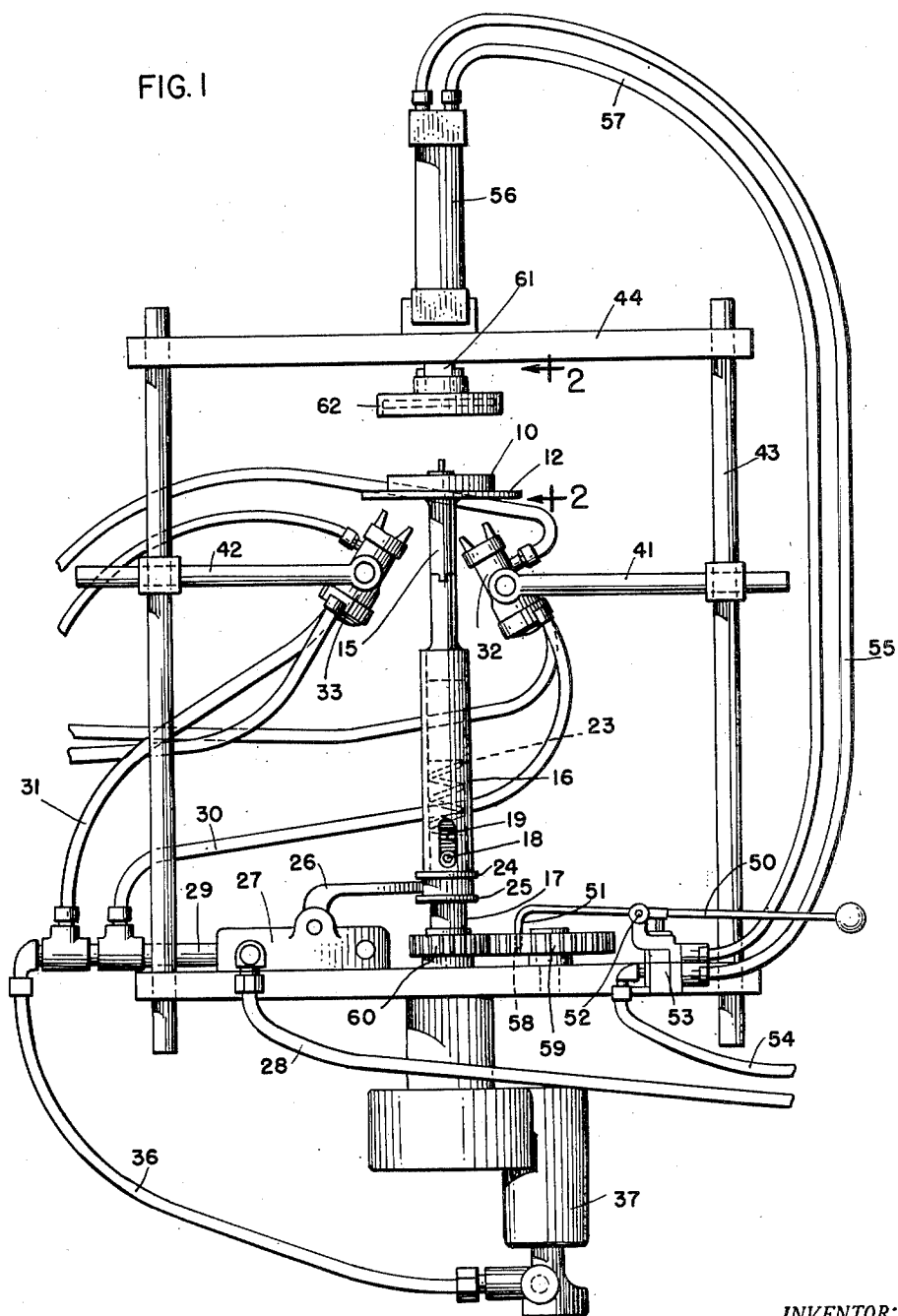
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2,700,929

APPARATUS FOR COATING ARTICLES

Filed April 9, 1951

2 Sheets-Sheet 1



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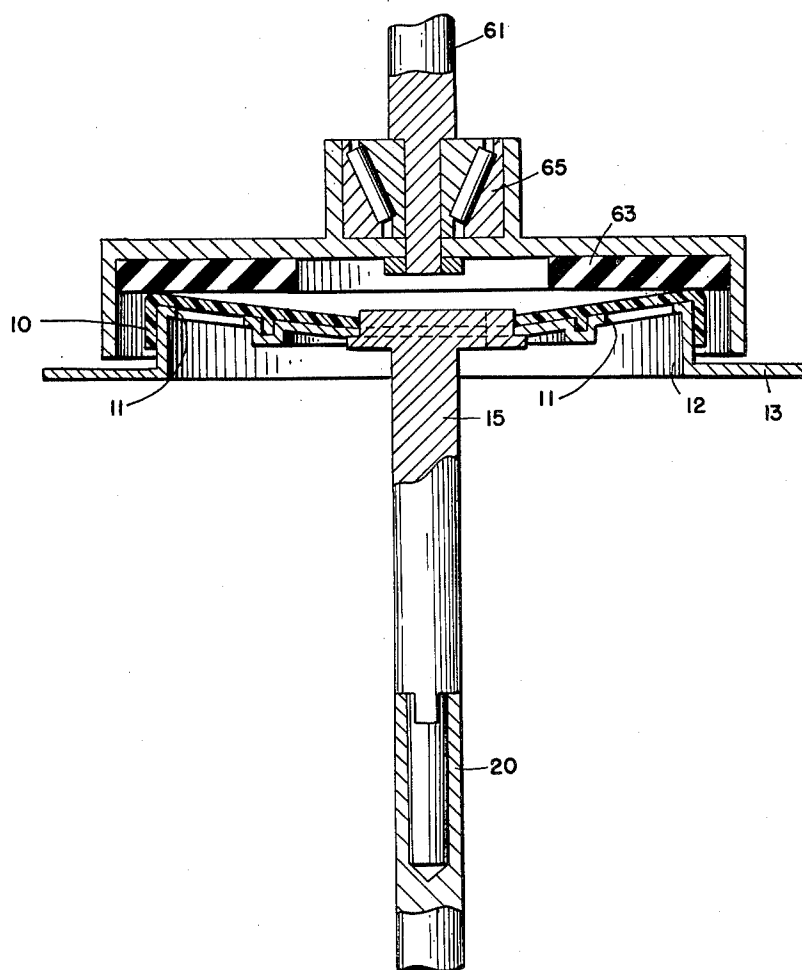
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FIG. 2



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APPARATUS FOR COATING ARTICLES

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5 Claims. (Cl. 101—114)

This invention relates to apparatus for coating articles, and more particularly to apparatus for spraying lacquer on exposed portions of masked articles.

An object of the invention is to provide new and improved apparatus for coating articles.

A further object of the invention is to provide new and improved apparatus for spraying lacquer on articles.

Another object of the invention is to provide masking elements for holding a cup-shaped article exposing portions thereof to a lacquer spray.

An apparatus illustrating certain features of the invention may include a pair of opposed gripping elements for gripping a cup-shaped article and masking portions of the article. Means may be provided for forcing the gripping elements toward a lacquer spray and rotating the elements to expose portions of an article gripped thereby. Means also may be provided for preventing operation of the sprayers until the gripping elements have moved the article within the spraying range of the sprayer.

A complete understanding of the invention may be obtained from the following detailed description of an apparatus forming a specific embodiment thereof, when read in conjunction with the appended drawings, in which:

Fig. 1 is a front elevational view of an apparatus forming one embodiment of the invention, and

Fig. 2 is an enlarged, fragmentary, side view of the apparatus taken along line 2—2 of Fig. 1 with portions thereof shown in section with parts thereof in different positions from the positions thereof shown in Fig. 1.

Referring now in detail to the drawings, there is shown therein an apparatus for spraying lacquer on a number plate 10 through open portions 11—11 formed in a mask 12 having an annular flange 13. The plate 10 fits over the mask 12, which is keyed to a spindle 15. The spindle 15 is secured at the lower end thereof to a shank 20 of a tube 16 mounted slidably on a drive shaft 17 and splined thereto by a pin 18, which projects through a slot 19 formed in the tube 16. A compression spring 23 urges the tube 16 and the spindle 15 away from the drive shaft 17, and collars 24 and 25 normally hold a control lever 26 of a valve 27 in a position in which an air line 28 leading from a supply of air under a high pressure is closed from a pipeline 29 connected by flexible hoses 30 and 31 to lacquer sprayers 32 and 33, respectively, and by a hose 36 to an air motor 37. The sprayers 32 and 33 are pivotally mounted on rods 41 and 42, mounted adjustably on a frame 43 to which a cross-piece 44 is rigidly secured.

A control lever 50 having an L-shaped arm 51 is pivoted on a pin 52, and may be actuated manually in a clockwise direction, as viewed in Fig. 1, to actuate a valve 53 to connect an air line leading from a source of air under pressure to a hose 55 connected to the upper end of a cylinder 56 and connect to exhaust a hose 57 leading from the lower end of the cylinder 56 to the valve 53. As the lever 50 is so actuated, the arm 51 thereof is lifted out of a hole 58 formed in a gear 59 to free the gear 59 and a gear 60 secured rigidly to the drive shaft 17. The air supplied to the upper end of the cylinder 56 and escaping from the lower end thereof forces a piston 61 carrying a pressing cup 62 having an annular sponge rubber pad 63 therein downwardly toward the drive shaft 17, with which a cylinder 56 is aligned. The pressing cup 62 is mounted on the piston 61 by a thrust bearing 65. The pad 63 engages the number plate 10, and presses it firmly against the mask 12 to depress the spindle 15 and move it toward the sprayers 32 and 33 against the action of the

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compression spring 23. As the spindle 15 is depressed, the sleeve 16 pivots the lever 26 in a clockwise direction, which then supplies air under pressure to the paint sprayers 32 and 33 and the motor 37, which rotates the shaft 17. The shaft 17 rotates the spindle 15 through the pin 18 and the sleeve 16, which rotates the holder 12 and presser 62, the presser being mounted on the piston 61 by a rotary and thrust bearing 65.

As the holder 12 and pressing cup 62 are rotated and rotate the number plate 10, the sprayers 32 and 33 spray paint through the openings 11—11 in the holder 12 onto the number plate. After the exposed portions of the number plate have been painted by the sprayers 32 and 33, the lever 50 is pivoted manually in a counterclockwise direction to drop the L-shaped arm 51 into the hole 58, which actuates the valve 53 to supply air under pressure to the lower end of the cylinder 56 and exhaust it from the upper end of the cylinder 56. This causes the pressing cup 62 to be lifted away from the mask 12, and the article 10 may be removed from the mask 12. As the sleeve 16 is raised by spring action, the lever 26 is pivoted by the collar 25 to a position in which the valve 27 closes the air line 28 from the air lines 30, 31 and 36, which stops the spraying and the motor 37. The pressing cup 62, the pad 63 and the mask 12 effectively hold and mask the number plate 10, and rotate it to facilitate spraying lacquer thereon. The mask may be easily removed from the shank 20 of the sleeve 16 for cleaning operations thereon, and a second mask identical therewith may be substituted for the mask 12 while the latter is being cleaned.

It is to be understood that the above-described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. A coating apparatus, which comprises a vertically disposed drive shaft fixed against vertical movement, an air motor for rotating the drive shaft, a spindle splined to the upper end of the shaft, a cup-shaped mask secured detachably to the upper end of the spindle, a pneumatic sprayer positioned below the mask, a spring urging the spindle upwardly from the shaft, a cup-shaped presser positioned above the mask, fluid pressure means for pressing the presser toward the mask to clamp a cup-shaped article to the mask and press the mask and the spindle downwardly, a valve for actuating the fluid pressure means, a lever movable from a latching position to an operating position for operating the valve, latching means operable by the lever for holding the shaft against rotation when the lever is in its latching position and releasable by movement of the lever to its operating position, a second valve for supplying fluid under pressure to the air motor and the sprayer, and means responsive to movement of the spindle downwardly on the shaft for actuating the second valve.

2. A coating apparatus, which comprises a vertically extending drive shaft fixed against vertical movement, an air motor for rotating the drive shaft, a spindle splined to the upper end of the shaft, a cup-shaped mask secured to the upper end of the spindle, a pneumatic sprayer positioned below the mask, a spring urging the spindle upwardly from the shaft, a pressure pad positioned above the mask, fluid pressure means for pressing the pad toward the mask to clamp a cup-shaped article to the mask and press the mask and the spindle downwardly, a gear keyed to the shaft, a second gear meshing with the first-mentioned gear and having a hole therein, a valve for actuating the fluid pressure means, a lever movable from a latching position in locking engagement with the hole in the second gear to an operating position for operating the valve, a second valve for supplying fluid under pressure to the air motor and the sprayer, and means responsive to movement of the spindle downwardly on the shaft for actuating the second valve.

3. A coating apparatus, which comprises a mask designed to fit into a cup-shaped article, a cover, a resilient pad mounted in the cover, means for pressing the mask and the cover toward one another to clamp a cup-shaped

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article therebetween, a sprayer, means for moving the mask and the cover toward the sprayer, and means responsive to movement of the mask toward the sprayer for rotating the mask and the cover and starting the sprayer and responsive to movement of the mask away from the sprayer for stopping the sprayer and rotation of the mask.

4. A coating apparatus, which comprises a sprayer located in a predetermined position, a drive shaft, means for rotating the drive shaft, a spindle splined to the drive shaft, a mask having openings therein detachably secured to the spindle for supporting an article, means urging the spindle in a direction such as to urge the mask away from the sprayer, means for pressing an article against the mask and the mask toward the sprayer, means for actuating the pressing means, and means responsive to actuation of the pressing means for actuating the sprayer and the shaft-rotating means as the mask is moved toward the sprayer and stopping the sprayer as the mask is moved away from the sprayer.

5. A coating apparatus, which comprises a sprayer

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located in a predetermined position, a drive shaft, means for rotating the drive shaft, a spindle splined to the drive shaft, a mask having openings therein keyed to the spindle for supporting an article, means urging the spindle in a direction such as to urge the mask away from the sprayer, means for pressing an article against the mask and the mask toward the sprayer, means for latching the shaft against rotation, means for actuating the pressing means and the shaft-latching means, means responsive to actuation of the pressing means for actuating the sprayer, and means responsive to actuation of the pressing means for actuating said shaft-rotating means as the mask is moved toward the sprayer and stopping the sprayer as the mask is moved away from the sprayer.

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