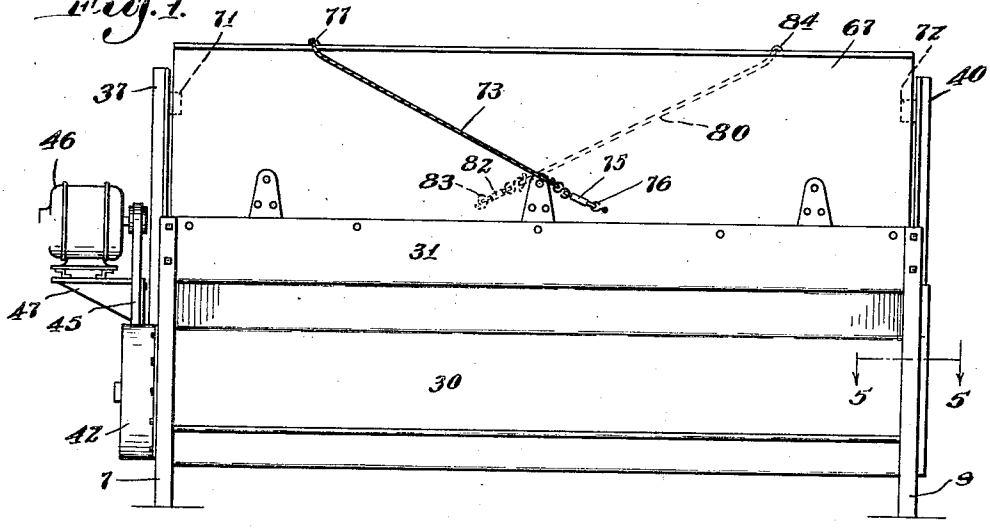
Sept. 1, 1931. F. G. DENNISON 1,821,694

SPRAY TABLE

Filed Dec. 27, 1929 2 Sheets-Sheet 1

Fig. 1.



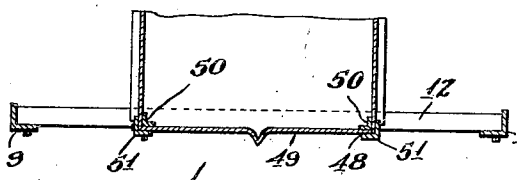


Fig. 5.

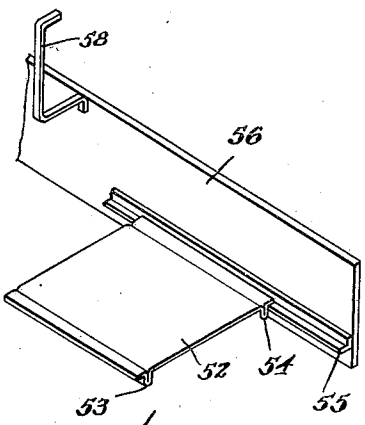


Fig. 6.

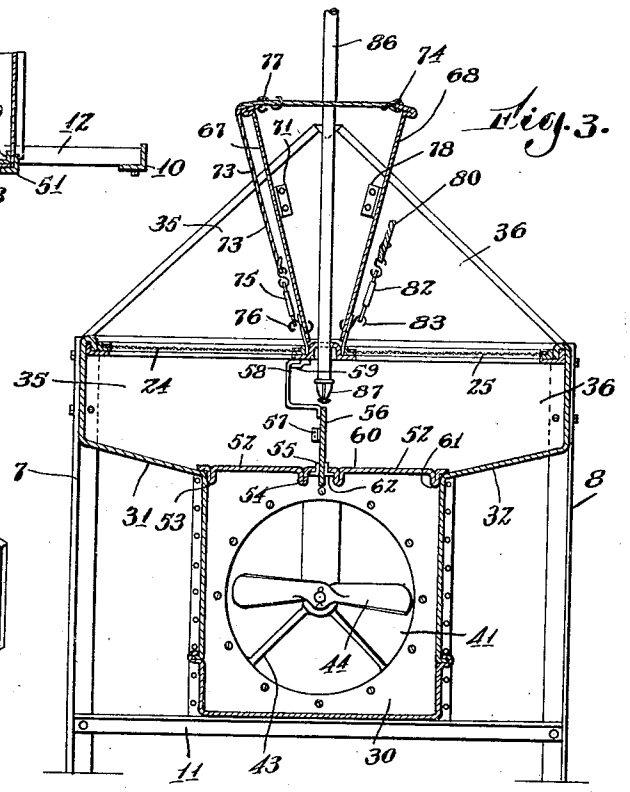


Fig. 3.

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SPRAY TABLE

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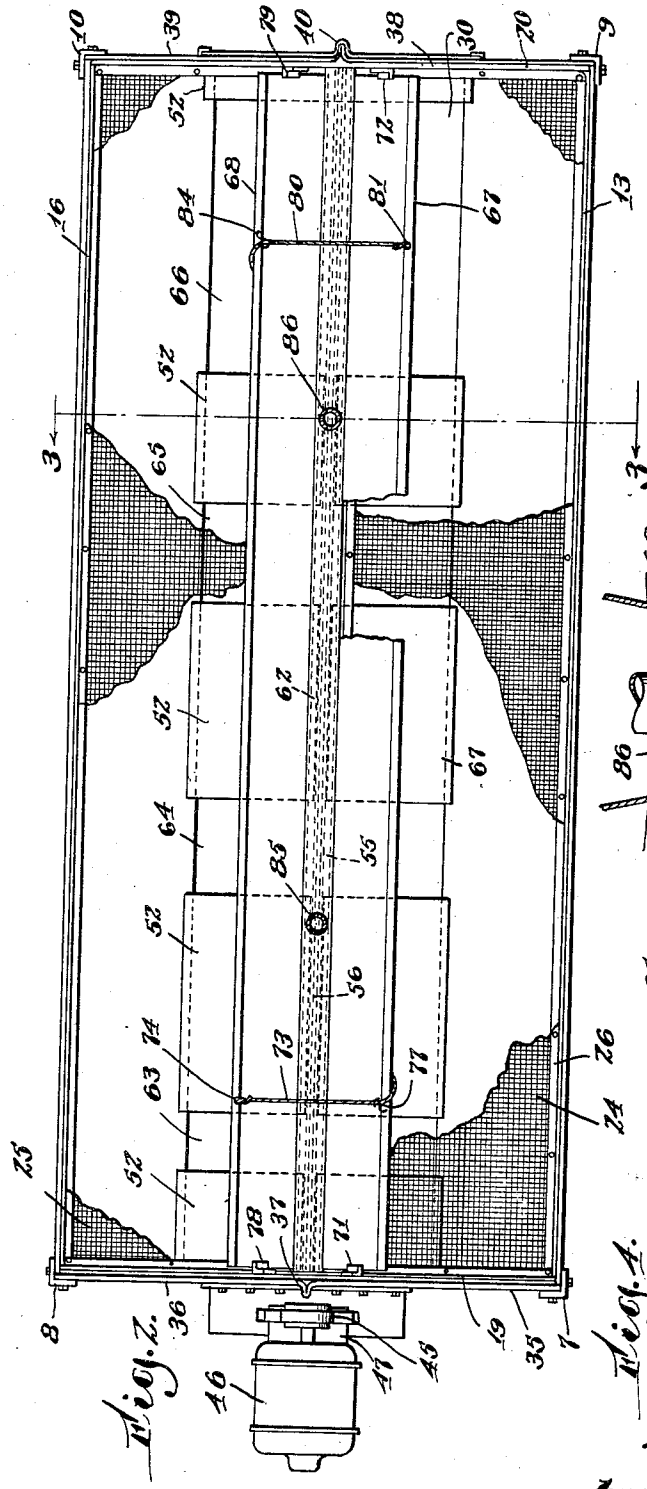


Fig. 2.

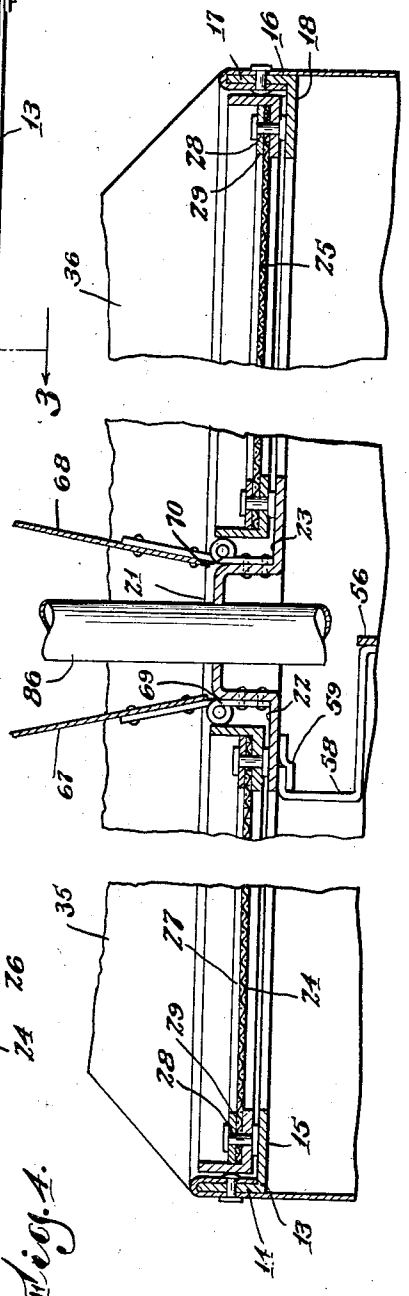


Fig. 4.

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UNITED STATES PATENT OFFICE

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SPRAY TABLE

Application filed December 27, 1929. Serial No. 416,870.

The present invention relates to the art of industrial finishing, and more particularly to a spray bench or table for supporting the work during the spraying operation.

It has been customary heretofore in the manufacture of jewelry, and other small articles, to house the work during the spraying operation in spray booths in which the work is coated with paint, lacquer or some other coating material, and from which the fumes generated in the spraying operation are withdrawn to the atmosphere outside the factory by an electric motor driven device operating to draw or blow the fumes from the booth or to induce the fumes to flow therefrom. It is impracticable for more than two operatives to work in a spray booth at a time. In consequence, if a factory requires the services of eight operatives, for instance, four spray booths, each provided with an electric motor driven device for withdrawing the fumes, are needed.

The principal object of the present invention is to produce a device for use in industrial finishing at which a large number of operatives may work at a time and from which the fumes may be withdrawn by means comprising a single motor thus to economize in the initial cost of equipment and the use of space and power.

To the accomplishment of this object, and such others as may hereinafter appear, the various features of the present invention reside in certain combinations and arrangements of parts fully set forth hereinafter, the advantages of which will be readily apparent to those skilled in the art.

The various features of the present invention will be readily understood from an inspection of the accompanying drawings illustrating the best form of the invention at present known to the inventor, in which,

Figure 1 is a view in elevation of the spray table;

Fig. 2 is a view in sectional plan, the work supporting trays being broken away to show underlying parts;

Fig. 3 is a view in rear sectional elevation on the line 3—3, Fig. 2;

Fig. 4 is an enlarged, broken detail view in rear sectional elevation on the line 3—3, Fig. 2;

Fig. 5 is a detail view in sectional plan on the line 5—5, Fig. 1, and

Fig. 6 is a view in perspective of one of the distributing plates for the conduit and its associated partition.

In the illustrated embodiment of the invention the frame for the table comprises vertically-disposed angle-irons 7 and 8 (Fig. 3), and 9 and 10 (Fig. 5). The vertical angle-irons 7 and 8 are connected by a horizontal angle-iron 11 (Fig. 3). The vertical angle-irons 9 and 10 are connected by a horizontal angle-iron 12 (Fig. 5). Bolted to the vertical angle-irons 7 and 9 near their upper ends (Fig. 4) is a horizontal angle-iron 13 having a vertical flange 14 and a horizontal flange 15. Bolted to the vertical angle-irons 8 and 10 near their upper ends is a horizontal angle-iron 16 having a vertical flange 17 and a horizontal flange 18. Bolted to the angle-irons 7 and 8 and to the angle-irons 9 and 10, respectively, are horizontal angle-irons 19 and 20 similar in construction to the angle-irons 13 and 16. Riveted to the horizontal flanges of the angle-irons 19 and 20 is a central bridge 21 (Figs. 3 and 4) provided with horizontal flanges 22 and 23.

The small articles to be finished are supported upon trays 24 and 25 (Figs. 2 and 4) each extending substantially the entire length of the table. Each tray comprises a rectangular frame 26 to the horizontal flange of which a wire screen 27 is clamped by a rivet 28 which passes through a clamping strip 29 and the horizontal face of the tray frame 26. The tray 24 is removably supported upon the horizontal flanges 15 and 22 (Fig. 3) and the similar horizontal flanges on the front and rear angle-irons 19 and 20 (Figs. 2 and 4). The tray 25 is removably supported upon the flanges 18 and 23 and the similar horizontal flanges on the angle-irons 19 and 20.

In spraying the work in the trays to finish them the operatives stand laterally adjacent at each side of the table. These operatives hold the spray guns in a down-

ward direction to coat the work on the trays. In order to prevent the fumes resulting from the spraying operation spreading into the room in which the operatives work and to remove the fumes to the atmosphere outside the factory, the table is provided with a trunk or conduit 30 (Figs. 2 and 3) which extends centrally beneath the trays from one end of the table to the other. The bottom of the conduit 30 is formed from a piece of galvanized sheet metal the free ends of which interlock, respectively, with sheets of galvanized metal 31 and 32 bent as shown in Fig. 3. The edges of the sheets 31 and 32 are bent, respectively, over the tops of the vertical flanges 14 and 17 (Fig. 4) of the angle-irons 13 and 16 secured thereto by a row of rivets 33 and 34. The sheet 31 is bolted to the angle-irons 7 and 9. The sheet 32 is bolted to the angle-irons 8 and 10.

The front end of the table is closed by two galvanized metal sheets 35 and 36 (Fig. 3) bolted, respectively, to the angle-irons 7 and 8. The adjacent edges of the sheets 35 and 36 are interlocked to form a stiffening rib 37 (Fig. 2) terminating at a point high above the trays (Fig. 3).

The rear end of the table is closed by two galvanized metal sheets 38 and 39 (Fig. 2) bolted, respectively, to the angle-irons 9 and 10. The adjacent edges of the sheets 38 and 39 are interlocked to form a stiffening rib 40 terminating at a point high above the trays (Fig. 1).

The front end of the conduit 30 terminates in a circular opening 41 cut through the sheets 35 and 36. Surrounding this opening 41 and riveted to the adjacent sheets 35 and 36 is a cylindrical casing 42 (Figs. 1 and 2) which supports a spider 43 for a suction fan 44. The fan is driven by a belt 45 (Fig. 1) from the shaft of an electric motor 46 mounted on a bracket 47 carried by the casing 42. The casing communicates with a duct (not shown) which conducts the fumes to the atmosphere outside the factory. The rear end of the conduit 30 terminates in a rectangular opening 48 (Fig. 5) cut into the sheets 38 and 39. The opening 48 is normally closed by a sliding door 49 which slides in ways formed between internal and external angle-irons 50 and 51 extending vertically adjacent the side edges of the opening 48.

In order to obtain a uniform down-draft of air through the screens over the entire surfaces thereof under the influence of the suction fan the top of the conduit is partially closed by adjustable distributing plates 52 (Figs. 2, 3 and 5). Each plate comprises a sheet of galvanized metal bent adjacent their side edges to form depending ribs 53 and 54. The rib 53 engages the sheet 31 adjacent the top of the conduit 30 (Fig. 3) while the marginal flange on the plate 52 adjacent the rib 54 engages a horizontal angle-iron 55 secured to a vertical plate 56. The opposite ends of the plate 56 are secured to the sheets 35 and 38. Fig. 3 shows an angular plate 57 secured by screws both to the sheet 35 and the front end of the plate 56. A similar plate is secured by screws both to the sheet 38 and the rear end of the plate 56. In addition, the plate 56 is supported by a hanger 58 having one end secured to the plate and its other end removably held in engagement with the bottom face of the flange 22 by a clamp 59 secured thereto.

The plates 52 on the other side of the table are similarly provided with ribs 60 and 61 which engage, respectively, the sheet 32 adjacent the top of the conduit 30 and a horizontal angle-iron 62 secured to the plate 56.

As shown in Fig. 2 the distributing plates 52 may be adjusted relatively to form four openings 63, 64, 65 and 66. The opening 63 which is nearest the fan 44 is smaller than the opening 66 which is farthest from the fan. By adjusting the plates 52 to form openings in the conduit varying in size in accordance with the distance of the openings from the fan, the down-draft of air through the screens under the influence of the fan may be distributed uniformly over the entire work supporting surfaces of the trays. Stated in another way, the sizes of the openings in the conduit may be varied to obtain the same rate of flow through each opening notwithstanding their different spacings from the fan end of the conduit.

The distributing plates 52 permit the table to be divided up into spraying stations. That is, the portions of the trays 24 and 25 over the opening 63 may constitute one spraying station at which two operatives work facing each other on opposite sides of the table. Similarly the portions of the trays 24 and 25 over the openings 64, 65 and 66 may constitute three more spraying stations at each of which two operatives work on opposite sides of the table. The distributing plates 52 may be adjusted to form one, two, three or four openings and thus limit the table to one, two, three or four spraying stations at which two, four, six or eight operatives may work, respectively.

But whether the entire work supporting surface of one of the trays is considered a spraying station, or the entire work supporting surfaces of both trays are considered a plurality of spraying stations, or the surfaces of the trays adjacent an opening in the conduit is considered a spraying station, or the surfaces of the trays adjacent a plurality of the openings are considered a plurality of spraying stations the result is the same, namely, that the down-draft of the air through the spraying station or plurality of spraying stations under the influence of the fan 44 is distributed uniformly over the

entire working surface of the spraying station or surfaces of the spraying stations.

In order that the spray table may be extremely flexible to accommodate it to widely varying classes of work and conditions of use the spraying stations therein are not separated by laterally adjacent transverse partitions in the illustrated embodiment of the invention. This construction permits a varied selection in the number and extent of the spraying stations and the range along the table in which an operative has freedom of movement.

The material usually employed to coat the work on the trays is inflammable. In order to put out a fire, if one should occur, the table is provided with means for covering the trays to smother the fire and with means for reducing the temperature of the coating material below its point of ignition. To this end, covers 67 and 68 are hinged at 69 and 70 (Fig. 3), for instance, to the vertical flanges, respectively, of the bridge 21. The covers 67 and 68 cover, respectively, the trays 24 and 25.

The cover 67 is normally held in an elevated inclined position, against plates 71 and 72 carried, respectively, by the sheets 35 and 38, by a metallic cord 73 one end of which is secured to an eye 74 (Figs. 2 and 3) on the edge of the cover 68. The other end of the cord 73 is connected to a fusible link 75 which is connected to a hook 76 carried by one face of the cover 67. Intermediate its ends the cord 73 is reeved through a hook-eye 77 on the edge of the cover 67. The cover 68 is normally held in an elevated inclined position against plates 78 and 79 (Fig. 2) carried, respectively, by the sheets 36 and 39, by a metallic cord 80 one end of which is secured to an eye 81 on the edge of the cover 67. The other end of the cord 80 is connected to a fusible link 82 (Fig. 3) which is connected by a hook 83 to the cover 68. Intermediate its ends the cord 80 is reeved through an eye 84 (Fig. 2) on the edge of the cover 68. With this construction the fusible links 75 and 82, which are located adjacent the seat of the fire, melt under heat thus to allow the covers 67 and 68 to fall over the trays and smother the fire thereon.

In order to cool the coating material to a temperature below its point of ignition, the bridge 21 carries two vertical water pipes 85 and 86 (Fig. 2) provided at their lower ends, respectively, with sprinkler heads 87 (only one of which is shown in Fig. 3) which sprinkle water into the coating material smothered by the covers 67 and 68 to reduce the temperature of the coating material below its point of ignition. The sprinkler heads may be of the type commonly in use in overhead sprinkler systems operating automatically to open and sprinkle when the room in which the head is located becomes heated to a predetermined temperature. The water for the sprinkler heads 87 may, however, be turned on through a valve in the supply for the pipes 85 and 86 whenever a fire occurs in the spray table.

In addition to supporting the inward edges of the distributing plates 52, the plates 56 form a central partition for the table and thus prevent the fumes of a spray gun in use by an operative on one side of the table from passing into the spraying station on the other side of the table.

The spray table may be cleaned easily. To this end the trays 24 and 25 may be removed readily. The conduit 30 may be flushed and the resulting dirt removed through the opening 48 when the sliding door 49 is elevated. In preparing for the flushing of the conduit 30 the partition 56, and the parts supported therefrom, such as the dstributing plates 52, may be removed.

Nothing herein explained is to be interpreted as limiting the invention in the scope of its application to use in connection with the particular apparatus or the particular mode of operation or both selected for purposes of illustration and explanation. While the particulars of construction herein set forth are well suited to one mechanical form of the invention, it is not limited to these details of construction, nor to the conjoint use of all its features, nor is it to be understood that these particulars are essential since they may be variously modified within the skill of the artisan without departing from the true scope of the actual invention, characterizing features of which are set forth in the following claims by the intentional use of generic terms and expressions inclusive of various modifications.

What is claimed as new, is:

1. In a spray table the combination with a support for supporting the work for the spraying operation, a conduit having a plurality of openings below the support, and means at one end of the conduit for drawing air down through the support and the openings into the conduit, of means for varying the sizes of the openings in accordance with their distances from the discharge end of the conduit to obtain a uniform flow of air down through the support over its entire surface.

2. In a spray table the combination with a work support comprising a plurality of spraying stations accommodating a plurality of laterally adjacent operatives, a conduit having a plurality of openings, substantially one to a station and each varying in size in accordance with its distance from the discharge end of the conduit, of means for withdrawing the fumes generated at each station down through the openings into the conduit.

3. In a spray table the combination with a work support comprising a plurality of spraying stations accommodating a plurality of laterally adjacent operatives, a conduit having a plurality of openings, substantially one to a station, and means for withdrawing fumes generated at each station down through the openings into the conduit, of means for varying the sizes of the openings in the conduit to obtain substantially the same rate of flow through each opening notwithstanding their different spacings from the discharge end of the conduit.

4. In a spray table the combination with a support for supporting the work for the spraying operation, a rectangular conduit having an open top below the support, means for partially closing the top of the conduit comprising distributing plates having their outer edges slidably engaged with the conduit and a partition extending into the conduit upon which the inner edges of the distributing plates are slidably mounted, of means for drawing air down through the support and the openings between adjacent distributing plates into the conduit.

In testimony whereof I have signed my name to this specification.

FRANK G. DENNISON.