W. F. ROTHERMUND.

AIR BRUSH.

APPLICATION FILED MAR. 15, 1921.

1,429,537. Patented Sept. 19, 1922.

Fig. 1.

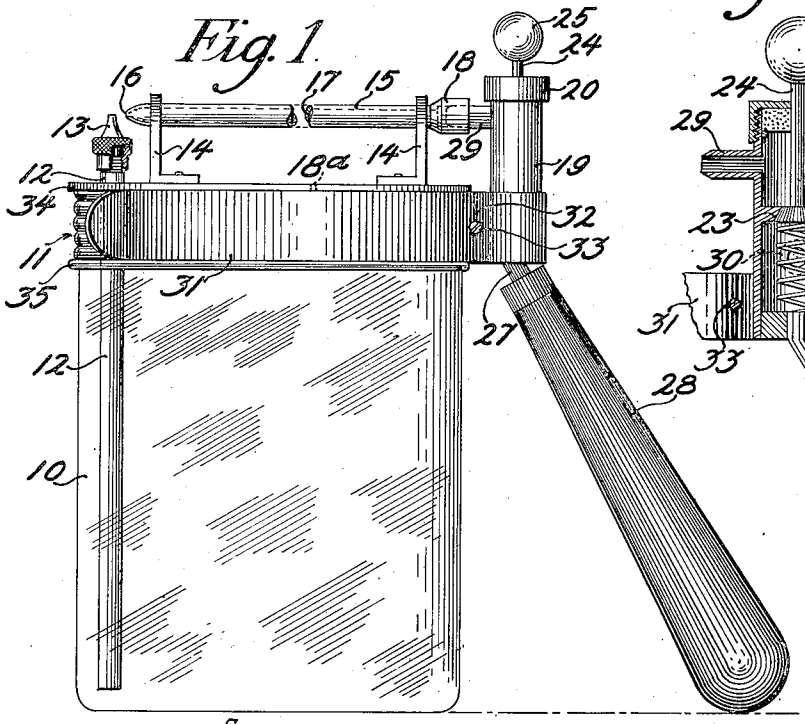


Fig. 2

Fig. 3

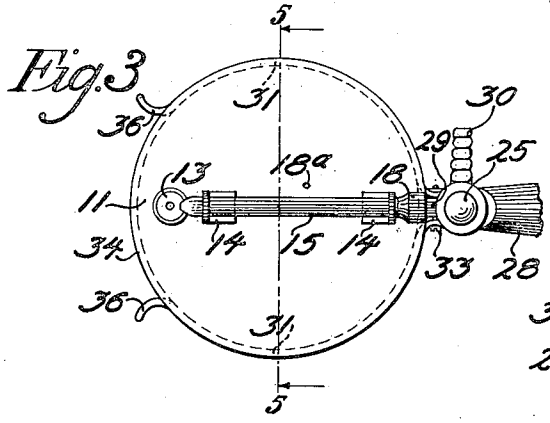


Fig. 4

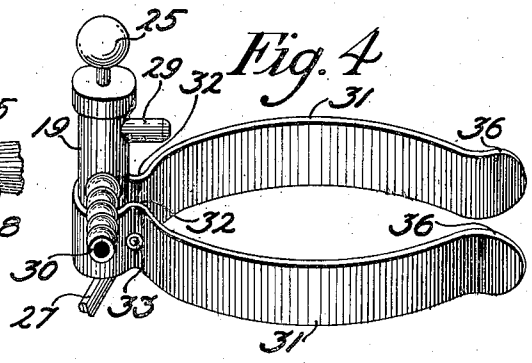
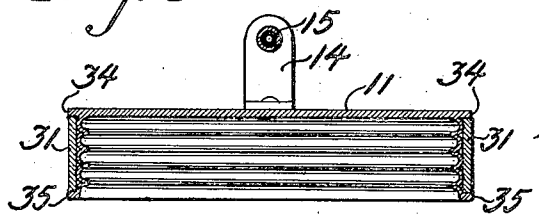


Fig. 5



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UNITED STATES PATENT OFFICE.

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AIR BRUSH.

Application filed March 15, 1921. Serial No. 452,544.

To all whom it may concern:

Be it known that I, WERNER F. ROTHERMUND, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, county of Kings, State of New York, have invented a certain new and useful Improvement in Air Brushes, of which the following is a specification.

This invention relates to air brushes and more particularly to the type of air brushes which are adapted to apply lacquers, varnishes, etc., by the use of compressed air.

One object of the invention is to provide an air brush with a novel and improved construction by which the handle and valve are adjustably and detachably mounted on the cover of the jar which contains the lacquer or varnish.

Another object of the invention is to provide a novel and improved air brush of the nature specified which is simple in construction, economical to manufacture and easy to manipulate.

Further objects of the invention are to provide a novel and improved air brush of the nature specified in which the valve is so placed as to permit of its easy operation by the thumb of the operator, and having the handle or hand piece so positioned and of such length as to act as a support for the apparatus and thereby prevent it being upset by the weight of the air hose.

Other objects and advantageous features including certain novel details of the invention will be apparent to those skilled in the art, from a careful consideration of the description and claims of my invention which I have illustrated in the accompanying drawings in which:

Figure 1 is a side elevational view of the improved air brush with the parts assembled. Figure 2 is a central longitudinal section through the valve on a larger scale. Figure 3 is a top plan view on a smaller scale than Figure 1 of the air brush with part of the handle cut away. Figure 4 is a perspective view from the side opposite to that shown in Figure 1, of the valve and the attached resilient gripping fingers in detail, with the handle left off. Figure 5 is a sectional view taken at the dotted line 5—5 of Figure 4 looking in direction of arrows, drawn in the same scale as Figure 1.

The glass jar or other suitable container 10 has screwed or otherwise detachably secured thereon a cap or cover 11. The latter has fixed thereon a pipe or duct 12 which extends downwardly into the container 10 to convey the lacquer or varnish from the container to the nozzle 13, the latter of which is adjustably secured by screw threads to the upper end of pipe 12.

On the cover 11 is securely attached by means of fixed brackets 14 a substantially horizontal tube 15 formed at one end to comprise an orifice 16 slightly smaller in diameter than the bore 17 of said tube, and at the other end an enlarged or shouldered end piece 18, said end piece being bored to approximately the same diameter as the exterior of a nipple 29 and forming a socket therefor. The aforesaid tube is disposed in a manner relative to pipe 12 as to permit a current of air which may be forced through tube 15 to pass directly across the tip of nozzle 13, thereby causing a vacuum in pipe 12, said vacuum allowing the atmospheric pressure in the container to force the liquid up through the pipe to be atomized by said air current. In the cover 11 is formed a hole or vent 18^a to permit of atmospheric pressure upon the liquid in container 10.

The valve preferably consists of a hollow body or barrel 19, having a screw cap 20, packing 21, a valve 22, a valve seat 23, a valve stem 24, and a finger piece 25 on said valve stem. The valve 22 is held in its normally closed position by a spring 26. The lower closed portion of the body 19 has firmly fixed therein a threaded stud or screw 27, having a bent or offset portion formed at an angle of approximately 30 degrees from its shank, upon which is fastened a handle or hand piece 28, made preferably of wood and of such length that when the apparatus is placed upon a flat surface the lower portion of said handle will rest upon that surface (as shown by broken lines in the drawings), and act as a prop or support for the whole structure, thereby overcoming the tendency of the attached hose or tube (not shown) of the air supply, by its weight,

from upsetting the device or dragging it to the floor.

Above the valve 22 and the valve seat 23 on the exterior of the body 19, and integral with the same is fixed an air outlet or nipple 29, said nipple being slightly rounded or bevelled at the end to permit of its being readily seated in the end piece 18, and also being accurately fitted to the bore of the end piece 18. Below the valve and valve seat on the exterior of the body 19 and integral with the same, is fixed an air inlet or nipple 30, substantially at right angles to the nipple 29 and having corrugations to firmly hold a hose or flexible tube slipped over the same.

Assuming that the valve 22 is opened by the finger piece 25 being pressed down, it is manifest that a current of air coming from the supply tube will pass through the opened valve 22 through tube 15, issuing from the orifice 16 and across the tip of the nozzle 13 and cause the liquid in the container to rise and be blown away as a spray.

Partly surrounding and extending laterally from the lower portion of the body 19, and firmly affixed thereto as by means of soldering or welding are the spring clips or resilient gripping fingers 31, bent in at 32, at which point there is placed an adjusting screw 33, to permit of drawing the clips closer together, thereby increasing the tension. Said clips are preferably made of spring steel and are so formed as to closely fit around and firmly grip the cover or cap 11 at its periphery while the adjacent beads or ribs 34 and 35 on said cover prevent any lateral motion of the clips when in position on the cover. The clips 31 are flared out at 36 to permit the same being readily positioned on the cover by being thrust against said cover's periphery.

It will be readily seen that the construction and arrangement of the parts are such as to permit the container 10 together with the cover 11 including the fixed parts on the cover to be easily and quickly brought into effective relation with the valve and air supply, by merely thrusting the spring clips 31 against the periphery of the cover 11 until the nipple 29 has been seated in the end piece 18. The two units will then be rigidly and securely held together without any possibility of becoming shifted or dislocated during operation. The beads or ribs 34 and 35 on the cover 11 act as lateral guides for the clips 31 while they are being positioned, and furthermore, assist in keeping said clips firmly in position on said cover. The nipple 29 being deeply seated in end piece 18 also assists in holding the two units firmly together by preventing any rotary movement of the clips on the cover. It is apparent that the said units can also be quickly and easily separated by merely pulling them apart.

The position of the air inlet or nipple 30 is such that the attached air hose will not interfere with the apparatus being set upon a bench or table as would be the case were the hose connected to the lower portion of the handle; also, that the various parts are of light construction so as not to make the whole device top heavy and cumbersome or liable to being upset. It is obvious that the parts of the unit comprising the container 10, cover 11, pipe 12, tube 15 and brackets 14, etc., are so few and simple in construction and so economical to manufacture as to permit the use of individual jars with their attached covers and associated parts, for numerous or various lacquers, varnishes and liquids colored and uncolored; thereby preventing evaporation and further preventing the contamination of one liquid with another which would result by changing the contents of a single container; also that only one unit comprising the valve, clips and handle is necessary which can be quickly changed from one jar to another without disconnecting the air hose, thereby saving the time of the operator as well.

It will be understood that this last mentioned unit can be used with any other suitable form of spraying mechanism mounted on the cover, also that any other suitable construction of valve may be used in connection with the clips and hand piece.

Variations may be resorted to within the scope of the invention and portions of the improvements may be used without others.

Having thus described my invention, I claim:—

1. In an air brush the combination with a container, of a removable cover therefor, a liquid outlet tube and an air tube mounted on said cover, a handle for said container, means associated with the handle adapted to frictionally engage the cover, and a valve at the upper end of said handle, said valve being adapted to have connection with the air tube when said holding means is engaging the cover.

2. In an air brush the combination with a container, a removable cover therefor, a vertical tube associated with the cover, and having a nozzle thereon, a horizontal tube mounted on the cover and positioned to deliver a stream of air above and across the nozzle of said vertical tube, a valve associated with a handle, said valve having interlocking means with said horizontal tube and means on the valve to frictionally engage the cover to hold the valve in fixed relation with said horizontal tube.

3. In an air brush comprising a container, a removable cover therefor, a vertical and a horizontal tube having fixed relation with

said cover, said horizontal tube being formed to comprise a socket, a valve having a handle and portion adapted to fit within said socket, and other means associated with the valve for frictionally engaging the periphery of the cover to hold said valve in fixed relation with said cover and said horizontal tube.

4. In an air brush comprising a container, a removable cover therefor, a vertical and a horizontal tube associated with said cover adapted to deliver the contents of said container in the form of a spray, a valve associated with a handle, an outlet and an inlet portion on the valve, said outlet portion adapted to interlock with said horizontal tube and an adjustable resilient member associated with said valve and said handle to frictionally engage the cover to hold said valve and handle in fixed relation therewith.

5. In an air brush comprising a container, a removable cover therefor, a vertical and a horizontal tube associated with said cover, a manually operable valve, an outlet portion on said valve, a handle associated with said valve, said horizontal tube being formed at one end to receive the outlet portion on said valve, guiding means on the periphery of said cover for bringing the valve and its associated parts into fixed relation with said cover and other means associated with the valve for holding said valve in fixed relation with the cover.

6. In an air brush comprising a container, a removable cover therefor, said cover having guiding means for bringing the valve and associated parts into fixed relation with the cover, a vertical and a horizontal tube having fixed relation with said cover, said horizontal tube being formed to comprise a socket, a valve having a handle and a portion adapted to fit within said socket, and other means associated with the valve for holding said portion on the valve in fixed relation with the socket and said horizontal tube.

7. In an air brush comprising a container, a removable cover therefor, said cover having annular ribbed portions to act as guiding means for bringing a valve and its associated parts into fixed relation with the cover, a vertical and a horizontal tube having fixed relation with said cover, said horizontal tube being formed to comprise a socket, a valve having a handle and a portion adapted to fit within said socket, and other means associated with the valve for holding said valve in fixed relation with the cover.

8. In an air brush comprising a container, a removable cover therefor, said cover having annular ribbed portions, a vertical and a horizontal tube having fixed relation with said cover, said horizontal tube being formed to comprise a socket, a valve having a portion adapted to fit within said socket, and other means associated with the valve, and having relation with said annular ribbed portions to maintain said valve and its associated parts in fixed relation with the cover.

9. In an air brush comprising a container, a removable cover therefor, said cover having annular ribbed portions, a vertical tube having a nozzle, a horizontal tube having an enlarged end portion formed to comprise a socket, both tubes having fixed relation with said cover, a valve having a portion adapted to fit within a socket on above mentioned horizontal tube, an inlet and an outlet nipple on the valve, means for manually operating the valve, a handle in fixed relation with the valve, resilient fingers affixed to said valve adapted to frictionally engage the cover and to hold the same with its associated parts in fixed relation with the valve.

10. In an air brush comprising a container, a removable cover therefor having peripheral ribbed portions, a vertical and a horizontal tube having fixed relation with the cover, both tubes disposed in a manner on said cover so as to cooperate in delivering a liquid from the container in the form of a spray, an enlarged end portion on the horizontal tube formed to comprise a socket, a valve having an inlet and an outlet portion, said outlet portion adapted to fit within the socket of the horizontal tube, spring clips in fixed relation with the valve adapted to act in conjunction with peripheral ribbed portions on the cover in frictionally holding the valve and its associated parts in effective relation with means on said cover for spraying a liquid from the container, operating means for said valve, a handle on the valve adapted to act as a support for the container.

11. In an air brush comprising a container, a removable cover therefor having annular ribbed portions, a vertical and a horizontal tube having fixed relation with the cover, said vertical and horizontal tubes adapted to spray a liquid in the container by means of air passing through said horizontal tube, a socket formed on the horizontal tube adapted to interlock with an outlet portion on a valve, a normally closed and manually operated valve, an inlet and an outlet portion on the valve, resilient clamps in fixed relation with the valve for frictionally holding the valve and its associated parts in effective relation with the cover, means for adjusting the tension on the resilient clamps, a handle on the valve adapted to form a support for the container to stabilize the same.

12. In an air brush comprising a con-

tainer, a removable cover therefor, having annular ribbed portions, means associated with said cover adapted to deliver the contents of said container in the form of a spray, of a valve secured to a handle, an inlet and an outlet portion on said valve and means associated with said valve for frictionally engaging the cover adjacent to said annular ribbed portions to hold the outlet portion on said valve in effective relation with said spraying means.

Signed at Brooklyn in the county of Kings and State of New York this 14th day of March A. D. 1921.

WERNER F. ROTHERMUND.