Nov. 1, 1927. 1,647,918

N. W. KREUDER

SPRAYING DEVICE

Filed June 12, 1926

Fig. 1.

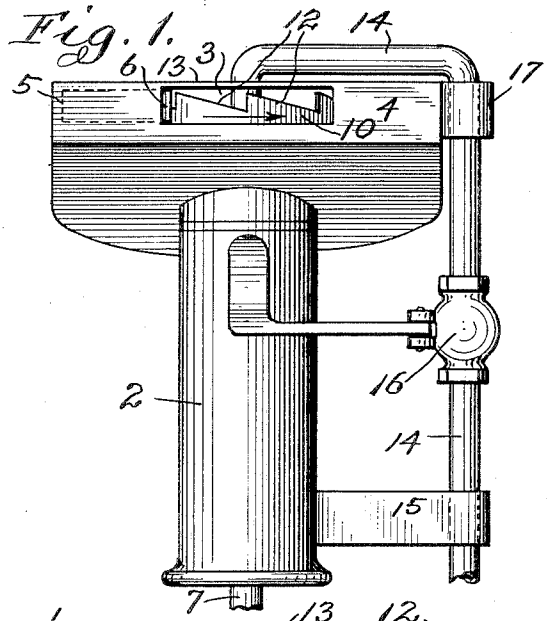


Fig. 3.

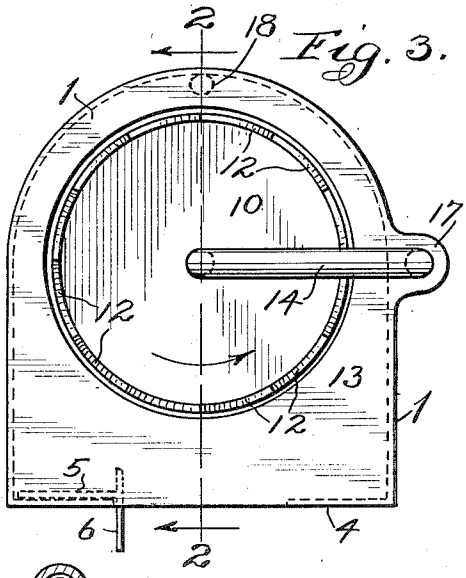
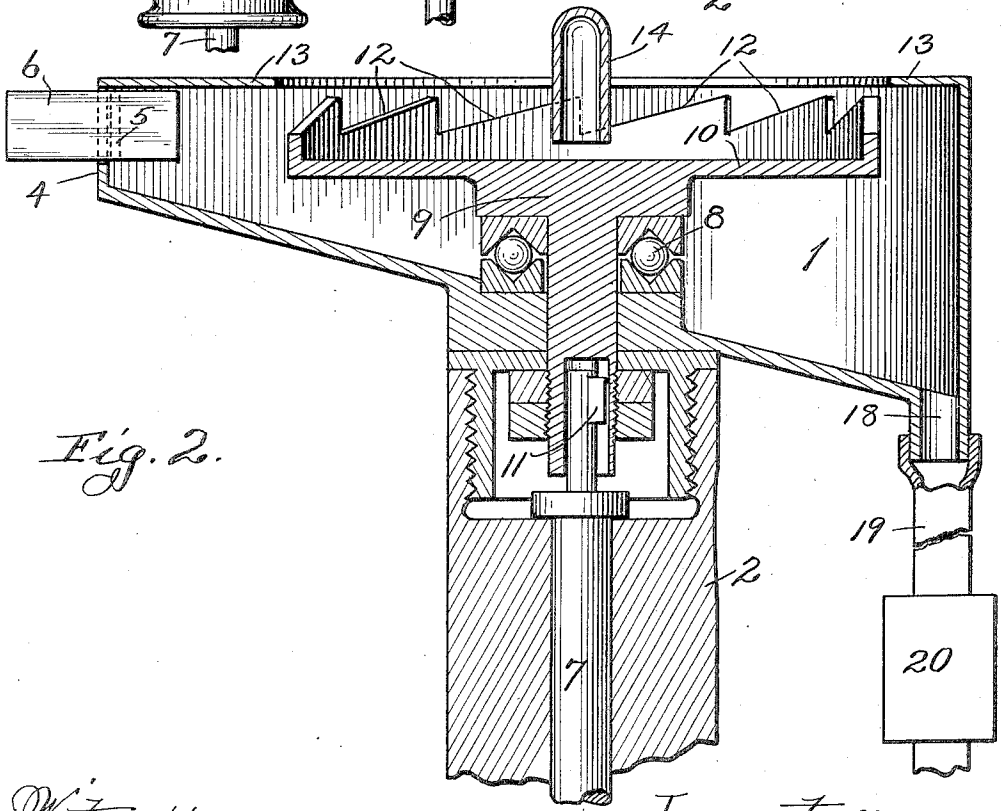


Fig. 2.



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UNITED STATES PATENT OFFICE.

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SPRAYING DEVICE.

Application filed June 12, 1926. Serial No. 115,492.

My invention relates to devices for spraying such liquids as paints, lacquers, stains and varnishes, and consists in the novel and useful organizations and constructions herein described and then pointed out in the appended claims.

In the accompanying drawings, which illustrate a practical embodiment of my present invention and in which the same reference numerals indicate similar parts in the different figures, Fig. 1 is a view in elevation at the discharge side of the device;

Fig. 2 is a view partly in elevation and partly in vertical section on the line 2—2 in Fig. 3 and

Fig. 3 is a top plan view.

In the form here shown the reference numeral 1 indicates a cylindrical shell or casing forming a shallow cup-shaped receptacle and having a suitable standard or handle 2 secured to its base and a radial elongated outlet or exit 3 in the upper portion of its vertical wall. In practice it is preferable to have the outlet 3 extend in a straight line, and for this purpose the discharge side of the casing in the form here shown is extended laterally and a section or portion 4 of its vertical wall sufficient to accommodate a straight outlet is disposed in a line at a right-angle to the longitudinal center of the casing. The length of the outlet is controlled by a valve which in the form here shown is a plate 5 slidably mounted on the wall 4 and has a hand-piece 6 projecting through the outlet. The handle or standard 2 is provided with a central bore in which a flexible drive-shaft 7 is revolubly mounted, and the handle supports a ball-bearing 8 at its upper end in the casing upon which the base 9 of a revolving cup 10 is mounted; the shaft 7 has a suitable coupling 11 at its upper end by which it is connected to the spindle of the base 9. The diameter of the cup 10 is less than that of the casing 1, and the rim of the peripheral wall of the cup is formed with radial discharge passages along its edge as indicated at 12 in line with the outlet 3. The casing is provided with a cover 13, and the material to be sprayed is supplied to the hollow cup 10 by a feed pipe 14 which is supported in a bracket 15 on the handle 2 and communicates with a supply of paint or other liquid under pressure. The pipe 14 is controlled by a suitable valve 16 of any appropriate form, and its upper portion passes through a bearing 17 on the casing and extends to the center thereof and thence down centrally into the revolving cup 10. The bottom of the casing is provided with a drain 18 which is connected by a flexible return pipe 19 to a suitable suction device 20 to draw out of the casing and return to its supply source all the liquid that is discharged by the cup into the casing, the floor of the latter being suitably inclined to cause the liquid in the casing to flow to the drain 18.

When the shaft 7 is rotated it revolves the cup 10 in the direction of the arrow in Fig. 1, and when the control-valve 16 is opened more or less the material to be sprayed is fed to the cup and sprayed by its centrifugal action in a continuous sheet over its top edge or rim, and that portion of the material so sprayed by the cup at the outlet 3 passes through the latter in a continuous stream, while the unused portion of the material is gathered up by the casing and drawn off through the suction pipe 19 and returned to its source of supply. The discharge passages 12 preferably are indentations or depressions in the rim or edge of the peripheral wall of the cup extending more or less toward its bottom to enable the fluid to be sprayed out in a relatively thick sheet instead of in a thin line as it would be by a plain edge or rim, and they are preferably elongated circumferentially or in the direction of the rotation of the cup and are of such length in relation to the length of the outlet 3 as to enable a plurality of the passages to register with the outlet, so that when the cup is rapidly revolved the fluid is sprayed through the outlet in a continuous stream or sheet of a width corresponding to the length of the outlet 3 and of a depth or thickness corresponding to the depth of the passages 12. In practice these passages preferably are stepped or waved with their leading ends deeper than their rear ends, but not extending below the bottom of the outlet 3; they spray a uniformly thick sheet or stream of material as the greater part of the fluid passes out at and along their vertical or leading edges. The depth of the passages may be varied to regulate the thickness of the stream, and the length of the outlet 3 may be varied by its valve 5 to regulate the width of the stream as for example to coat narrow surfaces of different widths; the hand-piece 6 of valve 5 may extend into the casing to form an inner shield

as shown in Fig. 3 to prevent excess material passing through the leading end of the outlet. Various changes in form and dimensions of parts may be made. While the device is particularly effective in spraying liquids for painting or coating purposes it may be employed for spraying oil and liquid fuel for combustion.

I claim:

1. In a device of the class described, a casing having a radial outlet, a fluid supply-pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having radial discharge passages in the rim of its wall in line with the outlet, and means to rotate the cup.

2. In a device of the class described, a casing having a radial outlet, a fluid supply-pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having circumferentially elongated discharge passages in the rim of its wall in line with the outlet, and means to rotate the cup.

3. In a device of the class described, a casing having a radial outlet, a fluid-supply pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having stepped circumferentially elongated discharge passages in the rim of its wall in line with the outlet, and means to rotate the cup.

4. In a device of the class described, a casing having a radial outlet, a fluid-supply pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having a plurality of radial discharge passages in the rim of its wall in register with the outlet, and means to rotate the cup.

5. In a device of the class described, a casing having a vertical wall formed with a straight section having an outlet, a valve controlling the outlet, a fluid-supply pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having a plurality of radial discharge passages in the rim of its wall in register with the outlet, means to rotate the cup, and a suction pipe to drain the casing.

6. In a device of the class described, a casing having a vertical wall formed with a straight section having an elongated outlet, a valve controlling the length of the outlet, a fluid-supply pipe, a rotatable discharging cup having a peripheral wall in the casing communicating with the supply-pipe and having radial discharge passages in the rim of its wall in line with the outlet, and means to rotate the cup.

In testimony whereof I hereto affix my signature.

NORMAN W. KREUDER.