Sept. 8, 1931. W. HERMANN 1,822,622

SPRAYING DEVICE FOR SPRAYING PAINTS, VARNISHES, ETC

Filed April 28, 1928 2 Sheets-Sheet 1

Fig. 1.

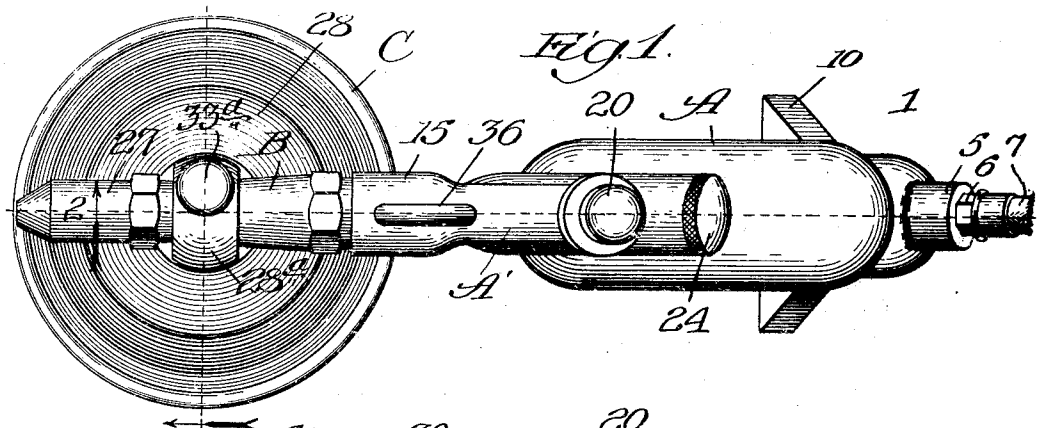
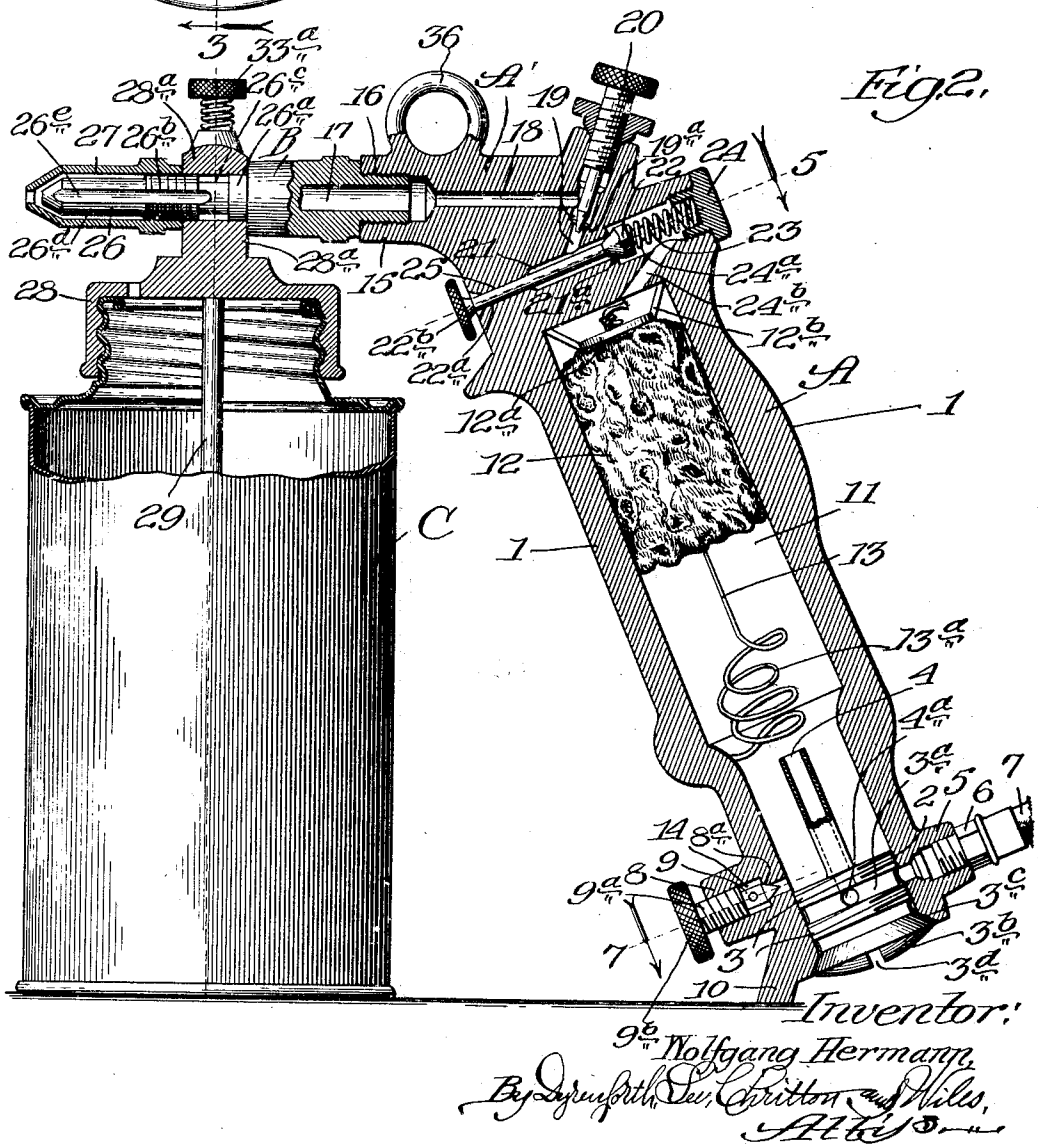


Fig. 2.



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Fig.6.

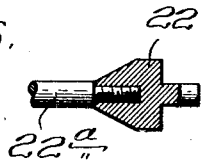


Fig.3.

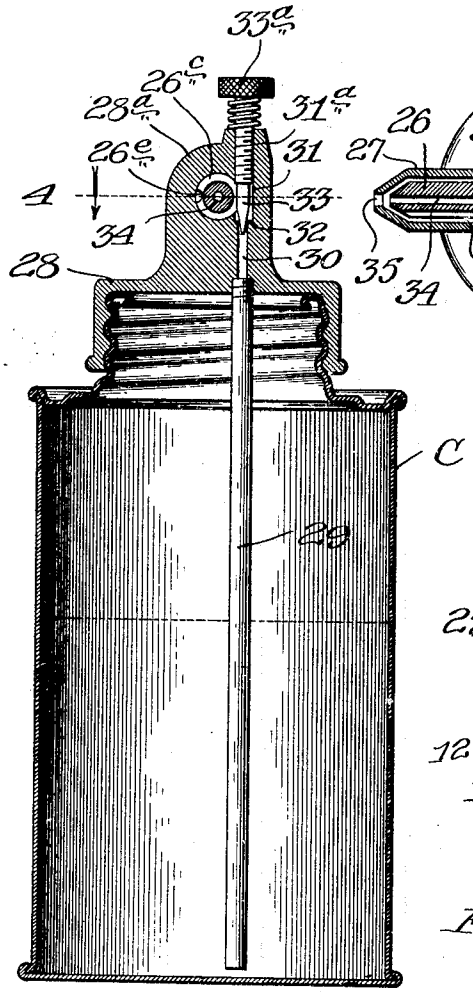


Fig.4.

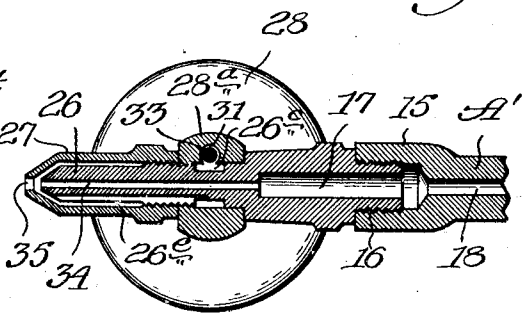


Fig.5.

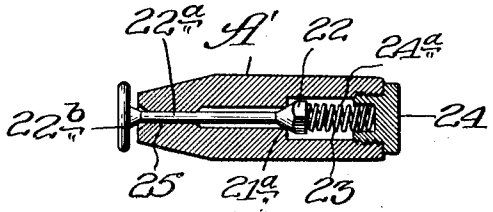


Fig.8.

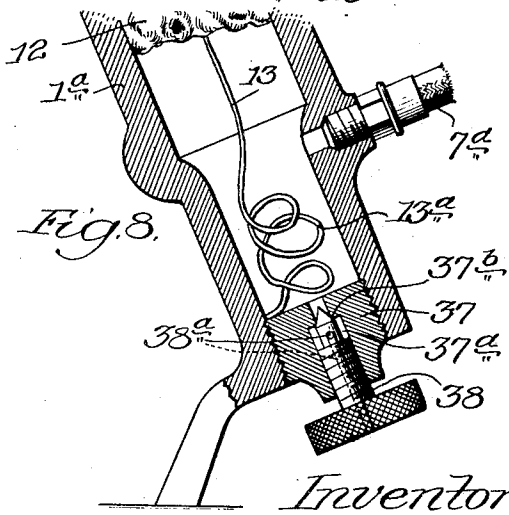
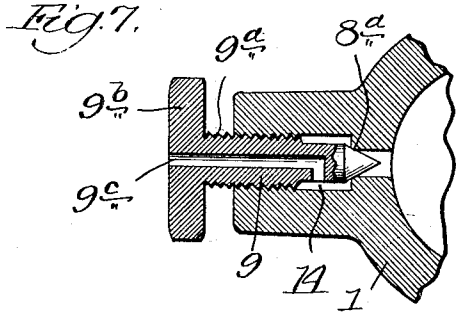


Fig.7.



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1,822,622

UNITED STATES PATENT OFFICE

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SPRAYING DEVICE FOR SPRAYING PAINTS, VARNISHES, ETC.

Application filed April 28, 1928. Serial No. 273,724.

This invention relates particularly to a spraying device adapted to be supplied with compressed air through a flexible hose leading from a suitable source of supply.

The primary object is to provide a simple and cheap device which is adapted to the purpose of spraying paints, lacquers, etc. and which is equipped with means for separating water and oil from the air.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which—

Fig. 1 is a plan view of the improved spraying device; Fig. 2, a vertical sectional view taken as indicated at line 2 of Fig. 1; Fig. 3, a vertical sectional view taken as indicated at line 3 of Fig. 1; Fig. 4, a broken plan sectional view taken as indicated at line 4 of Fig. 3; Fig. 5, a sectional view taken as indicated at line 5 of Fig. 2; Fig. 6, a broken detail view of the valve shown in Fig. 5; Fig. 7, a broken sectional view taken as indicated at line 7 of Fig. 2; and Fig. 8, a broken sectional view, showing a modification.

In the preferred embodiment illustrated, the device comprises a hollow handle A having its upper end equipped with an integral head A′; a nozzle B detachably connected with the head A′; and a can, or receptacle, C depending from the nozzle and spaced a short distance in front of the handle.

The handle is of general tubular form, but shaped to conform properly to the hand, a grip-portion 1 being provided. At the lower end the handle is provided with a tapped opening 2 into which is screwed a plug 3, the threaded portion of the plug being provided with a peripheral channel 3^a, which interrupts the threads. At its inner end the plug is equipped with a tube 4 whose upper end is open and whose lower end communicates with a passage 4^a which opens into the annular passage 3^a. At the rear side of the lower portion of the handle is a tubular boss 5 which is tapped to receive the threaded end of a nipple 6 with which is connected the air hose 7. Air can thus pass through the hose into the annular passage 3^a, and thence through the tube 4 into the handle.

At the front side of the base-portion of the handle is a hollow boss 8 provided with a valve-seat 8^a. A needle-valve 9 engages said valve-seat. The shank 9^a of the needle-valve has threaded connection with the boss 8, and said shank is equipped with a knurled head 9^b.

The handle is also provided at its base-portion with a foot, or support, 10, which, in connection with the can C, serves to support the device on a table, when desired.

Within the chamber 11 of the handle is confined a loose packing 12 which may be of cotton batting, or sponge, or the like. This should be loose enough to permit air to pass upwardly and of proper character to absorb any moisture which may be carried thereinto by the air. The moisture and any oil and impurities which may be carried with it drain back into the bottom of the handle. The packing, or loose wadding plug, 12 bears at its upper end against a disk 12^a which is shown provided with lugs 12^b adapted to prevent the wadding from being forced against the upper end of the chamber 11. A small cord 13 is connected with the disk and extends downwardly through the central portion of the packing. The lower end of the cord is shown forming the coil 13^a. The cord is of sufficient length to enable the end to protrude through the lower end of the handle when the plug 3 is removed. The packing can then be withdrawn from the handle and cleaned, or a fresh packing may be inserted.

The valve 9 which guards the ejection port is, as shown in Fig. 7, provided with a passage 9^c which extends longitudinally through the valve-stem and opens laterally into the annular space 14 above or outside the valve-seat 8^a. When the valve is partially unscrewed, the air pressure will force from the lower portion of the handle any liquid which may collect therein in the space around the air-tube 4. In practice, the liquid will not be allowed to accumulate to such a height that it will be necessary for the air to pass through the liquid.

The head A′ of the handle terminates in an integral interiorly threaded socket 15 into which is screwed the threaded shank 16 of the nozzle B. The nozzle B is provided with a

central passage 17 which communicates with a passage 18 leading through the head A′ and intercepting a passage 19 which is provided with a valve-seat 19ª. A needle-valve 20 (reducing valve) at the junction of the handle A and the head A′ coacts with the valve-seat 19ª to regulate precisely the passage of the air to the nozzle.

The lower end of the passage 19 communicates with a passage 21 which is equipped with a valve-seat 21ª. A needle-valve 22 is adapted to seat against the valve-seat 21ª. Back of the needle-valve is a coil-spring 23 whose outer end is received in a socket with which a removable plug 24 is provided. The plug serves to close a valve-chamber 24ª in which the spring 23 is located, air being admitted from the upper portion of the chamber 11 to the chamber 24ª through a passage 24ᵇ. The valve 22 is equipped with a forwardly and downwardly inclined stem 22ª which extends through a guide-passage 25 and which has its forward end equipped with a finger-piece 22ᵇ.

The nozzle B is provided with an inner tubular extension 26 which has a bearing-portion 26ª, a threaded portion 26ᵇ, an annular passage 26ᶜ between the parts 26ª and 26ᵇ, and a reduced extension 26ᵈ. The member 26 is provided exteriorly with a longitudinal liquid-passage 26ᵉ which leads from the annular passage 26ᶜ to the front end of the member 26. The nozzle is also equipped with an outer tubular tip-portion 27 which is interiorly threaded at its rear end and screwed onto the part 26ᵇ.

The can C is suspended by means of a cap 28 which is equipped with a ring-portion 28ª which is confined between the nozzle-tip 27 and the shank-portion of the nozzle B.

A liquid-tube 29 has its upper end screwed into a tapped countersink at the lower end of the liquid-passage 30 which extends through the cap 28 and communicates with an enlarged passage 31 which, in turn, communicates with the annular passage 26ᶜ. At the junction between the passage 30 and the passage 31 is a valve-seat 32. The passage 31 is extended and internally threaded, as indicated at 31ª. A needle-valve 33 is adapted to regulate nicely the passage of air past the valve-seat 32. The needle-valve has a threaded shank screwed into the tapped opening 31ª, and has a knurled head 33ª.

In the use of the improved device, the valve 20 is opened sufficiently to admit the desired pressure through the passage 18 to the nozzle; and the valve 33 is opened sufficiently to admit the desired amount of liquid. The blow-off valve 9 normally is closed. Air pressure is introduced into the hollow handle through the hose 7, the air passing into the annular passage 3ª of the plug 3, and thence through the passage 4ª and tube 4.

The operator presses the finger-piece, or trigger, 22ᵇ, thus unseating the spring-pressed valve 22 and admitting pressure to the nozzle. It will be noted in Fig. 4 that the reduced portion 26 of the nozzle has extending therethrough a central passage 34 which communicates with the passage 17. Thus, the air passes centrally through the nozzle and escapes through a passage 35 with which the nozzle-tip 27 is provided. Passing of the air creates a suction through the passage 26ᵉ, so that liquid is drawn up through the tube 29 into the annular passage 26ᶜ and passes thence to the tip of the nozzle, where it is atomized.

Any liquid, such as water and small amounts of oil is trapped in the hollow handle and collects in the lower end thereof around the tube 4. It is noted, however, that the air can pass through the tube 4 without agitating the liquid collected in the lower end of the handle. When desired, the blow-off valve 9ª may be unscrewed sufficiently to permit the liquid to be blown out therethrough.

The plug 3 is shown provided at its outer end with a head 3ᵇ having a conical surface 3ᶜ which fits closely within a conical seat. The plug is provided with a slot 3ᵈ, enabling a screw-driver to be applied to remove the plug when necessary. Removal of the plug permits the loose-packing plug 12 to be withdrawn by means of the cord 13. Thus, the packing can be cleansed and reinserted; or a fresh packing can be introduced.

The present invention renders unnecessary the use of a separate trap or oil and water separator at another point in the line. Thus, an extremely simple and cheap spraying device is provided which can be used in connection with any pressure supply source which thus does not need to be equipped with an oil and water separator. This enables the improved device to be used in many places, such as garages, supply stations, etc., equipped with air-pressure tanks and compressors, but not equipped with liquid-separators.

The head A′ of the handle is of angular form, as shown. The handle and its head preferably are cast integrally; and the head preferably is equipped with a ring 36 by means of which the spraying device can be hung upon a hook.

In the modification shown in Fig. 8, the air-hose 7ª is attached some distance above the lower end of the handle 1ª; and the lower end of the handle is closed by a removable plug 37 (which takes the place of the plug 3) and is provided with an axial bore, or passage, 37ª which has a valve-seat 37ᵇ. A valve 38 normally closes the passage, the stem of said valve having screw connection with the plug. The valve has a passage 38ª through which trapped liquids and sediment may be blown when the valve is unscrewed slightly.

The foregoing detailed description has

been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In a spraying device, a handle having a bore and an angular head equipped with nozzle-attaching means and provided with a passage leading therefrom to the upper portion of said bore, said passage being equipped with a valve-seat, a spring-pressed finger-retracted valve normally engaging said seat, a removable plug connected with the lower end of said bore and equipped with an air passage, a hose connected with the base-portion of said handle and communicating with said air passage, a packing in said bore removable through the lower end thereof when the plug is removed, and a blow-off valve connected with the base-portion of said handle above said plug, said packing being spaced above the air passage in said removable plug and above said blow-off valve.

2. In a spraying device, a handle provided with a chamber and above said chamber with nozzle-attaching means and with a passage leading from the upper portion of said chamber through the nozzle-attaching means; a removable plug connected with the lower end of said chamber and equipped with a drain-valve; an air hose connected with the base-portion of said handle and communicating with said chamber; and a packing in the upper portion of said chamber removable through the lower end thereof when said plug is removed.

3. A device as specified in claim 2, in which the upper portion of the handle is equipped with a spring-closed finger-retracted valve controlling said passage.

4. A device as specified in claim 2, in which the air hose communicates with said chamber at a distance above said removable plug.

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