

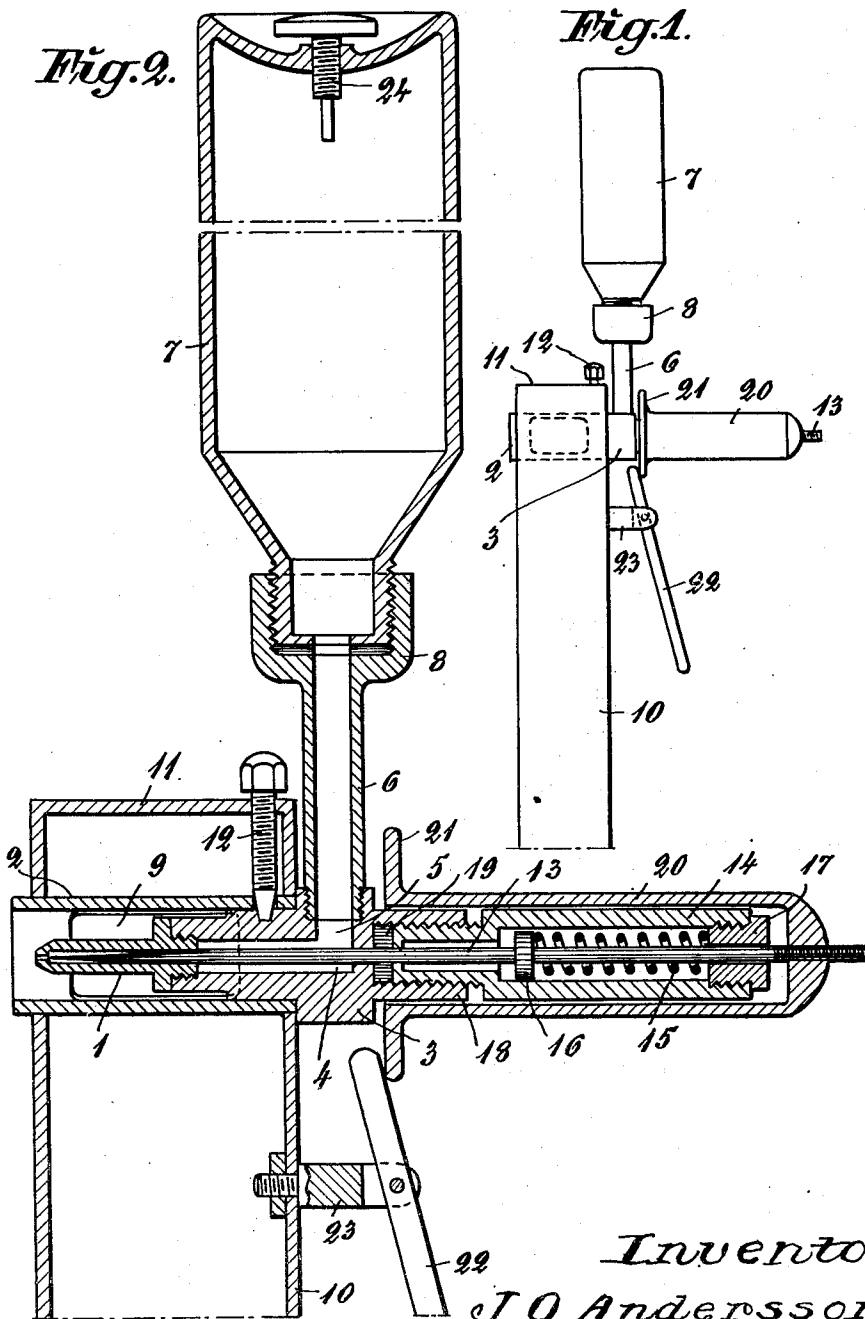
Sept. 30, 1952

J. O. ANDERSSON  
PAINT SPRAYING DEVICE

2,612,404

Filed Sept. 20, 1949

2 SHEETS—SHEET 1



Inventor  
J. O. Andersson  
By *Glasgow Downing & Co.*  
Attys.

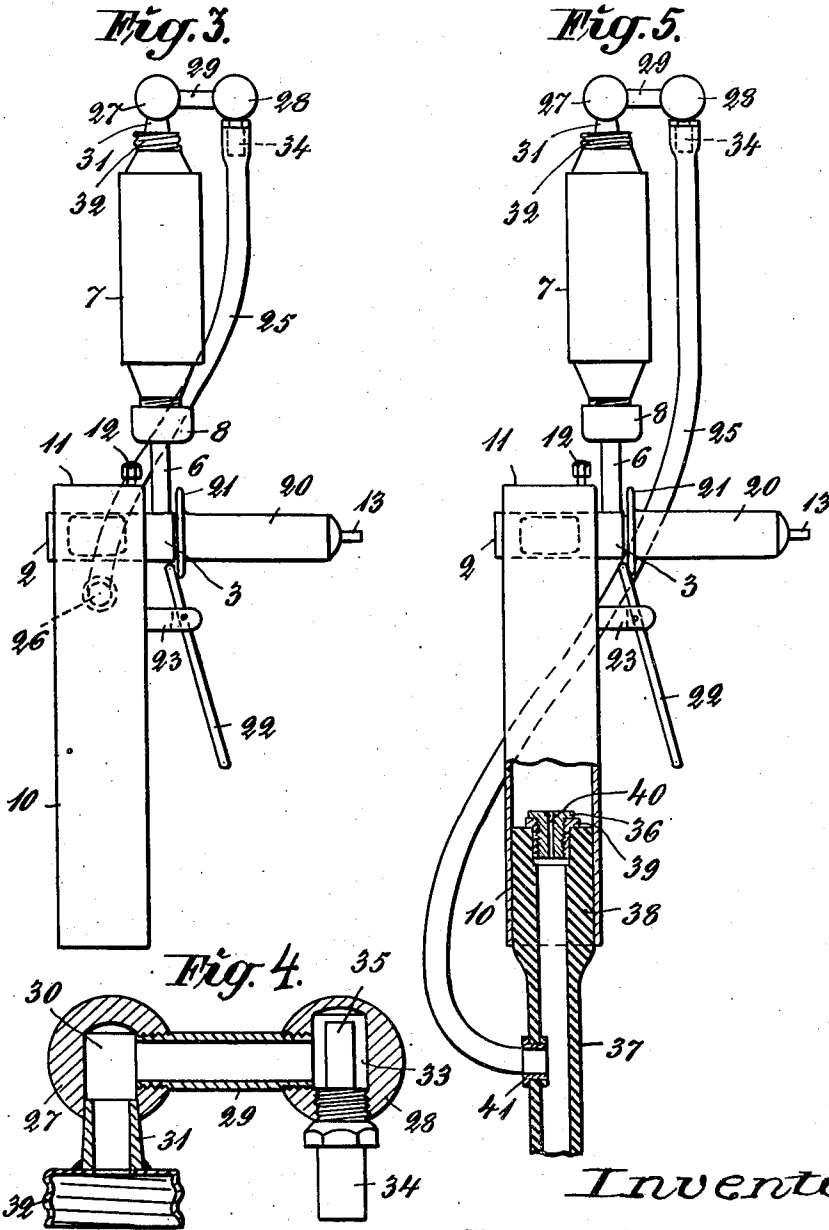
Sept. 30, 1952

J. O. ANDERSSON  
PAINT SPRAYING DEVICE

2,612,404

Filed Sept. 20, 1949

2 SHEETS—SHEET 2



Inventor  
J. O. Andersson  
By *Gleason Downing Reilly*  
Attys.

# UNITED STATES PATENT OFFICE

2,612,404

## PAINT SPRAYING DEVICE

John Olle Andersson, Ektorp, Sweden

Application September 20, 1949, Serial No. 116,832  
In Sweden September 21, 1948

2 Claims. (Cl. 299-89)

1

The present invention refers to paint spraying devices of the type comprising a holder provided with a handle and adapted as a carrier of the paint and air nozzles, a paint valve, a valve operating member arranged on said handle, and members arranged on the nozzle holder and adapted to actuate the valve. The object of the invention is to provide a simple and inexpensive construction of a paint spraying device of the type in consideration adapted to be coupled to a vacuum cleaner operating as an air compressor. To this end, the handle is arranged, according to the invention, on the fore end of the nozzle holder, and is formed as a tubular supply conduit for the air, while being suitably combined with the air nozzle, in a manner such that the latter forms a tube extending through the handle in the transverse direction thereof, said tube being removably arranged together with the handle on the nozzle holder.

However, the invention is not confined to the use of the paint spraying device in connection with a vacuum cleaner, inasmuch as it permits of being employed to advantage also in connection with other sources of compressed air for relatively low pressures.

The invention is illustrated in the accompanying drawings, which show a form of embodiment of the paint spraying device. Fig. 1 is an assembly view of the paint spraying device, and Fig. 2 shows a vertical section through the same to a larger scale. Fig. 3 is an elevation of an arrangement for providing a pressure above atmosphere in the paint container of a paint spraying device according to the invention. Fig. 4 is a cross section of a detail. Fig. 5 is a partly sectioned elevation of a modified construction of the arrangement according to Fig. 3.

As will appear from Fig. 1, the paint spraying device is provided with a paint nozzle 1 and an air nozzle 2, which are concentrically arranged on the fore end of a nozzle holder 3. The paint nozzle is screwed into a bore 4, the inner end of which opens into a vertical bore 5 having a paint supply tube 6 screwed into the same. In the example shown, the paint is supplied from a bottle-like container 7, the neck portion of which is screwed into the enlarged end 8 of the tube 6. When the paint spraying device is kept in the normal operating position shown in the drawing, the tube 6 and the container 7 take a vertical position.

The air nozzle 2 consists of a cylindrical sleeve arranged on the fore end of the nozzle holder 3, said sleeve being provided with two registering

2

inlet openings 9 for the air, through which the air nozzle communicates with the interior of the tubular handle 10, which constitutes the supply conduit for the air. The air nozzle is tightly fitted into two diametrically located registering apertures in the cylindrical wall of the handle, and is preferably rigidly connected with the handle. It is located at some distance from the end wall 11 of the handle, so that the air will have free access to the air nozzle from all sides. After the air nozzle 2 and the handle 10 have been arranged on the nozzle holder, they are locked to the latter by means of a screw 12 threaded into the end wall 11 and entering with the point thereof into recesses provided in the air nozzle and in the nozzle holder.

The paint valve consists of a needle valve, the spindle 13 of which extends through the paint channel 4 and through an aperture in the nozzle holder 3, and further through a spring housing 14 containing a return spring 15 threaded onto the spindle, said spring bearing at one end thereof on an abutment 16 on the spindle and at the other end thereof on a plug 17 screwed into the cylindrical spring housing. The spring housing is screwed into a rear extension 18 of the nozzle holder, and the inner end of the spring housing bears on a packing 19 to tighten the passage opening of the spindle in the nozzle holder. Screwed onto the threaded end of the spindle 13 located outside the spring housing is a cylindrical sleeve 20 surrounding the spring housing and provided at the opposite end thereof with an annular flange 21. The valve is opened by means of an operating contrivance arranged on the handle and taking the form of a double-armed lever 22 which is pivotally arranged on a bracket 23 secured to the rear side of the handle. The longer lever arm is intended to be actuated by the same hand by which the paint spraying device is grasped at the handle 10. When the lever is pressed inwardly toward the handle, the shorter lever arm acts upon the annular flange 21, so that the sleeve 20, and consequently, the valve spindle will be displaced rearwardly against the action of the spring 15, the valve being thus opened. When the lever arm 22 is released, the valve is closed by the spring 15. The magnitude of the opening movement is limited by the lever arm 22 abutting against the handle 20. The opening movement may be varied, however, by the sleeve 20 being turned on the threaded portion of the spindle 13, the annular flange 21 being thus adjusted in the axial direction. By means of this contrivance the stopping position

of the valve movement may be controlled so that a predetermined quantity of paint will be ejected, when the lever 22 takes its extreme pressed-in position.

In known paint spraying devices of the gun type it is consistent with common practice to make the valve operating contrivance in the form of a trigger arranged on the front side of the handle. Obviously, such a contrivance may also be employed in the paint spraying device as described, but in that case special motion transmitting members in the form of displaceable rods or the like will have to be arranged for the actuation of the sleeve 20 and the valve needle. However, the provision of such motion transmitting members involves a complication of the construction, the arrangement as described being thus preferable.

After the upper portion of the paint container has been brought into communication with the atmosphere through the removal of a threaded plug 24, the paint is supplied from the container 7 at a pressure corresponding to the level of the liquid above the nozzle. When required, this head may be increased by the substitution of a longer tube for the tube 6. The head may also be varied by an adjustment of the paint container, for instance by keeping the paint spraying device in various positions of inclination or by tilting the paint container relatively to the spraying device, for which purpose the tube 6 may be provided with a joint. The provision of such a joint also facilitates spraying in a vertical direction. The spraying device may also be turned in its entirety relatively to the handle, or, the handle may be turned about the sleeve 2, the handle permitting thus of being locked in different angular positions by means of the screw 12.

As stated, the paint spraying device is primarily adapted to be connected to a vacuum cleaner with the use of the vacuum cleaner as an air compressor in known manner. The air tube of the vacuum cleaner is connected to the lower end of the tube 10 having a diameter fitting to the nozzle tube of the hose. Since the air pressure obtainable in this way is relatively low, the air nozzle will have to be fed with comparatively large quantities of air, which is rendered possible by the handle being made to the form of a tube of a large diameter and by the air nozzle being given a sufficiently great internal width. The construction and the arrangement of the handle and the nozzles shown in the drawings have proved very suitable for the effectuation of a sufficiently powerful paint jet in spite of the low air pressure.

Through the construction and arrangement of the various parts of the paint spraying device as described the latter may easily be taken apart for cleaning. Thus the handle with the air nozzle may be removed by the loosening of the screw 12. Furthermore, the sleeve 20 and the spring housing may be screwed off and be removed from the nozzle holder 3 together with the spindle 13. After the paint container and the tube 6 have been removed, the paint carrying parts 1 and 3 are directly accessible for cleaning.

If desired, the air nozzle may be rigidly connected with the nozzle holder or with the handle.

In the construction according to Fig. 3, the paint container 7 is connected through a rubber tube 25 to an opening 26 in the handle 10, which forms a supply conduit for the air. The tube is connected to the upper portion of the paint container through a contrivance shown in section and to a larger scale in Fig. 4. It consists of two

ball-shaped members 27, 28 provided with bores and interconnected by means of a tubular piece 29 having the ball-shaped members 27, 28 threaded onto the ends thereof. The member 27 is provided with a bore 30 extending at right angles to the tube 29, the outer end of said bore being conically enlarged so as to fit to a conical pipe socket 31, on a threaded cover 32, screwed onto the upper end of the paint container. The member 28 is likewise provided with a bore 33 extending toward the tube 29, the lower end of said bore having a hose nipple 34 threaded into the same. The nipple has a tubular extension 35 extending upwardly to the upper end of the bore.

With the aid of the contrivance described, the requisite pressure may be maintained in the paint container, and the paint liquid will stand under a pressure above atmospheric, which is equal to the superatmospheric pressure of the air in the supply conduit, which pressure is sufficient to ensure the requisite pressure of the paint liquid also in such positions of inclination of the paint container wherein the head of the liquid is comparatively small. While maintaining the paint container 7 in the position of adjustment relatively to the handle as shown in the drawing, the paint spraying device may be inclined, when used, in the vertical plane of the paint spraying device extending through the axis of the nozzle as well as in a plane at right angles thereto. When operating in such positions of inclination wherein the paint might flow out into the hose 25, the connections 27, 28, 29 is turned about the pipe socket 31 so that the member 28 will take a position higher than that of the member 27. Said extension 35 of the nipple 34 provides further safety against the paint flowing out into the hose 25. Obviously, the connecting means 27, 28, 29 may serve the same purpose in such cases of employment where the paint container 7 is adjusted into different angular positions relatively to the handle 10 by the turning of the handle and the nozzles, respectively, about the nozzle axis, as described with reference to Figs. 1 and 2.

When required, the hose connection may be readily dismantled by the removal of the connecting means 27, 28, 29 from the pipe socket 31, which may then be closed by means of a plug. For the same purpose the lower end of the hose is preferably removably inserted into the opening 26 in the handle.

The modification shown in Fig. 5 is adapted to be brought into service in such cases where a pressure reducing valve 36 is connected into the air supply conduit, the hose 25 being then connected to the air supply conduit at a point of the conduit located in front of said valve 36. In the example shown, the air is introduced into the handle through a hose 37 thrust with the enlarged end portion 38 thereof into the lower end of the handle. Inserted into said enlarged portion is an internally threaded sleeve 39 permitting valves or nozzles having air passages 40 of varying widths to be inserted into the same to attain a suitable pressure in the upper portion of the handle connected to the nozzles, said upper portion of the handle thus permitting a pressure therein higher than that of the hose 37. The hose 25 is connected to the hose 37 by means of a rubber member 41 so as to permit of being loosened, when required.

What is claimed is:

1. A paint spraying device, comprising a paint and air nozzle holder, a tubular handle attached to the nozzle holder and forming an air supply

5

conduit, a paint nozzle on the fore end of the nozzle holder, a paint valve, a valve operating device on the handle, valve actuating means including a spring housing attached to the rear end of the nozzle holder, a tubular air nozzle attached to the nozzle holder and projecting transversely through the tubular handle, a paint container mounted on the nozzle holder, an elastic conduit forming a connection between the paint container and the interior of the handle for maintaining a pressure above atmospheric in the paint container, and a tube connecting the elastic conduit with the upper portion of the paint container, said tube extending radially of the paint container and being rotatable about the longitudinal axis of said container.

2. A paint spraying device as claimed in claim 1,

6

in which the tube is removably connected to a pipe socket coaxial with the paint container.  
JOHN OLLE ANDERSSON.

## REFERENCES CITED

The following references are of record in the file of this patent:

## UNITED STATES PATENTS

Number	Name	Date
1,603,612	Krautzberger	Oct. 19, 1926
1,766,503	Brinkenmaier	June 24, 1930
2,196,800	Krautzberger	Apr. 9, 1940
2,401,504	Paasche	June 4, 1946

## FOREIGN PATENTS

Number	Country	Date
523	Great Britain	1909