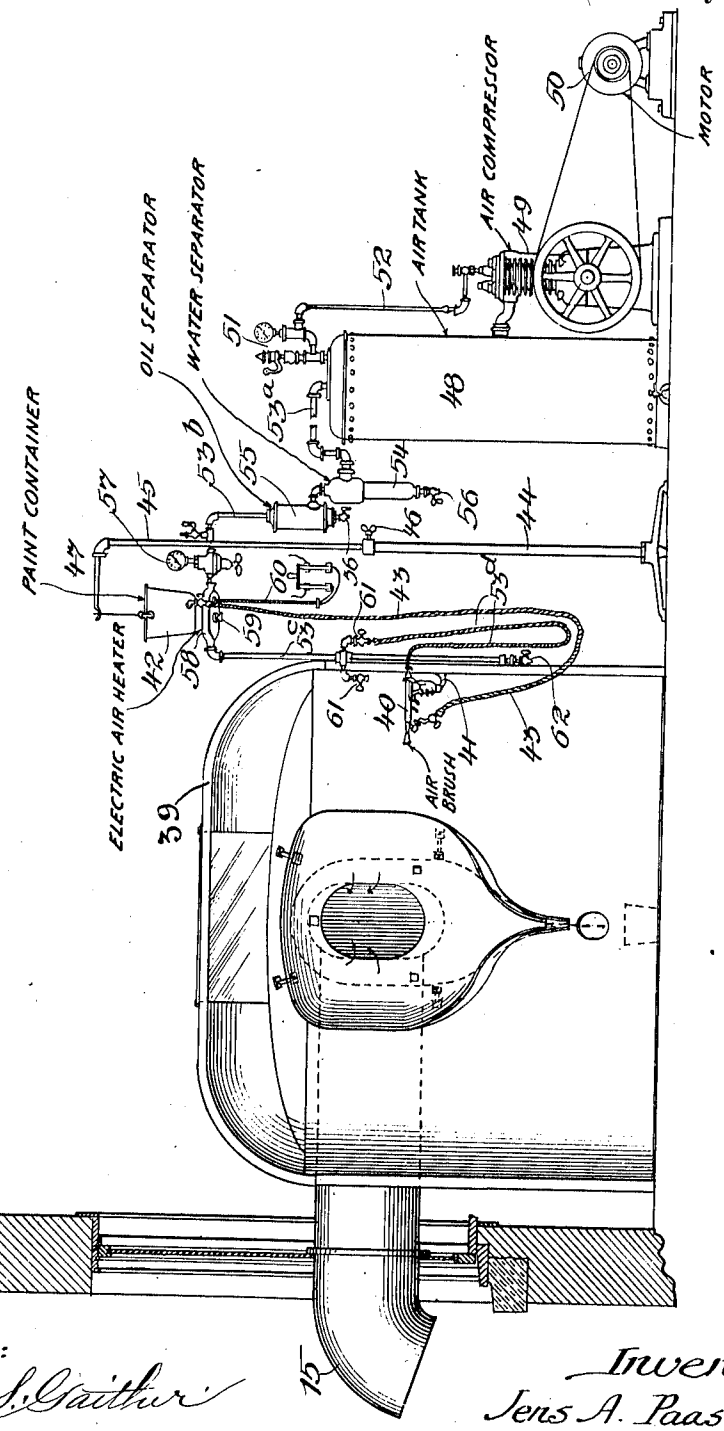
J. A. PAASCHE.

PNEUMATIC COATING APPARATUS.

APPLICATION FILED SEPT. 23, 1915.

1,311,839.

Patented July 29, 1919.



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UNITED STATES PATENT OFFICE.

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PNEUMATIC COATING APPARATUS.

1,311,839. Specification of Letters Patent. Patented July 29, 1919.

Application filed September 23, 1915. Serial No. 52,139.

To all whom it may concern:

Be it known that I, JENS A. PAASCHE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pneumatic Coating Apparatus, of which the following is a specification.

This invention contemplates the provision of a unitary pneumatic coating apparatus by which ordinary house paints, varnishes, lacquers, bronzes and other coating materials may be applied to articles of manufacture or the like in a manner which is at once rapid and convenient, as well as effective and satisfactory in the finish attainable.

The invention aims to provide an apparatus by which a smooth and satisfactory coating may be applied to large articles, such for example, as furniture, and which will result in a saving in coating material, in a saving in the time of the workmen, and in a smoother and more desirable finish with less work.

One of the objects of the invention is to provide a pneumatic coating apparatus wherein the air to be supplied to the brush is treated and warmed, and the coating fluid for the brush is heated, before arriving at the brush, so that the coating material will be perfectly atomized and will be applied to the article in a smooth, thin and uniform layer.

The invention also has reference to the arrangement and relative positions of the different elements of the air and paint-supplying means with a view to arriving at the maximum facility, as well as effectiveness, in operation.

The accompanying drawing is an elevational view, a portion of which has been made somewhat diagrammatic for the sake of clearness, illustrating a pneumatic coating apparatus embodying the features of my invention.

The preferred embodiment of my invention is represented in the drawing and will be herein described in detail, without any intention, however, of limiting the invention to the embodiment disclosed, the scope of the invention being pointed out in the appended claims.

The apparatus in its preferred form comprises an air brush by which the coating material is applied to the article, an elevated coating-material container from which the air brush is supplied with coating material, an air storage tank supplied by a motor-driven air compressor, a conduit connection between said tank and the air brush for supplying the latter, an oil separator and a water separator in said conduit connection, and an electric heater in said connection for warming the air, said heater being also arranged to warm the coating material in its elevated container.

The article to be coated is preferably placed in a booth 39 which is provided with a conduit and exhausting means for drawing air and vapor from the booth so as to prevent the paint vapor from spreading about the room. The construction of this booth and exhausting means forms the subject matter of a copending application.

The air brush is indicated at 40 and is preferably of the general character disclosed in my prior application No. 3863, filed January 23, 1915, upon which Patent 1,273,784 issued on July 23, 1918. The brush when not in use may be supported on a bracket 41 attached to the wall of the booth. 42 indicates a container for the coating material to be supplied to the brush, said container being connected by a flexible hose 43 with the discharge device of the brush. The container is herein shown as supported upon a vertically extensible standard 44 which comprises a base portion, a stem 45 adjustably held therein by a set screw 46, and an angular arm 47 on the upper end of the stem on which arm the paint bucket is removably hung. The supply of air for the air brush is contained in a tank 48 in which compressed air is maintained at a suitable pressure by an air compressor 49 driven by an electric motor 50. 51 indicates a pressure gage and valve device which communicates with the air tank 48 and is connected with the pump by a pipe 52. When the pressure in the tank rises to a certain point the device 51 will operate to open communication through the pipe 52 so that the air compressor will not further raise the pressure in the tank, but will merely cause a circulating flow of the air through the tank, the pipe 52 and the compressor.

The air brush is connected with the tank by a suitable conduit which is indicated as a whole by reference numeral 53. The air flows from the tank through a pipe section 53^a into a water separator 54 where any

moisture is removed from the air, and the air thence flows through an oil separator 55 for removing any oil therefrom. 56 indicates drain cocks for the separators 54 and 55. A pipe section 53^b connects the oil separator with a pressure gage 57 and an electric heater 58, said heater having an internal conduit through which the air flows whereby to warm the air. This heater forms the subject matter of my application Serial No. 57656, filed October 25, 1915. The water separator 54 may be of the well-known type which has metallic baffle plates therein to condense and collect the water vapor in the air. The oil separator 55 may also be of the well-known type having tangled shredded material therein forming a strainer through which the current of air passes. 59 indicates the switch of the heater and 60 designates an electric conductor which is adapted to connect the heater to a suitable source of electricity, as for example an ordinary light socket, in a manner well known.

As shown in the drawing the paint material container 42 is supported in proximity to, in this instance directly above, the electric heater 58 so that said container will be warmed by the heater. A pipe section 53^c extends downwardly from the heater and may be suitably supported on a wall of the booth 39. 61 indicates branch cocks of the pipe 53^c to receive one end of a flexible hose 53^a, the other end of which is attached to the air brush 40. At the extreme lower end of the pipe is another cock 62.

In applying varnishes and like coating materials with an air brush the character of the work which can be done depends largely upon the condition of the air supplied to the brush as well as the temperature and viscosity of the coating material. Moisture in the air to any material degree is fatal to good results. Oil and other foreign material is also objectionable in the air to be supplied to the brush. I have provided means for separating water, oil and the like from the air and means for thereafter heating the air before it arrives at the brush. I am therefore enabled to supply the brush with pure, dry, warm air which gives the very best results. By the arrangement for also warming the coating-material container the material is maintained at a temperature at which it will flow most freely and may be most perfectly atomized by the air. The result is that a thin uniform and smooth layer of coating material on the article may be insured.

I claim as my invention:

1. A pneumatic coating apparatus having, in combination, an air brush, a conductor for supplying air thereto, means for heating the air prior to its arrival at the brush, a receptacle for the coating material arranged in position to be warmed by said heating means, and a conductor connecting said receptacle to the brush.

2. A pneumatic coating apparatus having, in combination, an air brush, a conductor for supplying air to said brush, an electric heater associated with said conductor through which heater the air flows on its way to the brush, a support, a container for coating material removably carried by said support immediately above said electric heater whereby the container will be warmed by the heater, and a conductor connecting said container to the brush.

3. A pneumatic coating apparatus having, in combination, a device for applying coating material, means for supplying coating material to said device, means for supplying air to said device, and a single means for heating the air and the coating material before they arrive at said device.

4. A pneumatic coating apparatus having, in combination, a device for applying coating material, a container for coating material, a conductor for supplying air to said device, and a single means for heating the air in its conductor and for heating the coating material in said container.

5. A pneumatic coating apparatus having, in combination, a device for applying coating material, a container for the material, means for supporting said container in an elevated position, a conductor connecting said container to said device, a conductor for supplying air to said device, and an electric heater associated with the last mentioned conductor through which heater the air flows on its way to said applying device, said heater being positioned in proximity to said container for heating the latter.

6. A pneumatic coating apparatus having, in combination, an air brush adapted to be supported solely by the operator's hand in use for applying coated material to an article, an air storage tank, means including a flexible conductor for connecting the appropriate portion of said air brush to said tank, an elevated paint container, a flexible conductor connecting the appropriate portion of said air brush to said container, means for removing moisture from the air in its passage from said tank to the air brush, and means for heating the air prior to its arrival at the air brush.

7. A pneumatic coating apparatus having, in combination, an air brush adapted to be supported solely in the operator's hand when in use for spraying coating material upon an article, an elevated paint container, conductor means flexibly connecting the appropriate portion of said air brush to said container for supplying paint to the brush, an air storage tank, conductor means flexibly connecting the appropriate portion of said air brush to said tank for supplying air to the brush, means whereby the air and

the paint will be warmed before reaching the brush, and means for removing moisture from the air supplied to the brush.

8. A pneumatic coating apparatus having, in combination an air brush adapted to be supported solely in the operator's hand when in use for spraying coating material upon an article, a paint container connected to the appropriate portion of said air brush for supplying paint to the brush, an air storage tank, conductor means flexibly connecting the appropriate portion of said air brush to said tank and allowing free movement of the brush with the operator's hand, means for heating the air supplied to the brush, means for removing moisture from the air supplied to the brush, and means for removing oil from such air whereby the air will be pure, dry and warm when it arrives at the brush.

9. A pneumatic coating apparatus having, in combination, an air brush adapted to be supported in the operator's hand when in use for spraying coated material on an article, an elevated paint container, a flexible hose connecting said container to the appropriate portion of said air brush, an air storage tank, a conductor leading from said tank, a flexible hose connecting said conductor to the appropriate portion of said air brush, an oil separator and a water separator associated with said conductor, so that the air will pass through said separators in succession, and a heater associated with said conductor through which the air passes, whereby the air arriving at the brush will be pure, dry and warm.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

JENS A. PAASCHE.

In the presence of—
L. L. SCHULTZ,
M. F. GRUPP.