C. H. PARKIN.

AIR BRUSH.

APPLICATION FILED NOV. 29, 1915.

1,234,378. Patented July 24, 1917.

Fig I

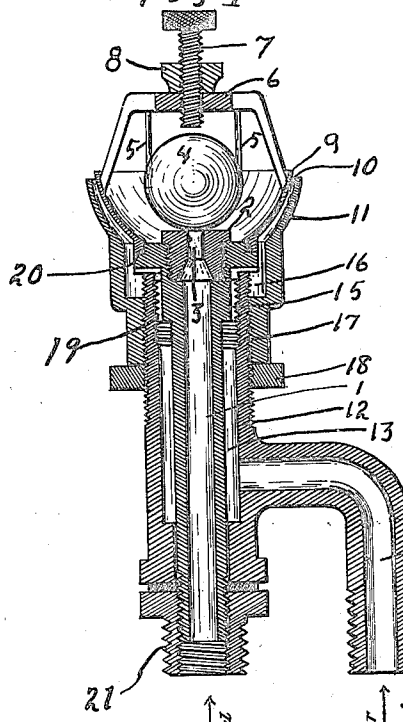


Fig II

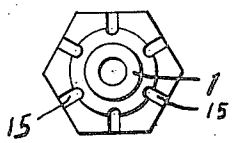


Fig III

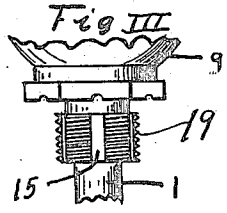
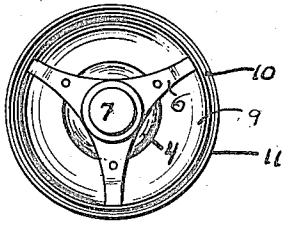


Fig IV



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. PARKIN, OF CLEVELAND, OHIO.

AIR-BRUSH.

1,234,378. Specification of Letters Patent. Patented July 24, 1917.

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To all whom it may concern:

Be it known that I, CHARLES H. PARKIN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Air-Brushes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to so-called air brushes of the type designed so as to be adapted for coating surfaces with varnishes, paint or other liquid pigment.

The object of this invention is to provide an air brush of the type set forth which in its action and operation does not atomize the varnish, paint or liquid pigment but applies it in the same manner as it is applied by the ordinary brush excepting that air under pressure is utilized and no bristles or other rubbing material are employed.

Heretofore and before this invention air brushes have been employed for the purpose of applying varnishes, paints and other liquid pigments to surfaces but the spraying and hence the atomizing process has been employed, this atomizing by air of the varnishes, some of the paints and liquid pigments has an objectionable action on the same causing the varnishes or paints to be applied in an open, broken and pervious manner, as opposed to the application when applied in its unatomized condition and hence the atomizing process is objectionable in the use of certain types of varnishes, enamel paints and the like and tends to leave the surface open and porous and flat.

This invention avoids the above objectionable features inasmuch as it eliminates the atomizing of the varnishes, paints and other liquid pigments but nevertheless applies the same to the surface in a thin even film condition and subsequently smooths and evens the same by air pressure thus applying the surface coating material in the same manner and with the same effect as though it were applied and rubbed in by a paint brush of the ordinary type.

With the above objects in view this invention consists in the means employed and the detail of construction all of which will be hereinafter fully set forth and claimed.

In the drawings, Figure I, is a vertical sectional view of a device constructed according to this invention embodying practical operative details of construction for the carrying out of this invention.

Figs. II and III, illustrate more clearly the ports through which the air passes, and

Fig. IV illustrates a top plan view of the invention showing the spider frame, spreader, deflector, air space surrounding the same and the outer flaring cup from the air tube.

In the device illustrated 1 represents an inner tube of small bore through which the coating material is fed by pressure. At the upper end of the tube 1 the bore is reduced preferably by providing a removable tip 2 having a suitable sized orifice 3 through which the coating material issues. The tip 2 is preferably surfaced flat or plane and is provided just above it with a globular or ball shaped spreader 4, the same operating loosely between suitable guides 5. The guides 5 depend from and are suspended by a suitable spider frame 6 which may be attached to the flaring mouth 9 of the inner tube hereinafter described. Mounted above the spreader 4 is an adjusting screw 7 having a nut lock 8 for the purpose of adjusting the spreader 4 in relation to the orifice 3 thus gaging the flow of coating material as may be desired or found necessary.

Located at the upper end of the inner tube 1 is an upwardly and outwardly flaring mouth or deflector 9. In the present case this is illustrated as having a curved inner wall although it may be found practical to employ a straight wall thus giving the flaring mouth the shape of an inverted truncated cone. The object of this flaring deflector is to cause the coating material to be guided by the inner walls of the deflector 9 into practically a continuous flaring film gaged in thickness by the adjustment of the spreader 4 as it issues from the orifice 3. From the above it will be seen that the coating material issues from the device in its normal unsprayed and undivided condition and in such quantities and condition as to be applied in a continuous unbroken film on the surface.

In order to sustain the coating material as it issues from the device and also for the purpose of coacting with the coating material during its application a thin film of air issues from an annular orifice 10 at the upper

end of the flaring mouth piece 9. This annular orifice 10 is so located and adjustable that it will allow a film or air to issue therefrom under pressure which completely surrounds, envelops and confines the coating material, and acts, as the coating material is applied, to first clean the surface from dust or loose particles and to then smooth and press the coating material to the surface.

The construction as is illustrated in the drawing for supplying this air pressure is to surround the inner tube by means of a tube 12 leaving an annular space 13 which has communication with air pressure means through a suitable channel 14 which is provided with an ordinary valve, (not shown). The annular space 13 communicates with ports 15, 15 and with a chamber 16, said chamber 16 being provided with a flaring mouth 11 so constructed as to be adjustable in relation to the upper portion of the flaring deflector 9; and being located exterior of said deflector 9 its adjustment may be accomplished by moving it up or down on the outer casing 12 by means of screw threads 17. When adjusted to the proper sized opening for the air it is finally locked in set position by a locking bur or nut 18 which is surfaced in relation to the bottom of the adjustable portion so that the annular opening through which the air issues will be practically the same around the entire circle.

In Figs. II and III I have illustrated more clearly the ports 15 through the screw threaded portion 19 which connects the inner tube with the outer tube at the upper portion. It is preferred to form the deflector 9 so that it may be removed for cleaning purposes as illustrated at 20 by means of male and female screw threads, this also allows for the removal of the spreader 4.

It is of course understood that the device is secured to a suitable handle which is formed hollow and attached to the coupling 21 which is packed and communicates with the inner coating material tube 1. The coating material passes from a pressure tank through hose and a handle to the inner tube; the pressure being maintained so as to properly eject the coating material from the orifice 3 according to the material employed and to the force necessary to carry the material and project it in proper form against the surface to be coated.

A coupling 22 is provided for coupling the air hose which is flexible and which leads from an air pressure means, where pressure is sustained, sufficient to attain the results required, namely of enveloping and confining the coating material and hence it is desirable that the air issue in greater volume than the coating material.

In setting forth this invention a means has been set forth and described for carrying out all the objects in the best manner present time known but it is not desired to restrict this invention to the means shown and set forth or to the details of construction embodied therein.

Having thus set forth my invention as it appears at the present time to be best adapted, what I wish to claim is:

1. An air brush of the type set forth comprising means operable to discharge a film of surface coating material, an air or fluid pressure discharge surrounding said coating material outlet and adapted to envelop and confine said coating material, with means for adjusting or gaging said discharge of the surface coating material, and means for adjusting the air or fluid discharge opening.

2. An air brush of the type set forth comprising means operable to discharge a surface coating material, a spreader adjustable in relation to the discharge orifice, a deflector located around said discharge orifice and a continuous air discharge orifice surrounding said deflector with means for adjusting said air orifice.

3. An air brush of the type set forth comprising a tube for the issuing of a surface coating material in combination with a tube for the issuing of air, said first mentioned tube provided with a spreader for spreading the surface coating material into an unbroken film and said latter tube adapted to allow the air issuing therefrom to force said film of surface coating material into the surface thus coated.

4. An air brush of the type set forth comprising a tube for the issuing of a surface coating material in combination with a tube for the issuing of air, said first mentioned tube provided with a spreader for spreading the surface coating material into an unbroken film, said spreader being provided with means for bringing the same nearer to or farther from the end of said tube from which said surface coating material issues, said tube for the issuing of air adapted to allow the air issuing therefrom to force the said film of surface coating material into the pores of the surface thus coated.

Signed at Cleveland, in the county of Cuyahoga and State of Ohio this 29th day of October, 1915.

CHARLES H. PARKIN.

Witnesses:
JOHN J. DONNELLY,
ALBERT B. DONNELLY.