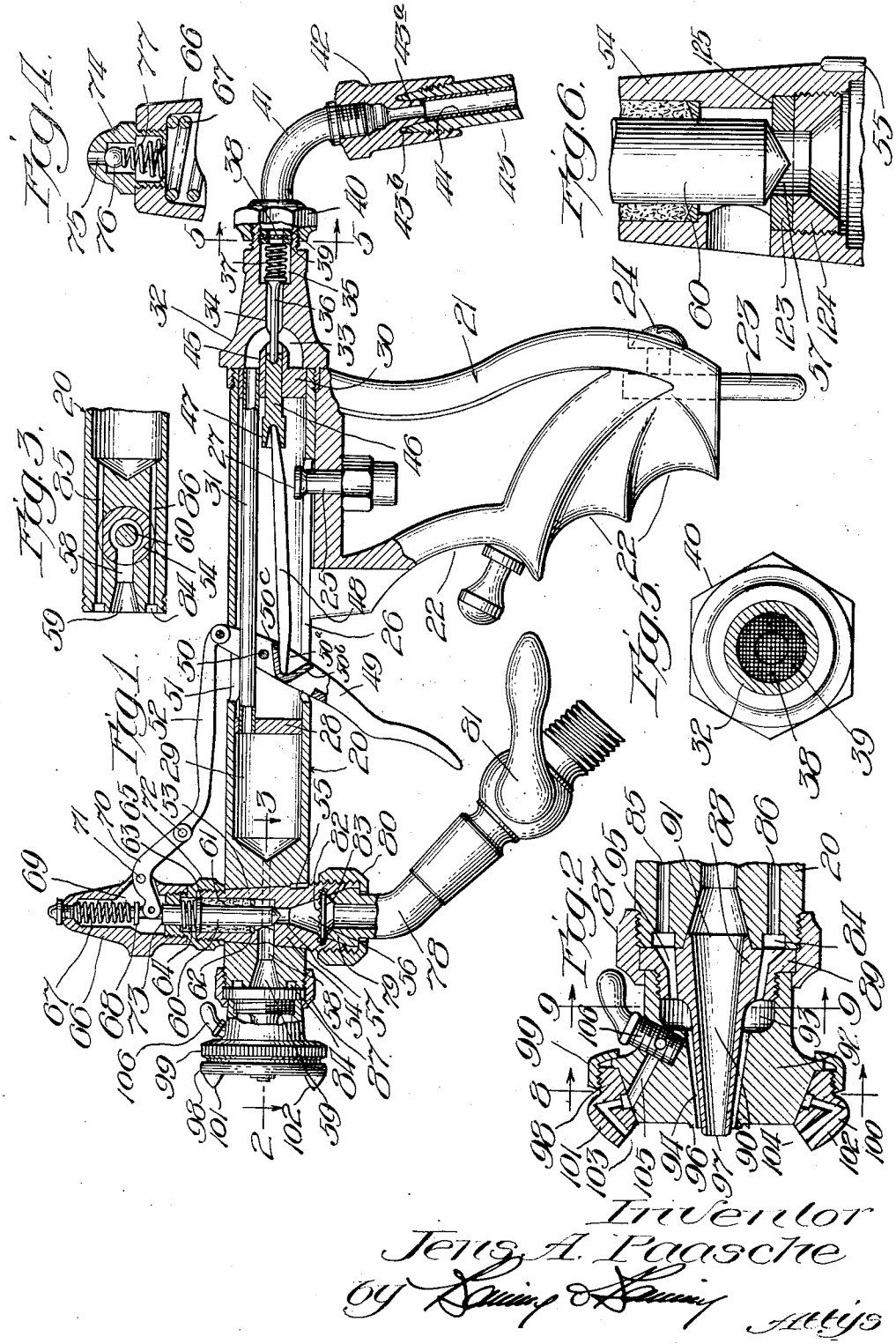
July 8, 1930. J. A. PAASCHE 1,770,164

AIR BRUSH AND THE LIKE

Original Filed Aug. 16, 1924 4 Sheets-Sheet 1



Inventor
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July 8, 1930. J. A. PAASCHE 1,770,164

AIR BRUSH AND THE LIKE

Original Filed Aug. 16, 1924 4 Sheets-Sheet 2

Fig. 7.

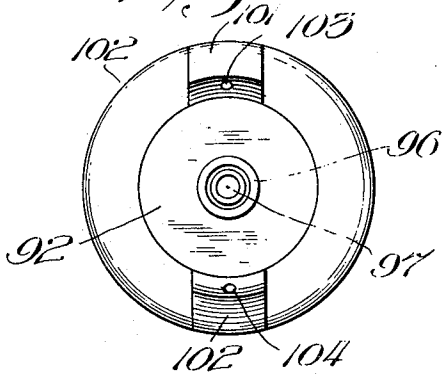


Fig. 8.

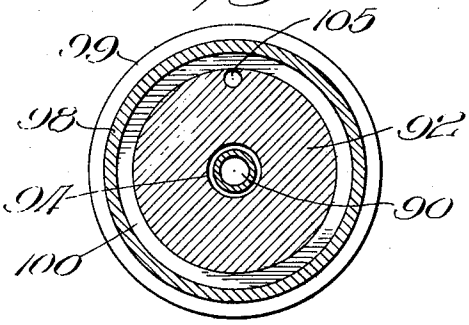


Fig. 9.

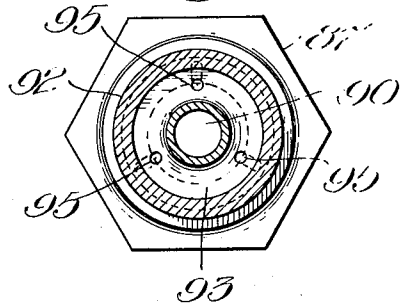


Fig. 10.

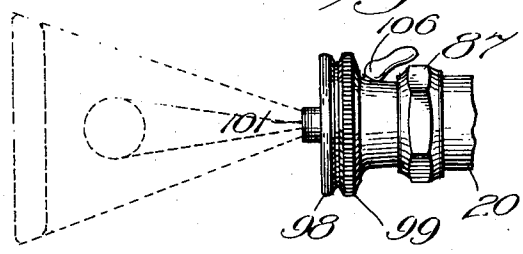


Fig. 11.

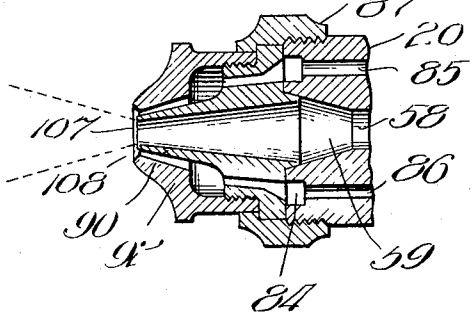
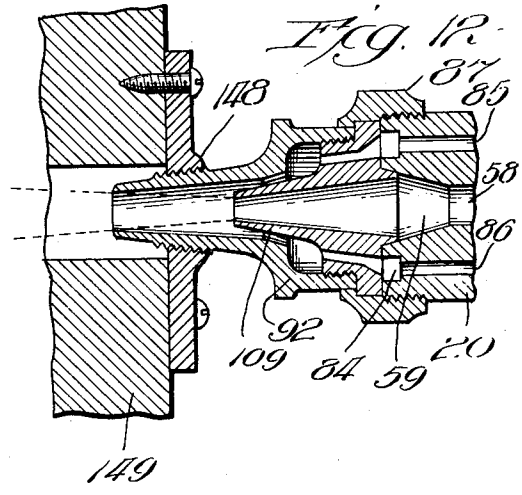


Fig. 12.

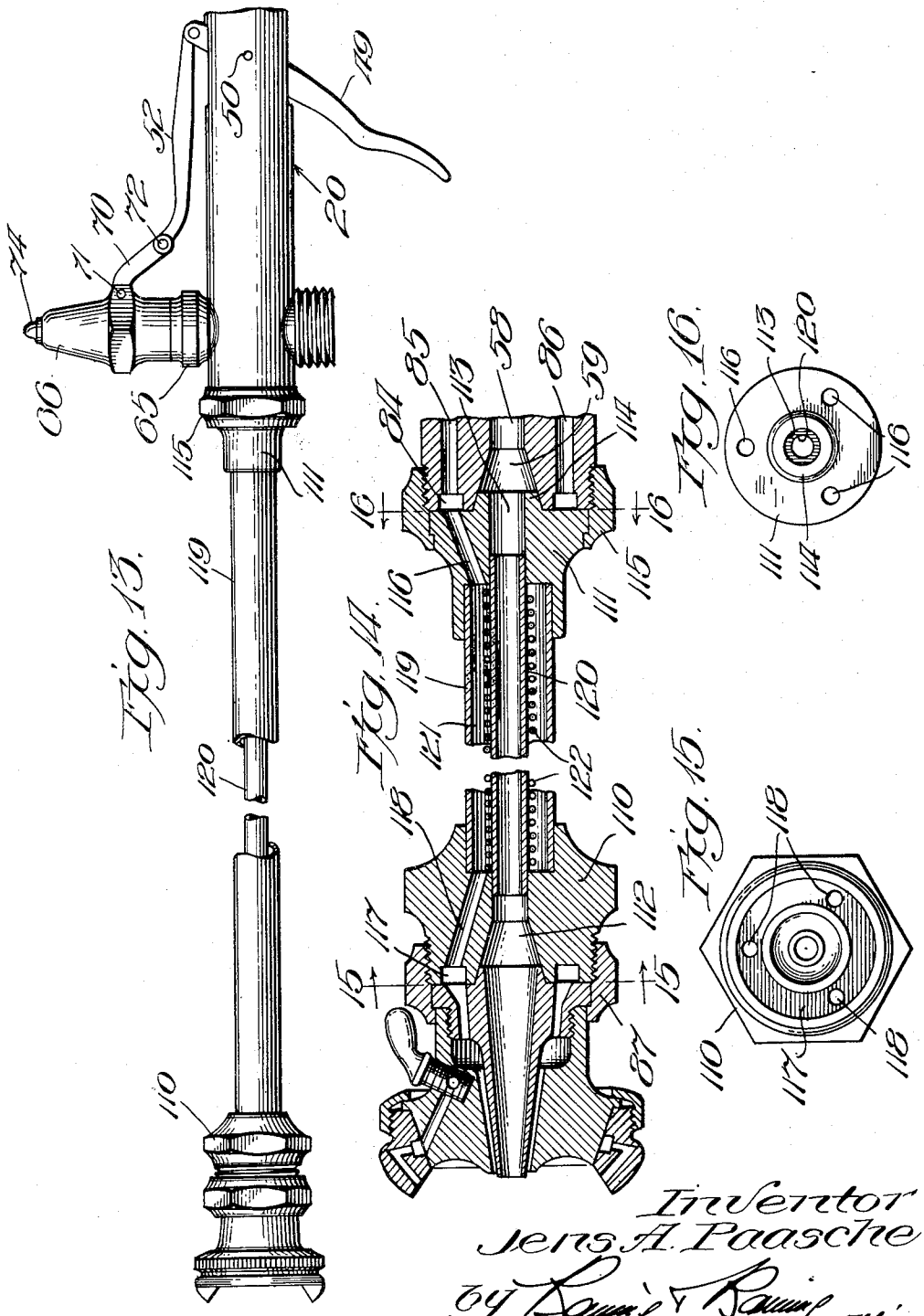


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July 8, 1930. J. A. PAASCHE 1,770,164

AIR BRUSH AND THE LIKE

Original Filed Aug. 16, 1924 4 Sheets-Sheet 3



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July 8, 1930. J. A. PAASCHE 1,770,164

AIR BRUSH AND THE LIKE

Original Filed Aug. 16, 1924 4 Sheets-Sheet 4

Fig. 17.

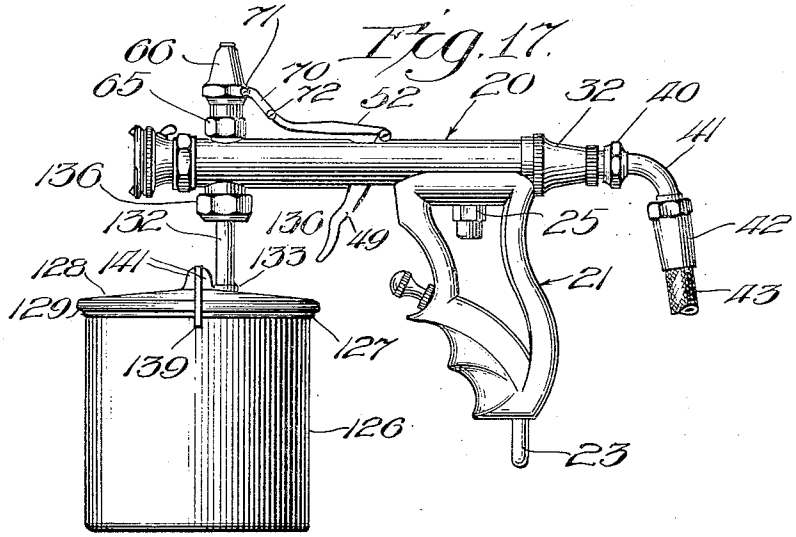


Fig. 18.

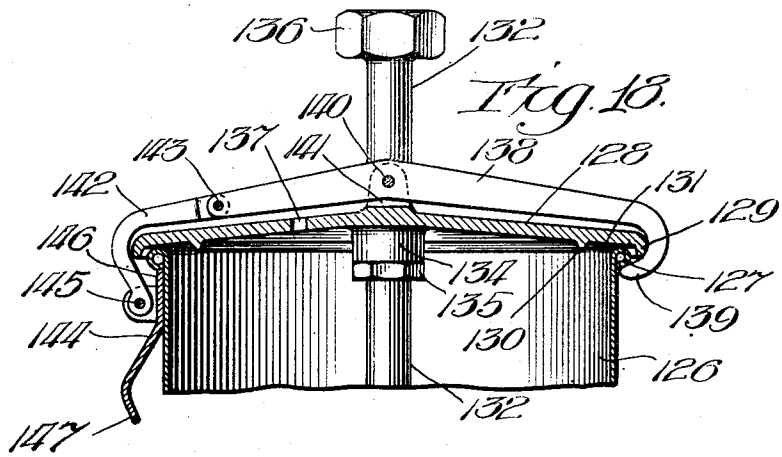
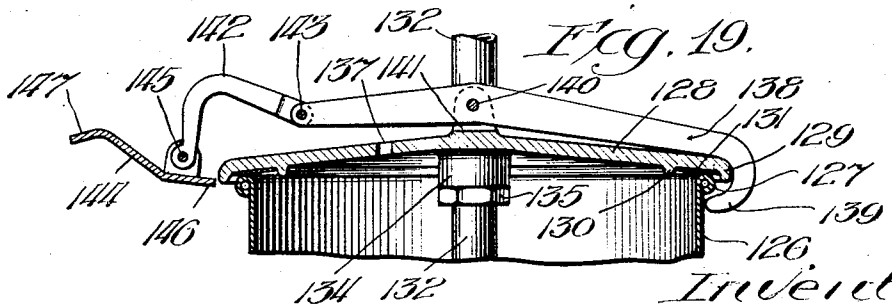


Fig. 19.



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Patented July 8, 1930 1,770,164

UNITED STATES PATENT OFFICE

JENS A. PAASCHE, OF WILMETTE, ILLINOIS

AIR BRUSH AND THE LIKE

Application filed August 16, 1924, Serial No. 732,564. Renewed November 16, 1929.

This invention relates to certain new and useful improvements in air brushes and the like for placing liquid and semi-liquid materials by spraying them into place.

The features of construction herein disclosed are well adapted for use in connection with air brushes for painting, placing cement, cleaning objects by the use of gasolene, or water, or other liquids, oiling and lubricating automobiles, and so forth, and various other purposes which will suggest themselves to the user. I will state, however, that the construction herein disclosed is particularly adapted for use in the placing of cements and other materials of an abrasive character, since the present construction is so arranged that the wearing action due to the same can be readily provided for.

One of the features of the invention relates to the provision of an improved form of liquid valve for controlling the delivery of the liquid material. This improved valve is so constructed that it can be set into place or removed as a unit. It is also so constructed that those portions particularly subjected to abrasive action may be readily made of stainless hardened steel or other suitable material.

Another feature of the invention relates to an improved construction of air valve. In connection with both of the valves, the construction of the device is such that the necessary connections to the common operating trigger may be very easily made with the use of simple parts and very simple assembling operations.

Another feature relates to an improved construction of hose couplings for attaching the air and liquid hose to the air brush without the necessity of special tools or specially manipulating or working with the end portion of the air hose itself.

Still another feature of the invention relates to the provision of an improved type of discharge nozzle for discharging liquid material. In this connection it is an object to provide an arrangement such that when the air is turned on a heavy suction is created on the liquid connection, tending to draw the liquid to the nozzle, so that immediately upon opening the liquid valve the liquid will be supplied and the supply continued in the best possible manner without packing or plugging the hose or the air brush.

A further feature in connection with the nozzle construction is the provision of means for regulating the shape of the spray so that the material will be discharged either in a flat or conical form, or in an intermediate elliptical form, by the manipulation of a very small valve conveniently placed for adjustment by the user.

A further feature of the invention relates to the provision of a tubular extension for the air brush and its nozzle, so that the nozzle can be set at a considerable distance from the body of the air brush, thus making it possible to discharge the spray at a point considerably removed from the user's hand. This feature is of particular advantage for such work as painting ceilings and other elevated or relatively inaccessible places; also for coating inside walls of pipes, these extensions being designed and so constructed that they may be coupled together to any desired length.

In connection with this feature, it will be understood that the effective operation of the spray nozzle requires that both the liquid material and the air blast therefor shall be discharged at the proper point where the spray begins, which in the case of such an extension is remote from the body of the air brush. I have provided an arrangement whereby, when this extension feature is used, both the liquid passage and the air delivery passage are carried out to the proper point where the spray nozzle itself is actually placed.

A further feature of the invention relates to the provision of an improved construction of air brush, such that various shapes and sizes of liquid cups may be used in connection therewith, depending upon the nature of the liquid material and whether the same is being delivered by siphon, gravity, or pressure feed. The air brush itself is so constructed that its trigger will not interfere with the effective attachment and use of these different forms of containers.

In connection with the above, another fea-

ture of the invention relates to the provision of an improved construction of cup for the liquid material, which cup is provided with a removable cover and with a peculiar and quick operating form of locking device for the cover, by means of which the cover is held in place in a perfectly air tight manner. At the same time the construction allows the cover to be easily and immediately disconnected from the cup itself without the use of any special tools or appliances.

Another feature of the invention relates to the provision of a liquid valve having a replaceable valve seat which is self-centering and can be used in different sizes of openings according to the liquid to be used. This will not only make it possible to readily replace the valve seat from time to time, but will also provide a greater range of flexibility in the use of the device.

Still another feature of the invention relates to the provision of an arrangement for heating the liquid as the same is delivered to the spray nozzle, since it is desirable, for some classes of surfaces, that the liquid be thus preheated. In this connection it is an object to combine the heating device with the nozzle extension feature when such feature is used.

Other objects and uses will appear from a detailed description of the invention, which consists of the features of construction and combinations of parts hereinafter described and claimed.

In the drawings:

Figure 1 shows a longitudinal section through an air brush embodying the features of the present invention, portions of the same being shown in elevation. This figure also shows a spray nozzle in place on the tip of the air brush body, said spray nozzle being of the type in which the spray can be adjusted to either conical or flat form;

Fig. 2 shows a fragmentary section on the line 2—2 of Fig. 1 looking in the direction of the arrows but on enlarged scale, the tip being turned through an angle of 45° with respect to the position which it occupies, as shown in Fig. 1;

Fig. 3 shows a fragmentary section on the line 3—3 of Fig. 1 looking in the direction of the arrows;

Fig. 4 shows a fragmentary detail section through the upper portion of the liquid valve member, on enlarged scale as compared to Fig. 1;

Fig. 5 shows a cross section on the line 5—5 of Fig. 1 looking in the direction of the arrows, but on enlarged scale;

Fig. 6 shows a fragmentary detail section of a liquid valve seat and valve of modified form as compared to that of Fig. 1, and also on enlarged scale;

Fig. 7 shows a face view of the spray nozzle shown in section in Fig. 2;

Fig. 8 shows a cross section on the line 8—8 of Fig. 2 looking in the direction of the arrows;

Fig. 9 shows a cross section on the line 9—9 of Fig. 2 looking in the direction of the arrows;

Fig. 10 shows a side elevation of a modified form of spray nozzle, showing two shapes of spray by dotted lines;

Fig. 11 shows a fragmentary longitudinal section similar to Fig. 2 but illustrating another form of spray nozzle;

Fig. 12 shows a longitudinal section through another modified form of spray nozzle, with a tool applied to the nozzle;

Fig. 13 shows an elevation of the end portion of an air brush having applied thereto a tubular extension embodying certain of the features of the present invention, and having a spray nozzle applied to said extension;

Fig. 14 shows a longitudinal section corresponding to Fig. 13 but on enlarged scale;

Fig. 15 shows an end view of the tubular extension taken on the line 15—15 of Fig. 14 looking in the direction of the arrows;

Fig. 16 shows an end view looking at the other end of the tubular extension and taken on the line 16—16 of Fig. 14 looking in the direction of the arrows;

Fig. 17 shows an air brush similar to that of Fig. 1, but having applied thereto a liquid cup embodying certain features of the present invention, the same being shown in vertical section;

Fig. 18 shows a vertical section through the upper portion of the cup itself, taken at right angles to the section of Fig. 17, and shows the locking mechanism in detail and in locked position; and

Fig. 19 shows a view similar to that of Fig. 18, but with the locking device disengaged.

Referring first to Figures 1 to 5 inclusive, the air brush includes a tubular body member 20 having a downwardly extending handle 21, which handle is of familiar type, being preferably provided with serrations 22 for the accommodation of the fingers. A pin 23 is also removably socketed in the lower end of the handle, being normally held in place by a set screw 24. This pin, when used, serves as a convenient means for supporting the air brush by setting the pin into a suitable socket.

The handle 21 is secured to the body 20 by a locking bolt 25 projecting up through a longitudinal slot 26 in the tubular body member, the upper end of the bolt 25 having an enlarged head 27, as illustrated in Fig. 1.

The body member 20 is preferably hollowed and is provided with a transverse partition 28 which establishes an air tight chamber 29 in its forward portion. The end block 30 closes the rear end of the body member 20 in air tight fashion, and a tube 31 reaches

through the central portion of the body member and through the blocks 28 and 30.

At its extreme rear end the body block 30 receives a cap 32 which is threaded into place and serves in conjunction with the end block 20 to establish an air chamber 33. The cap block 32 has a central passage 34 communicating at its rear end with a valve chamber 35. A tappet valve 36 reaches through the passage 34 without closing it, and the valve head on the rear end of said tappet valve works within the chamber 35. A spring 37 normally seats this tappet valve to shut off the supply of air.

Behind the chamber 35 is placed a screen 38, the periphery of which is carried by a pair of rings 39 which can be threaded into the rear end of the chamber 35. The spring 37 takes a seat against one of the rings 39 so as to exert the necessary pressure against the tappet valves.

The extreme rear end of the cap member 32 is externally threaded to receive a union nut 40, by means of which a curved stem 41 may be drawn solidly in place. At its lower end the stem carries a nipple 42 of proper size to receive the end portion of the flexible air hose 43 with a tight fit. The nipple 42 has the downwardly reaching interior flange 43^a establishing an annular socket 43^b. The end portion of the nipple is interiorly threaded, leaving the socket portion just referred to unthreaded. The interior of the nipple is preferably tapered so that the end portion of the hose can be threaded up into it until the extreme end of the hose wedges into the annular recess 43^b. Preferably the interior of the hose is reinforced as by the usual metal lining, but in the absence of such metal lining a short length of tubing 44 may be set into the end of the hose. Nipples of this general form may be used at various points for coupling hose carrying either air or steam, or gas, or water, or paint, or cement, or other liquids.

The end block 30 at the rear end of the body member 20 is preferably provided with an extension or boss 45 which is formed with a through opening to receive a slidable tappet member 46, which tappet member works with a nice fit, so that it establishes a practically air tight seal for the chamber 33. The tappet member is socketed at both ends, the rear socket receiving the end of the valve tappet stem 36. The front socket 47 of the tappet member receives the rear end of a link pin 48 reaching forwardly through the body member 20.

A trigger 49 is pivotally mounted within the body member on the pivot pin 50. The lower portion of said trigger reaches down through the slotted opening 26 of the body member to a point convenient for manipulation by the forefinger of the operator's hand. The upper portion of the trigger is bifurcated so as to receive the air tube 31 without interference. The trigger is also socketed at 50^a below the pivot pin 50 to receive the front end of the link pin 48, so that upon drawing the trigger back the air valve will be operated. Such socket 50^a may be formed by striking the ears 50^b and 50^c from the metal plate of which the trigger is made.

The upper bifurcated portion of the trigger works through a slotted opening 51 in the top of the body member 20 and receives a link 52 for the liquid valve presently to be described.

In its forward portion, the body member 20 is provided with a vertical taper through opening 53, into which is seated a liquid valve member 54. This valve member is in the form of a tapered plug which, when solidly drawn up into the tapered opening, seats nicely therein. A key 55 is preferably provided between the body member 20 and the plug 54 so as to align the parts in proper fashion.

The lower enlarged portion of the valve plug 54 has a tapered chamber 56 which communicates at its upper end with a vertical passage 57. Above said vertical passage is a horizontal and forwardly reaching passage 58, the front end 59 of which is flared outwardly. A valve pin 60 works vertically within the plug 54, its lower end being cone-shaped, and seating against a valve seat at the upper end of the passage 57. The valve plug 54 has an enlarged opening around the valve pin 60 to receive a suitable packing material 61 such as asbestos fibre. A circular plate 62 surrounds the valve stem 60 and rests upon a shoulder in the valve plug 54 at a point above the position of the horizontal passage 58. This plate 62 supports the aforesaid packing material and prevents it from working down into the liquid material passages.

Another circular plate 63 surrounds the upper portion of the valve stem 60 above the position of the packing material. A spring 64 forces the plate 63 downward with sufficient pressure to compress the packing material.

A union nut 65 is threaded onto the upper end of the valve plug 54 and co-operates with the body member 20 effectively to draw the valve plug solidly into place. This union nut also provides a bearing for the upper end of the valve stem 60 and serves as an abutment for the spring 64.

A cap nut 66 is threaded onto the upper end of the union nut 65. This cap nut is hollow and has a vertical chamber for the accommodation of a spring 67 which works against a collar 68 on the upper end of the valve stem 60. The cap nut also has a side opening 69 within which works a bell crank lever 70 pivoted to the cap nut at the point 71, the outer arm of said bell crank lever being connected

to the link pin 52 already referred to, by the pivotal connection 72.

The inner end of the bell crank lever 70 is bifurcated and works between the collar 68 on the upper end of the valve pin 60 and a shoulder 73 on said valve pin. A certain amount of play is allowed for the free movement of the bell crank lever before the valve pin is picked up against the force of the spring 67. This free movement is sufficient to allow the trigger to open the air valve 36 a certain distance before the liquid valve is opened.

At its upper end the cap nut 66 receives an oiler 74 having an oil opening 75 which is normally closed by a ball check 76 under the influence of a spring 77, as will be well understood by reference to Fig. 4.

A liquid supply cup or hose may be connected to the lower end of the valve plug 54 in any convenient manner. In Fig. 1 I have shown a 45° connector 78 as being connected thereto. The same includes a tapered head 79 which may be effectively drawn into sealing engagement with the tapered chamber 56 of the valve plug by means of a union nut 80. The connector 78 is also preferably provided with a cock 81 by which the supply of liquid may be controlled.

The valve plug 54 is provided with an annular recess near the lower end of the chamber 56 into which may be set a screen 82, the same being held in place in any convenient manner as by means of a snap spring 83. At its front end the body member 20 is provided with an annular forwardly facing groove 84. A pair of horizontal air passages 85 and 86 reach forwardly from the air chamber 29 to said annular groove for the supply of compressed air thereto. These passages 85 and 86 may cut into or through the valve plug 54, as indicated in Fig. 3, provided that they do not establish communication with the liquid passage 58 and the opening around the valve stem 60.

The front end of the body member 20 is also exteriorly threaded to receive union nuts 87, such as shown, for example, in Figs. 1 and 2. Each of the spray nozzles or the extension device hereinafter referred to is provided with a union nut such as 87, whereby it can be interchangeably coupled to the body of the air brush.

Referring first to Fig. 2, the spray nozzle therein illustrated includes a circular body member 88 having a flanged portion 89 which can be drawn firmly against the extreme end of the body member 20 by means of the union nut. This body member 88 also has a central tapered liquid passage 90 which registers with the chamber 59 at the front end of the body of the air brush. Such registry may be improved by the presence of a rearwardly reaching circular rib 91, as shown in Fig. 2.

The liquid is discharged through the front end of the passage 90. Surrounding the nipple through which this front end reaches is entered a circular body member 92 the rear end of which threads upon the rear portion of the body member 88. The rear end of the member 92 is, however, chambered, as shown at 93, effectively to establish a circular chamber around the nipple of the body member 88. Furthermore, the member 92 is provided with a forwardly reaching tapered through passage 94 which is of such size as to allow an annular passage around the nipple reaching from the chamber 93 to the front discharge end of the device.

The chamber 93 communicates with a series of through passages 95 in the body member 88, said passages in turn communicating with the annular groove 84 at the front end of the body of the air brush, which has already been referred to. Consequently, the compressed air will be eventually delivered through this tapered passage 94 around the nipple 90.

Examination of Fig. 2 in particular shows that the passage 94 terminates at the point 96 somewhat back of the front end 97 of the nipple 90. Consequently, the air being discharged through the annular passage commences its expansion at a point slightly back of the position where the liquid is discharged. As a result there is created a considerable vacuum at the front end of the nipple, and this vacuum materially assists in drawing the liquid through the nipple and through passages to the point of discharge.

With the construction so far described the material will be delivered in a conical spray. I have, however, in the construction of Fig. 2, provided means for controlling said spray so as to make it assume either a flat or elliptical form at will. For this purpose I provide for the delivery of a pair of air jets at opposite sides of the conical spray itself, said air jets facing towards the conical spray at an angle and cooperating to flatten it out. For this purpose, a ring 98 is seated against the front tapered end of the body block 92 and held in place thereon by a union nut 99. The back face of the ring 98 is undercut as shown at 100, to establish a circular passage between the ring and the body block.

At opposite points, the ring is provided with a pair of forwardly projecting lugs 101 and 102. These in turn have air discharge openings 103 and 104, which face forwardly and towards each other and towards the conical spray at an angle of substantially 45° with respect to the axis of the spray nozzle.

The body block 92 has a passage 105 which reaches through it from the chamber 93 to the annular passage 100. A valve plug 106 is placed in the passage 105 and has a finger piece by which it may be easily manipulated by the forefinger of the operator's hand.

Reference to Fig. 11 will disclose a modi-

fied form of spray nozzle similar in many respects to that already explained, with the exception that it is not provided with the aforesaid side air openings for flattening out the spray. In the present case, also, the front end of the body block 92 is carried slightly beyond the position of the front end of the nipple 90, as shown at 107, but the front end portion of the block 92 is back cut, as shown at 108, so that the expansion of the air commences before the front end of the nipple is actually reached.

In the construction of Fig. 12, on the other hand, the body member 92 is provided with an elongated nipple 109 which aligns with the liquid nipple 90 and reaches considerably beyond the same. This type of construction is better adapted for use with relatively large sizes of air brushes, such as would be intended for placing relatively heavy materials like cement, etc. When using this type of nozzle, means are preferably provided for delivering the liquid material to the air brush under some substantial amount of initial pressure, since the suction effect is not available to the same extent as in the previous types of construction.

It is noted that each of the nozzle constructions disclosed includes a central liquid passage and discharge orifice, together with an encircling air passage and discharge orifice; and it is also noted that the liquid and air must be delivered directly to these passages, since the spraying action takes place at the point where the liquid and air are brought together in discharge. In many cases it is desirable to provide an extension for the convenient use of the air brush for elevated or difficult places, such as ceilings, upper portions of walls, and so forth. Heretofore it has been the custom to support the air brush itself bodily on a rod or other device of proper length so that the entire air brush including the trigger is placed at a distance from the operator. This is undesirable since it involves the use of complicated connections for the proper manipulation of the trigger and also is an unnatural way to use the air brush itself.

According to one feature of the present invention, I provide a tubular extension which can be directly attached to the front end of the body of the air brush in the same manner as the spray nozzles are ordinarily attached, which tubular extension is provided with suitable individual passages for the air and the liquid material. At its outer end, this tubular extension is provided with proper passages and connections to receive the spray nozzle in the same way as the spray nozzle is ordinarily received onto the body of the air brush. In other words, the tubular extension includes the necessary isolated passages for the air and liquid material, and also includes at its ends the necessary complementary connectors for enabling it to be properly used.

Such a device is shown in Figs. 13 to 16 inclusive. It includes front and rear end blocks 110 and 111 respectively. These blocks have central liquid passages 112 and 113, the passage 112 being of form similar to the chamber 59 at the front end of the air brush, and the passage 113 terminating in a rearwardly extending tapered flange 114 which corresponds to the flange 91 of the body block 89 of the spray nozzle. A union nut 115 is provided for connecting the end block 111 to the front end of the body of the air brush; and the block 111 is also provided with an air passage 116 similar to the air passage 95 of the body block 88 of the spray nozzle and adapted to register with the annular groove 84 on the front end of the air brush.

The end block 110 is provided with an annular groove 117 similar to the annular groove 84 at the front end of the air brush itself, and with a passage 118 for the supply of compressed air to the groove 117. The end blocks 110 and 111 are joined together by the tubular shells 119 and 120 which establish the annular air passage 121 between them. This annular air passage connects the passages 116 and 118 together, and the tube 120 connects the liquid passages 113 and 112 together.

The front end block 110 is exteriorly threaded with proper threads to take the union nut 87 of the spray nozzle, so that the desired spray nozzle can be coupled directly to the end of the tubular extension. When using this tubular extension feature, the air brush is held and operated in the same manner as ordinarily, and the operator is not placed to any inconvenience or difficulty in handling the same, beyond the very slight additional weight of the device due to the extension.

It will sometimes be desirable to use a heating device for preheating the liquid delivered to the spraying nozzle. Such preheating device may be of any suitable form and construction, but is preferably associated directly with the liquid passages at or adjacent to the air brush itself. For example, a convenient arrangement would include the use of an electric coil surrounding the liquid tube 120 of the extension when used, such as the coil 122, shown more or less diagrammatically in Fig. 14.

Referring to Fig. 6, I have shown a modified construction of liquid valve and seat which may be used in place in the construction shown in the main view of Fig. 1. In this case the valve stem 60 has its lower end tapered as in the previous construction and adapted to seat against a ring 123 which is held in place by a threaded collar 124 working against its bottom face. The ring 123

seats against a downwardly facing shoulder 125 formed in the valve plug 54. With this construction the valve seat and stem can both be replaced from time to time either on account of wear or for the purpose of changing the size of the opening in the valve seat. This latter adjustment is sometimes desirable when different classes of material are being used. Referring to Figs. 17, 18 and 19, I have illustrated a cup for holding the supply of liquid in place of the connection 78 illustrated in Fig. 1. In the present case there is provided a cylindrical cup 126, the upper edge 127 of which is preferably beaded. A dished cover 128 is provided, the same having the down turned edge flange 129 of slightly greater size than the upper edge of the cup. A rib 130 is also preferably provided on the bottom face of the cover 128 so as to establish a grooved space in conjunction with the flange 129. A washer of oiled paper or other suitable material, such as fiber 131, is secured to the cover within this grooved space and serves as a sealing gasket when the cover is drawn home.

A liquid tube 132 passes through and is secured to the cover. This tube preferably has a flange 133 adapted to seat against the top face of the cover; and the tube then passes through a downwardly reaching boss 134 on the bottom of the cover. A lock nut 135 threads onto the tube below the boss so as to secure the tube rigidly in place.

The upper end of the tube carries a union nut 136 which can be threaded onto the lower end of the valve plug 54 in place of the union nut 80, indicated in Fig. 1.

The tube reaches almost to the bottom of the cup and the suction due to the operation of the air brush will draw the liquid up through the tube, an air vent 137 being provided in the cover to allow entrance of air.

Pivoted to the central portion of the cover is an arm 138 one end of which is downwardly and inturned to provide a hook 139 which will engage the underface of the rib 127, as indicated in Figs. 18 and 19. The arm 138 is for this purpose pivoted at 140 to the lugs 141 which reach upwards from the cover.

The other end of the arm 138 carries an angular link 142 by a pivotal connection 143, the free end of this link terminating at a point where it can be swung under the lower edge of the cover at the opposite side from the position of the hook 139. A toggle finger 144 is pivoted to the link 142 at the point 145. This toggle finger includes a locking hook 146 which is adapted to directly engage the underface of the bead 127, and also includes a finger piece 147 by which it may be manipulated. The parts are so arranged that when the cover is set into place on the cup, as shown in Fig. 19, the locking finger may be swung beneath the rib and then snapped in against the cup with the finger 146 against the rib. Owing to the toggle action thus exerted, the cover 128 will be very firmly drawn and held in place on the cup; but will be easily removed on occasion by operation of the finger piece.

Examination of Fig. 17 in particular shows that when the liquid tube 132 is directly attached to the air brush the cup stands sufficiently far forward to not interfere with proper operation of the air brush trigger.

Owing to the severe service encountered by the valve plug, I prefer to form the valve stem or plunger 60 of tempered "stainless steel" or other suitable hard and corrosion resisting material.

Reference to Fig. 12 shows that the tip portion of the nozzle is externally threaded at 148. A suitable tool, such as a brush or scraper, or a spatula for application and manipulation of mortar or cement, may be threaded thereon so that the user can perform various operations either by the use of such tool, or by the spraying or air blasting operation of the air brush, or by the conjoint actions of the tools and the air brush. In Fig. 12, the back block 149 of a brush is shown as threaded onto the threads 148 by way of illustration of such uses.

While I have herein shown and described only certain embodiments of the features of my present invention, still I do not intend to limit myself to the same, except as I may do so in the claims.

I claim:

1. An air brush including in combination a body member having at its front end a tapered through opening, a valve plug seated within the through opening in air tight fashion, and having a central upwardly facing valve seat, an upwardly reaching liquid supply passage terminating at said seat, a forwardly reaching liquid delivery passage extending from the seat through the front end of the body member, a vertically movable valvepin in the valve plug above said seat and having its lower end tapered to sealingly engage the seat, suitable packing material in the upper portion of the valve plug surrounding the pin, spring means in conjunction with the plug for compressing said packing material around the pin, a cap member in conjunction with the upper end of the valve plug and receiving the upper end of the pin, a spring in said cap member for seating the pin, a bell crank pivotally mounted in the cap member and having its inner end in engagement with the pin, a trigger pivoted in the body member, and suitable operating connections from the trigger to the bell crank aforesaid, substantially as described.

2. An air brush including in combination a body having a rearwardly projecting member at its rear end, a longitudinal passage reaching through said member, and having its front and rear ends of enlarged size, a tap-

pet valve reaching through said passage and having its valve head working within the rear enlargement aforesaid, a spring in said enlargement working against and normally seating the valve, a screen behind the spring, a partition in advance of the front enlargement establishing therewith an air chamber, a valve tappet slidably journaled within said partition and receiving the front end of the valve stem, a trigger pivoted within the body member, companion sockets in the trigger and in the front end of the valve tappet, and a pin extending between said sockets, substantially as described.

3. An air brush including in combination a body having a rearwardly projecting member at its rear end, a longitudinal passage reaching through said member, and having its front and rear ends of enlarged size, a tappet valve reaching through said passage and having its valve head working within the rear enlargement aforesaid, a spring in said enlargement working against and normally seating the valve, a screen behind and in line with said spring, an air hose connection behind and in line with said screen, a partition in advance of the front enlargement establishing therewith an air chamber, a valve tappet slidably journaled within said partition, a trigger pivoted within the body member in advance of the last mentioned partition, and operating connections between the trigger and the valve tappet, substantially as described.

4. An air brush including in combination a body having a rearwardly projecting member at its rear end, a longitudinal passage reaching through said member, an air valve for controlling said passage, a trigger pivoted within the body member, operating connections between the trigger and valve member, and a downwardly curved extension from the rearwardly projecting member terminating in an internally threaded socket adapted to receive the end portion of an air hose threaded thereinto, substantially as described.

5. An air brush including in combination a body having a rearwardly projecting member at its rear end, a longitudinal passage reaching through said member, an air valve for controlling said passage, a trigger pivoted within the body member, operating connections between the trigger and the air valve, a curved tubular member in conjunction with the rearwardly projecting member, a union coupling for securing these parts together, and an internally threaded end socket on the curved member adapted to receive the end portion of an air hose threaded therein, substantially as described.

6. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of a spraying nozzle in conjunction with the front end of the air brush including a body member having an axially tapering liquid delivery passage terminating in a central liquid delivery orifice, an air chamber surrounding the same and terminating in a forwardly reaching annular air passage surrounding the liquid delivery passage aforesaid and terminating at a point rearwardly of the liquid passage terminus aforesaid, a passage leading from said chamber rearwardly in the body member and communicating with the annular forwardly facing groove aforesaid, and a union nut for joining the body member to the front end of the air brush, substantially as described.

7. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of a spraying nozzle in conjunction with the front end of the air brush including a body member having an axial liquid delivery passage terminating in a central liquid delivery orifice, an air chamber surrounding the same and terminating in a forwardly reaching annular air passage surrounding the liquid delivery passage aforesaid, a passage leading from said chamber rearwardly in the body member and communicating with the annular forwardly facing groove aforesaid, and a union nut for joining the body member to the front end of the air brush, substantially as described.

8. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of a spraying nozzle in conjunction with the front end of the air brush including a body member having an axial liquid delivery passage terminating in a central liquid delivery orifice, a forwardly reaching annular air passage surrounding the liquid delivery passage aforesaid, and terminating at a point rearwardly of the liquid passage terminus aforesaid, a passage rearwardly from the annular air passage and communicating with the annular forwardly facing groove aforesaid, and means for joining the spraying nozzle to the front end of the body of the air brush, substantially as described.

9. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage

reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of a spraying nozzle in conjunction with the front end of the air brush including a body member having an axial liquid delivery passage terminating in a central liquid delivery orifice, a forwardly reaching annular air passage surrounding the liquid delivery passage aforesaid, a passage rearwardly from the annular air passage and communicating with the annular forwardly facing groove aforesaid, and means for joining the spraying nozzle to the front end of the body of the air brush, substantially as described.

10. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwarly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, the front faces of the body of the air brush and of said front end block being of the same size and externally threaded, and both of the annular forwardly reaching grooves being of the same diameter, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block comprising union nuts of the same characteristics for the purpose specified, substantially as described.

11. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwardly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, the front faces of the body of the air brush and of said front end block being of the same size, and both of the annular forwardly reaching grooves being of the same diameter, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block, substantially as described.

12. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwardly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block, substantially as described.

13. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including a pair of longitudinal tubular members for liquid and air respectively, front and rear end blocks in conjunction with said members having central liquid passages in communication with the longitudinal liquid passage aforesaid, and also having air passages in communication with the longitudinal air passage aforesaid, the air passage of the rear block being suitably positioned to register with the forwardly facing groove of

the front end of the body member, a spraying nozzle in conjunction with the front end block and having a central liquid passage and an air passage at one side thereof adapted to register with the air passage of the front end block, and means for securing the end blocks of the extension device to the front end of the air brush and to the spraying nozzle respectively, substantially as described.

14. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, a suitable heating element for the liquid tube, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwardly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block, substantially as described.

15. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, an electric heating element surrounding the central liquid tube aforesaid, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwardly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block, substantially as described.

16. An air brush including in combination a body member having at its front end a central longitudinal liquid delivery passage together with an encircling forwardly facing groove in its front end and an air passage reaching said groove, and valve mechanisms for the liquid passage and the air passage respectively, of an extension device including front and rear end blocks having aligned central liquid passages, a central liquid tube joining said passages together, another tube surrounding the liquid tube and separated therefrom to establish an annular air passage, means for heating the longitudinal member for liquid aforesaid, a passage in the rear end block reaching from said annular air passage to a point for registry with the forwardly facing groove of the body of the air brush, a forwardly facing annular groove in the front face of the front end block aforesaid, a passage reaching through the front end block from the annular air passage to said groove, a spraying nozzle in conjunction with the front end block aforesaid and having a central liquid passage, and an air passage at one side thereof adapted to register with the annular groove, and means for securing the rear extension end block to the front end of the air brush and the spraying nozzle to the front end block, substantially as described.

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