

Nov. 15, 1949

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2,488,089

SPRAY GUN ATTACHMENT

Filed May 10, 1945

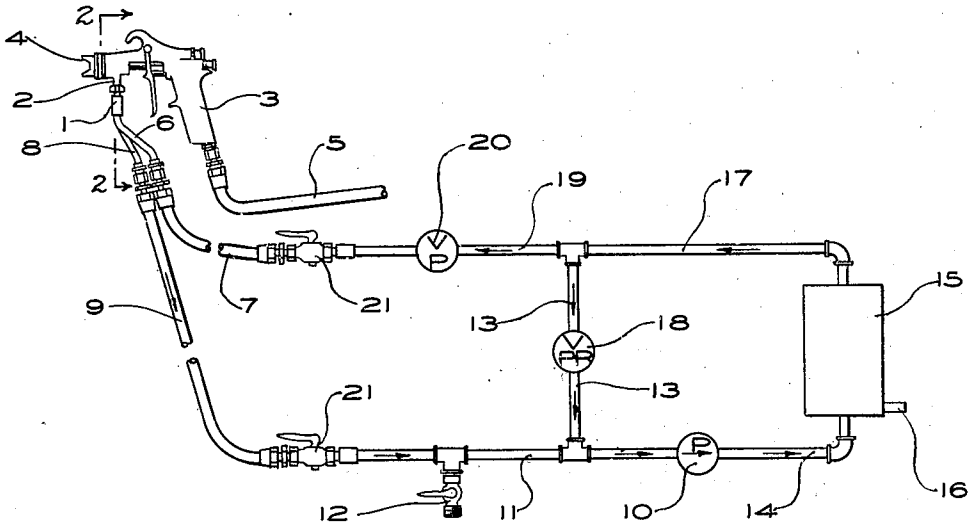


FIG. 1

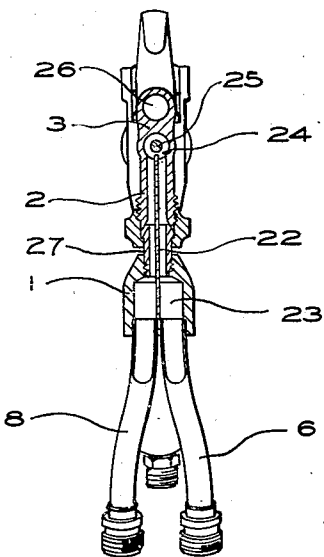


FIG. 2

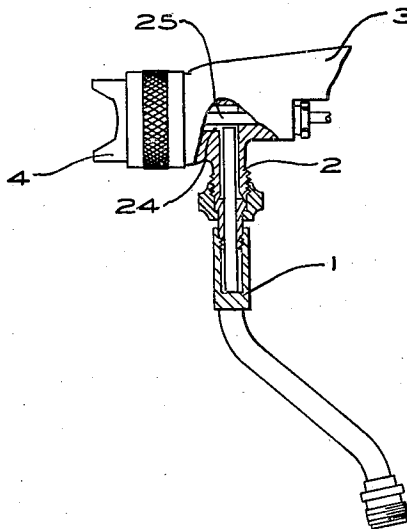


FIG. 3

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# UNITED STATES PATENT OFFICE

2,488,089

## SPRAY GUN ATTACHMENT

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Application May 10, 1945, Serial No. 593,064

1 Claim. (Cl. 299—58)

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This invention relates to a spray gun attachment to connect the spray gun to a hose supplying material and principally to such an attachment that has a connection for a second hose for carrying excess material back through a circulating supply system.

Apparatus for constantly circulating spray material are frequently used where it is desired to apply heated materials. By circulation, the material is repeatedly driven through a heating zone and thus maintained at an elevated temperature. Such a system may also be of value in reducing settling of the coating pigment as the rapid movement of the circulating material keeps particles suspended which would otherwise be inclined to be precipitated. This rapid movement may also pick up particles which momentarily drop out of suspension.

The apparatus brings the material to the inlet connection of the spray gun and from there the material, that does not travel back the return line, moves comparatively slowly through the gun to the discharge nozzle. During the course of this slow movement the material loses heat and is likely to settle. The loss of heat causes some materials to congeal sufficiently to clog the nozzle. Others thicken to a point where they become impractical to spray. A method used previously to overcome this difficulty has been the attachment of an electric heater to the gun nozzle. However, this arrangement is expensive and makes the gun heavy and awkward to handle.

The object of this invention is the provision of simple but effective means for reducing or preventing any objectionable loss of heat or settling of paint particles in the passage through the spray gun.

Another object of this invention is to avoid the addition of weight to the regular equipment while providing effective circulation and agitation of the material well within the gun body.

These purposes are accomplished through the provision of a partitioning tongue, integral with the attachment, and designed to extend into the inlet connection of the spray gun. The base portion of this tongue is so positioned between the inlet and outlet passages within the attachment that the flow of the circulating material is forced from the inlet side to go into the gun body and down the opposite side of the tongue to resume its circulating travel back through the supply circuit.

While a special spray gun could be designed to bring the circulation of the material close to the nozzle outlet, in my arrangement it is done with

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a standard gun. This is considerably less expensive as well as being much more convenient.

The operation and advantages of the invention may be better perceived by referring to the following description and accompanying drawings.

In the drawings:

Figure 1 is a diagrammatic presentation with parts broken away of a circulating system incorporating my attachment;

Figure 2 is a vertical section through a portion of the attachment and the spray gun body taken on the line 2—2 of Figure 1; and

Figure 3 is a partial vertical section and side elevation of the attachment and the forward end of the spray gun.

In the system illustrated in Figure 1 the attachment 1 is connected to the material inlet 2 of the spray gun 3. The material is atomized and discharged from the nozzle 4 of the spray gun under the action of compressed air supplied by air hose 5 and arriving at the nozzle through passage 26. The attachment has an inlet tube 6 to which a material supply hose 7 is fastened. The return tube 8 of the attachment connects to the return material hose 9.

The movement of the material through the system is provided by the pump 10. This pump receives material through conduit 11 from the return hose 9 supplemented by replacement material through valve 12. During the normal operation of the system the valve 12 is open and connected to a standard pressure feed spray material tank that forces material into the system to compensate for that discharged from the spray gun. Material also travels to the pump 10 through bypass conduit 13.

From the pump the material flows through conduit 14 into heater 15 which receives steam through connection 16. From the heater the material continues through conduit 17. A portion travels through conduit 19 and pressure regulator 20, by which is set the desired pressure for spraying purposes.

The material that does not pass through the pressure regulating valve 20 turns down conduit 13 and passes through pressure relief valve 18 to the inlet side of pump 10.

The material flowing through regulator 20 reaches the inlet branch 6 of the attachment 1. At the end of tube 6 this material is prevented from passing immediately across chamber 23, within the attachment, to the return tube 8 by the partitioning tongue 22. This manner divides the chamber at a point between the ends of tubes 6 and 8 and extends through the nipple 27 of the

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attachment, through the inlet 2 and into the horizontal bore 24 of the spray gun.

The tongue is press fitted into nipple 27 and is thus held in place. The chamber 23 and the passage through nipple 27 and gun inlet 2 are divided by tongue 22 into an inlet side and an outlet side communicating respectively with inlet tube 6 and outlet tube 8. Material arriving through tube 6 passes upwardly along tongue 22 into bore 24 of the spray gun from which it reaches the spray gun nozzle, or returns down the other side of the tongue to return tube 8. This movement constantly brings freshly heated material into the gun body bore 24 and creates sufficient turbulence there to prevent any settling. The tongue comes so close to the stem of the material needle valve 25 that the material flows over the top of the needle.

The tongue 22 is made of copper or other metal of high heat conductivity. By being of such composition it carries heat into the gun body and helps maintain the temperature of spray material there.

Valves 21 are provided to permit closing the system when it is desired to remove the gun.

Having thus described my invention, what I claim as new is:

In an attachment of the type described, a

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hollow body with two closely positioned openings in its bottom wall, a pair of downwardly diverging tubular legs connected to said openings, a hollow nipple extending upwardly from the top of the body, and an upright blade-thin tongue extending from between said openings and the bottom wall of the hollow body up through the body and nipple and to a point substantially above the upper end of the nipple, said tongue diametrically partitioning the interior of the body and the nipple in a vertical plane passing between the two openings in the bottom wall of the body.

CHARLES W. MAYO.

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