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B. AGOSTI ET AL

3,074,651

SPRAY GUN

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2 Sheets-Sheet 1

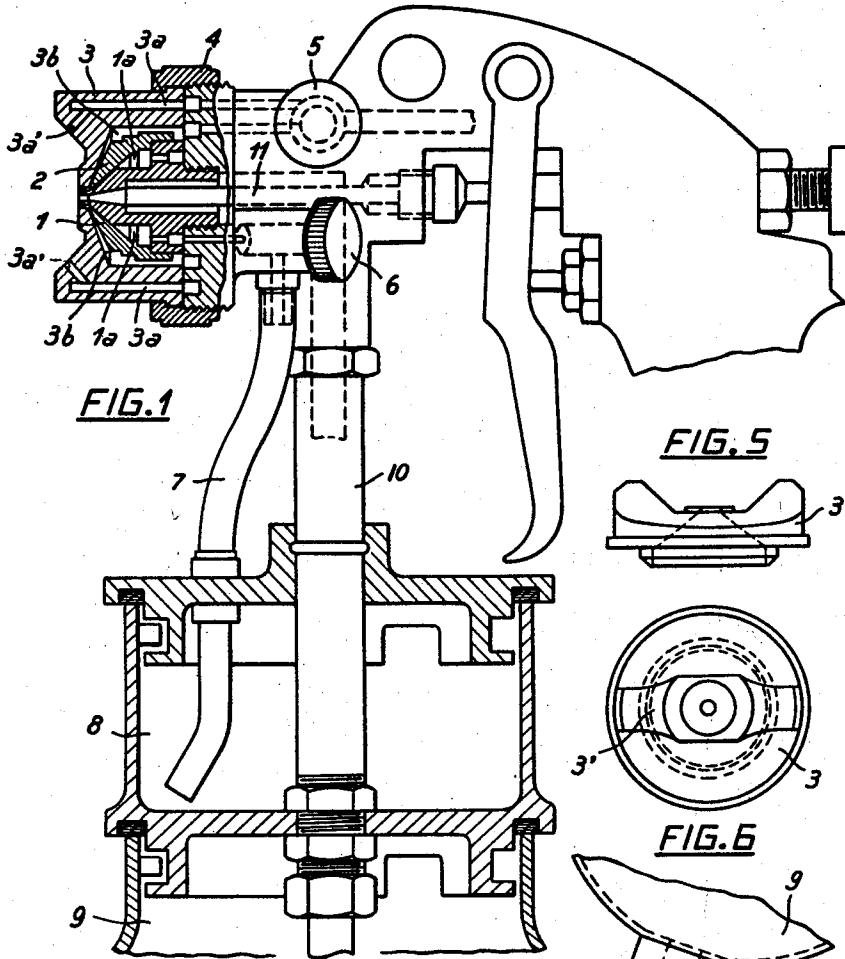


FIG. 1

FIG. 5



FIG. 6

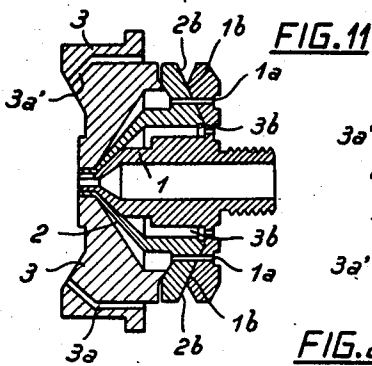
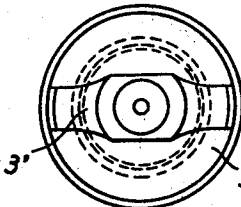


FIG. 11

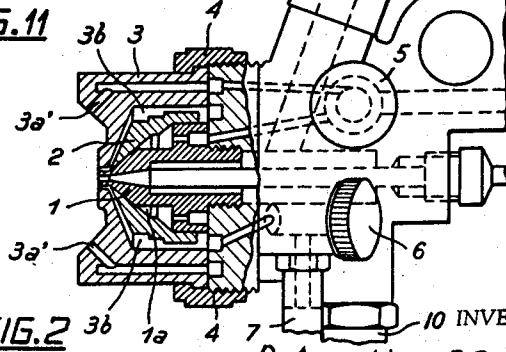


FIG. 2

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SPRAY GUN

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1 Claim. (Cl. 239—304)

The invention refers to a spray gun to obtain a contemporaneous and separated spraying of a plurality of liquids (colors, paints, etc.), said liquids being delivered separately at the outlet of the spray gun and intimately mixed therein by pressure air delivered also at said outlet.

The spray gun according to the invention comprises substantially a rear body provided with an air inlet and a needle valve to cut off the flow of the colours or prints with control lever of said valve to obtain a contemporaneous regulation of said needle to control the liquid flow to the central outlet nozzle under suction or pressure delivery.

The central nozzle having a hole or channel for the spraying of the colour or paint, has upon its bottom peripheral channels for a second liquid (as for instance a drying or catalyst means for the paint or color) which emerges from a separate container and on the same central nozzle a second nozzle is arranged, that pipes said liquid to the outlet point in such a way that the two liquids are separated one from the other even though the two nozzles form together a single nozzle.

A small air delivering head with ring nut fastened to the rear body is applied to said two nozzles serving for two different liquids, being the pressure air feed to said small head by a two way regulator-distributor, one of said ways being directed to the central outlet hole, to obtain a mixture and contemporaneous pulverization of two liquids and the other to the side channels to obtain the required widening of the spout cone.

The invention has for its purpose to provide such a spray gun, which is particularly adapted to the spraying of two different liquids, that cannot be previously mixed together or whose mixture is only advisable by means of their contemporaneous and independent mixture causing their union when use thereof takes place.

Among said liquids the polyesteric paints can be mentioned which for their plasticisation are to be integrated in exactly preestablished amounts with a hardening liquid (catalyst) having the feature of quick drying which does not allow the preparation of an integrated paint.

This and other invention features will clearly result by way of example from the following specification with reference to the accompanying drawing, wherein

FIG. 1 is an assembly view of the spray gun with two containers for the two different liquids and front part of said spray gun in section.

FIG. 2 is another embodiment of the air and catalyst liquid delivering system.

FIGS. 3 and 4 are other embodiments of the arrangement of the containers for the two liquids and of the associated feeding pipes.

FIGS. 5 and 6 are respectively a side view and a plan view of another embodiment of head 3.

FIGS. 7 and 8 are respectively a side view and a plan view of the second nozzle covering the paint nozzle also in a modified form.

FIGS. 9 and 10 are respectively a side view and a plan view of another embodiment of the paint delivering nozzle.

FIG. 11 is a vertical section of the assembly constituted by the three modified pieces and taken along the axis thereof.

The spray gun according to the invention comprises as shown in FIG. 1 a central nozzle 1 with an axial hole

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for the distribution of the paint coming out from the associated container and with peripheral channels 1a through which flows the second liquid (catalyst) coming out from another container.

A second coaxial nozzle 2 is secured to said nozzle 1 and serves to cause a deviation of said channels 1a towards the outlet hole of the nozzle 1 in such a way however that the two liquids remain separated from one another even though a single spout result therefrom.

A head 3 is fitted to the second nozzle and secured to the rear body of the spray gun by means of a ring nut 4, said head having peripheral channels 3a to enable an air pressure flow coming out from a two way distributor-regulator 5, which forms moreover with the nozzle 2 passages or channels 3b that are also converging towards the outlet hole of central nozzle so that the pressure air coming out from another way of said distributor can blow off. Said pressure air blow has the purpose of obtaining an intimate mixture and pulverization of the two liquids while the pressure air flow through the peripheral channels 3a causes a widening of the pulverized mixture cone spout, as required, by means of the branches 3a' sloping towards the spout outlet.

A suitable proportion of the catalyst liquid flows from a tube 7, coming out from a container 8, through a regulator 6 to the channels 1a, and a suitable proportion of the paint contained in the tank 9 and regulated by means of a common needle valve 11 is piped through the tube 10 to the nozzle 1.

The tanks 8 and 9 are coaxial and arranged suitably one upon the other through a bayonet coupling; it is to be understood however that they can be arranged in a different way as for instance one at the top and the other at the bottom of the apparatus as shown in FIG. 2.

According to FIG. 4 a single upper container 8 for the catalyst and a lower tube 9 for the pressure paint are provided.

FIG. 2 shows also another embodiment of the air and catalyst liquid delivering system. In this embodiment the pressure air is introduced through the second way into the channels 1a in lieu of the catalyst that passes through the channels 3b. In this case the second way of the air distributor is sloping downwards as to the axis of the spray gun.

In the modified form of the three pieces (that is paint nozzle 1, catalyst nozzle 2 and head 3) as shown in FIGURES 5 to 11, the nozzles 1 and 2 are not secured to each other by screwing, but they are simply inserted one into the other and conformation thereof is such, that a tight fitting of the cone nozzle 1 (male) inside of catalyst cone nozzle 2 takes place in such a way that the pressure air is separated from the catalyst liquid.

The contact surfaces of opposed nozzles 1 and 2 have supporting planes 1b and 2b that register perfectly one with the other so that the air flowing through the channels 1a, in the peripheral part of nozzle 1, is prevented from entering the catalyst channel 3b.

This embodiment of the three pieces 1, 2 and 3 provides an effective construction and operation advantage, inasmuch as the assembling and disassembling is made very much easier. This is a very important feature of said apparatus, which require a frequent cleaning.

This construction feature enables moreover, besides the usual flow regulation of the catalyst liquid, also the calibration of the nozzle relating thereto according to different sizes in conformity with the additive percentage of said catalyst.

It will be understood that various modifications and changes can be possibly carried out both in the arrangement of the containers for the two liquids and in the distribution system, without departing from the spirit of

the invention or the features thereof as resulting from the appended claim.

We claim:

A spray gun, comprising a central nozzle having an axial outlet hole, a container for a main liquid, a vertical tube communicating with the interior of said container and said outlet hole for supplying said main liquid to said outlet hole, said nozzle having circularly spaced peripheral channels formed upon the outer surface thereof, another container for a secondary liquid located above the first-mentioned container, a regulator communicating with said peripheral channels, another tube communicating with the interior of said other container and said regulator for supplying said secondary liquid to said peripheral channels, a second nozzle coaxially enclosing and spaced from the first-mentioned nozzle, said second nozzle having inner surfaces directed toward the peripheral channels of the first-mentioned nozzle to deviate said secondary liquid flowing through the peripheral channels toward said outlet hole, a head coaxially enclosing said

second nozzle and having inner passages converging toward said outlet hole and peripheral channels circularly spaced relatively to said outlet hole and having outlet portions directed angularly towards the axis of the first-mentioned nozzle, a distributor-regulator communicating with the inner passages and peripheral channels of said head, and means supplying compressed air to said distributor-regulator.

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