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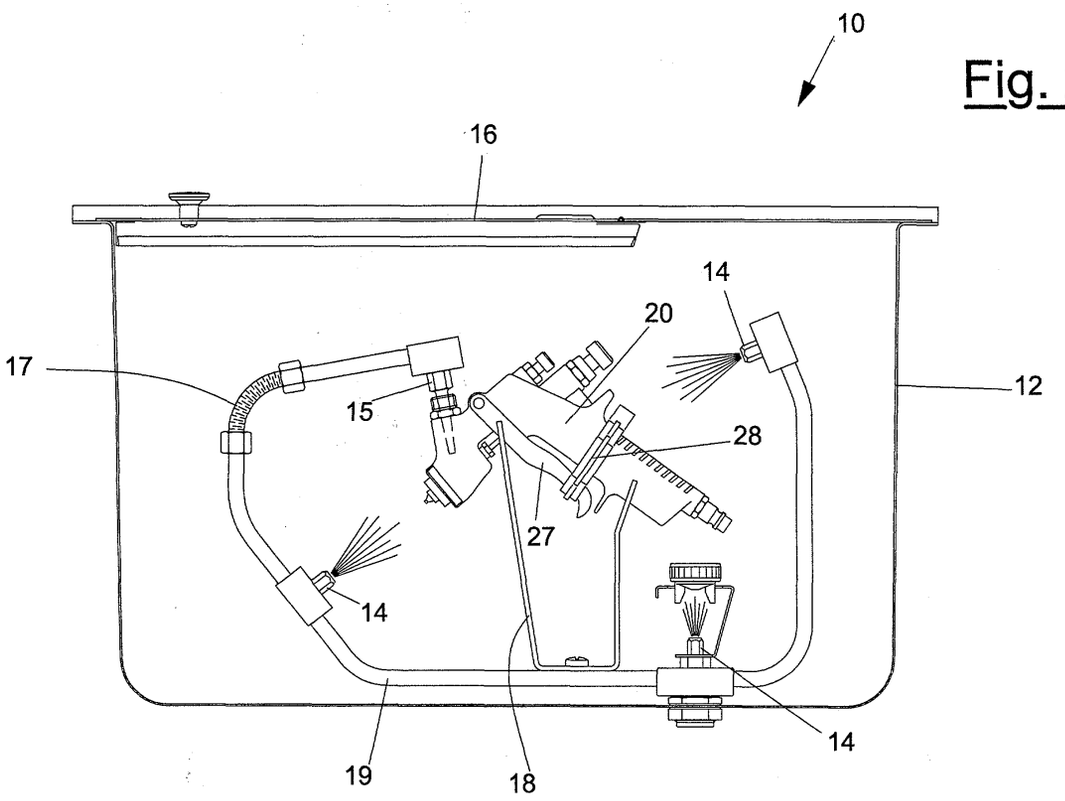
(54) Improved washing device for a spray gun with a gravity bowl

(57) An improved washing device (10, 110) for a spray gun (20, 120) with a gravity bowl comprises a washing tank (12, 112) in which washing nozzles (14, 114) for said spray gun (20, 120) are arranged, said spray gun (20, 120) having at least one paint supply channel (22) terminating in a front zone of said gun (20, 120), with at least one compressed air channel (24) arriving in said front zone. According to the invention, said spray gun (20, 120) is arranged with a paint supply hole of said paint supply channel (22) facing upwards and with a compressed air entry hole of said compressed air channel (24) facing downwards; with a washing liquid being introduced into said paint supply channel (22), the free end of which is kept open.

Fig. 2



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Description

[0001] The present invention refers to an improved washing device for a spray gun with a gravity bowl.

[0002] In the field of painting spray guns for the application of paint of similar material on various products are known.

[0003] In particular, in the type with a gravity bowl, a spray gun mixes compressed air with a paint fed from a container, or bowl to be precise, through gravity. The jet of compressed air allows nebulized paint to be sprayed externally. The airflow is controlled by a lever on a grip on the gun.

[0004] For these guns the post-use washing step is particularly important, in order to ensure optimal operation the next time they are used.

[0005] A known technique which is currently widely used is that of using a washing device comprising a tank, equipped with a cover, in which the gun to be washed is placed. In the tank, around the gun, numerous nozzles are foreseen which spray washing liquid from all sides of the gun itself. Usually, there are conical nozzles, the flow of which is directed upwards.

[0006] The spray gun is positioned upside down and a washing nozzle is inserted in a paint supply channel which connects the gun with the gravity bowl. Of course, the gravity bowl is removed prior to the positioning of the gun in the washing device.

[0007] It should be noted how in this case such a washing nozzle also acts as a support for the gun itself.

[0008] However, with the gun positioned in this way, in part of a compressed air supply channel of the gun it is easy for washing liquid and other dirt to collect, causing many problems, such as locking of a manoeuvring trigger, damage to the sealing rings and imperfections in the paint.

[0009] To avoid this problem, in the prior art, it has been tried to plug an air entry hole, but this is not effective against the washing liquid which enters through the gun's nozzle, particularly if it is disassembled.

[0010] Therefore, it has been thought of to blow compressed air in the air supply channel, so that the washing liquid does not enter therein.

[0011] There is a drawback to this as well. Indeed, the washing liquid normally used is a diluent: especially during spraying, it is an extremely volatile product, which generates polluting and flammable gases.

[0012] So one understands how blowing air in such a channel involves continuous emission into the atmosphere of the harmful gases which form, with consequent problems of pollution and also of safety for the personnel carrying out the washing operations.

[0013] The general purpose of the present invention is that of overcoming the aforementioned drawbacks of the prior art and in particular is that of realising an improved washing device for a spray gun with a gravity bowl which allows effective cleaning of the gun itself without involving pollution of the environment.

[0014] Another purpose is that of realising an improved washing device for a spray gun with a gravity bowl in an extremely simple, cost-effective and particularly functional manner.

[0015] In view of the aforementioned purposes, according to the present invention, it has been thought of to realise an improved washing device for a spray gun with a gravity bowl, having the characteristics outlined in the attached claims.

[0016] The structural and functional characteristics of the present invention and its advantages compared to the prior art shall become even clearer from an examination of the following description, referring to the attached drawings, which show an improved washing device for a spray gun with a gravity bowl realised according to the innovative principles of the invention itself.

[0017] In the drawings:

- figure 1 shows a section view of a spray gun, where a washing nozzle is inserted in a paint supply channel;
- figure 2 is a side top section view of a first embodiment of an improved washing device according to the present invention;
- figure 3 is a side top section view of a second embodiment of an improved washing device according to the present invention.

[0018] With reference to figure 2, an improved washing device is wholly indicated with 10, and in the illustrated example, according to the present invention, comprises a washing tank 12 in which washing nozzles 14 are arranged.

[0019] The tank 12 has an opening, able to be closed with a closing element 16. Through such an opening a spray gun 20, represented in section in figure 1, is entered into the tank 12.

[0020] The spray gun 20 has at least one paint supply channel 22, which connects it to a gravity bowl, not shown in the figures, which is arranged above the gun 20 itself and where paint is poured to be sprayed.

[0021] The paint supply channel 22 terminates in a front zone of the gun 20. Still in such a front zone at least one compressed air channel 24 terminates.

[0022] Such a channel 24 crosses the gun 20, terminating at a base of a grip 26 of the gun 20. Basically, the compressed air channel 24 is L-shaped.

[0023] In figure 2 it can be seen how inside the tank 12 a support 18 for the gun 20 is foreseen, which is arranged in a position similar to that taken up during spraying operations, i.e. with a paint supply hole facing upwards and with a compressed air entry hole facing downwards.

[0024] Around such a support 18, in the non-limiting example of figure 2, three washing nozzles 14 are foreseen which spray a washing liquid on the outside of the gun 20.

[0025] Furthermore, washing liquid is sprayed in the

paint supply channel 22, through insertion of a further washing nozzle 15, for example having a conical end.

[0026] In figure 2 it can be seen how, advantageously, the washing nozzles 14 and the further nozzle 15 are connected together by piping 19, into which the washing liquid is introduced.

[0027] In figure 2 it should also be noted how a portion of the piping 19 comprises flexible piping 17, suitable for allowing easy insertion of the further washing nozzle 15, arranged for example at one end of the piping 19, in the paint supply channel 22.

[0028] The operation of the washing device 10 according to the invention is clear from that which has been described above with reference to figures 1 and 2, and in brief is the following.

[0029] The trigger 27 of the gun is pulled and held, through a catch 28, in pulled position, so as to keep the free end of the paint channel 22 open.

[0030] After having positioned the gun 20 (with the trigger 27 pulled) on the support 18 and after having inserted the further washing nozzle 15 in the paint supply channel 22, the tank 12 is closed with the closing element 16.

[0031] At this point the washing liquid is introduced into the piping 19. The piping 19 feeds the washing nozzles 14 and the further nozzle 15.

[0032] The latter manages to wash the paint supply channel 22 extremely well, whereas the washing liquid does not enter into the compressed air channel 24 through gravity, since the vertex of the "L" of channel 24 itself faces upwards.

[0033] In this way it is no longer necessary to blow air into the channel 24, as happens in the prior art, and this therefore involves little pollution.

[0034] Figure 3 illustrates a further possible practical embodiment of the invention, where the components which are the same as/equivalent to those illustrated in figures 1 and 2 carry the same reference numerals increased by 100.

[0035] An improved washing device is wholly indicated with 110, and comprises a washing tank 112 in which washing nozzles 114 are arranged.

[0036] The tank 112 has an opening, which can be closed with a closing element 116. Through such an opening a spray gun 120 is introduced into the tank 112.

[0037] In this example, a support like the support 18 of figure 2 is not foreseen, since the gun 120 is arranged, still in a position like the one taken up during spraying operations, through for example insertion with interference of a conical end of the further washing nozzle 115 in the paint supply channel 122.

[0038] In order to keep the gun in the high position of figure 3, different means to the support 18 and the washing nozzle itself can of course be used, for example attachment systems (not shown) of the gun itself.

[0039] In figure 3 it can also be seen how, advantageously, the washing nozzles 114 and the further nozzle 115 are connected together by piping 119, into which the washing liquid is introduced.

[0040] The operation of the washing device 110 according to the invention is clear from that which has been described above and is totally analogous to that of the washing device 10 of figure 2. Also in this position (totally similar to that of figure 2), the liquid does not enter into the air channel 24, thus avoiding the drawbacks of the prior art.

[0041] From that which has been described above and with reference to the figures, it is clear how an improved washing device for a spray gun with a gravity bowl according to the invention is particularly useful and advantageous. The purposes mentioned in the preamble of the description are thus achieved.

[0042] Of course, the shapes of the improved washing device for a spray gun with a gravity bowl of the invention can be different from the one shown only as a non-limiting example in the drawings, just as the materials can also be different.

[0043] The scope of protection of the invention is therefore defined by the attached claims.

Claims

1. Improved washing device (10, 110) for a spray gun (20, 120) with a gravity bowl, of the type comprising a washing tank (12, 112) in which washing nozzles (14, 114) for said spray gun (20, 120) are arranged, said spray gun (20, 120) having at least one paint supply channel (22) terminating in a front zone of said gun (20, 120), with at least one compressed air channel (24) arriving in said front zone, **characterised in that** said spray gun (20, 120) is arranged with a paint supply hole of said paint supply channel (22) facing upwards and with a compressed air entry hole of said compressed air channel (24) facing downwards, with a washing liquid being introduced into said paint supply channel (22), the free end of which is kept open.

2. Washing device (10, 110) according to claim 1, **characterised in that** washing liquid is sprayed into said paint supply channel (22, 122) through the insertion of a further washing nozzle (15, 115).

3. Washing device (10, 110) according to claim 2, **characterised in that** said further washing nozzle (15, 115) has a conical end.

4. Washing device (10, 110) according to claim 2, **characterised in that** said washing nozzles (14, 114) and said further washing nozzle (15, 115) are connected together by piping (19, 119), into which said washing liquid is introduced.

5. Washing device (10, 110) according to claim 4, **characterised in that** a portion of said piping (19)

comprises flexible piping (17) suitable for allowing easy insertion of said further washing nozzle (15), arranged at an end of said piping (19), in said paint supply channel (22).

6. Washing device (10, 110) according to claim 1, **characterised in that** said spray gun (20) is rested upon a support (18) arranged inside said tank (12).

7. Washing device (10, 110) according to claim 2, **characterised in that** a conical end of said further washing nozzle (115) is inserted with interference in said paint supply channel (122).

8. Washing device (10, 110) according to claim 1, **characterised in that** said tank (12, 112) has an opening, which can be closed with a closing element (16, 116).

9. Washing device (10, 110) according to claim 6, **characterised in that** a plurality of said washing nozzles (14) is foreseen around said support (18).

10. Washing device (10, 110) according to claim 1, **characterised in that** the free end of said channel (22) is kept open by pulling the gun's trigger (27), with means for keeping the trigger (27) in said pulled position being foreseen.

11. Washing device (10, 110) according to claim 10, **characterised in that** said means consists of a catch (28).

Fig. 1

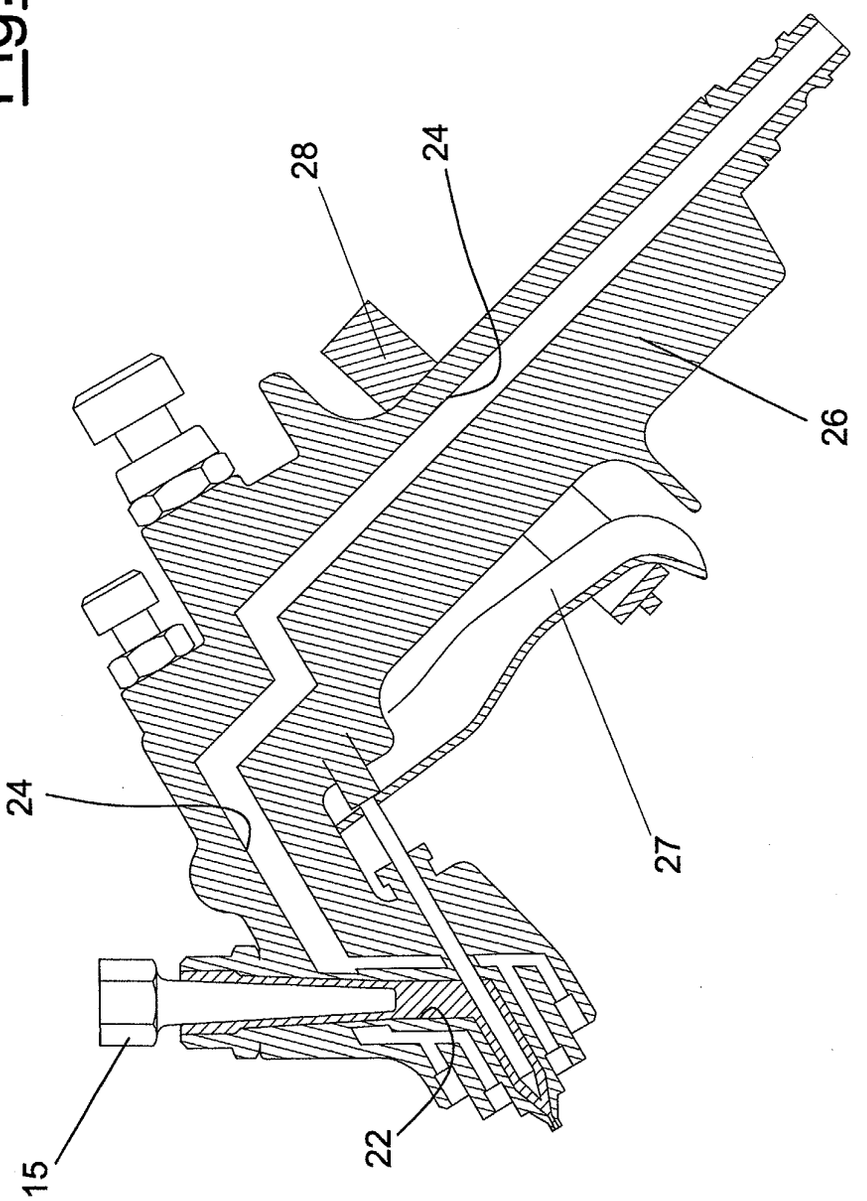


Fig. 2

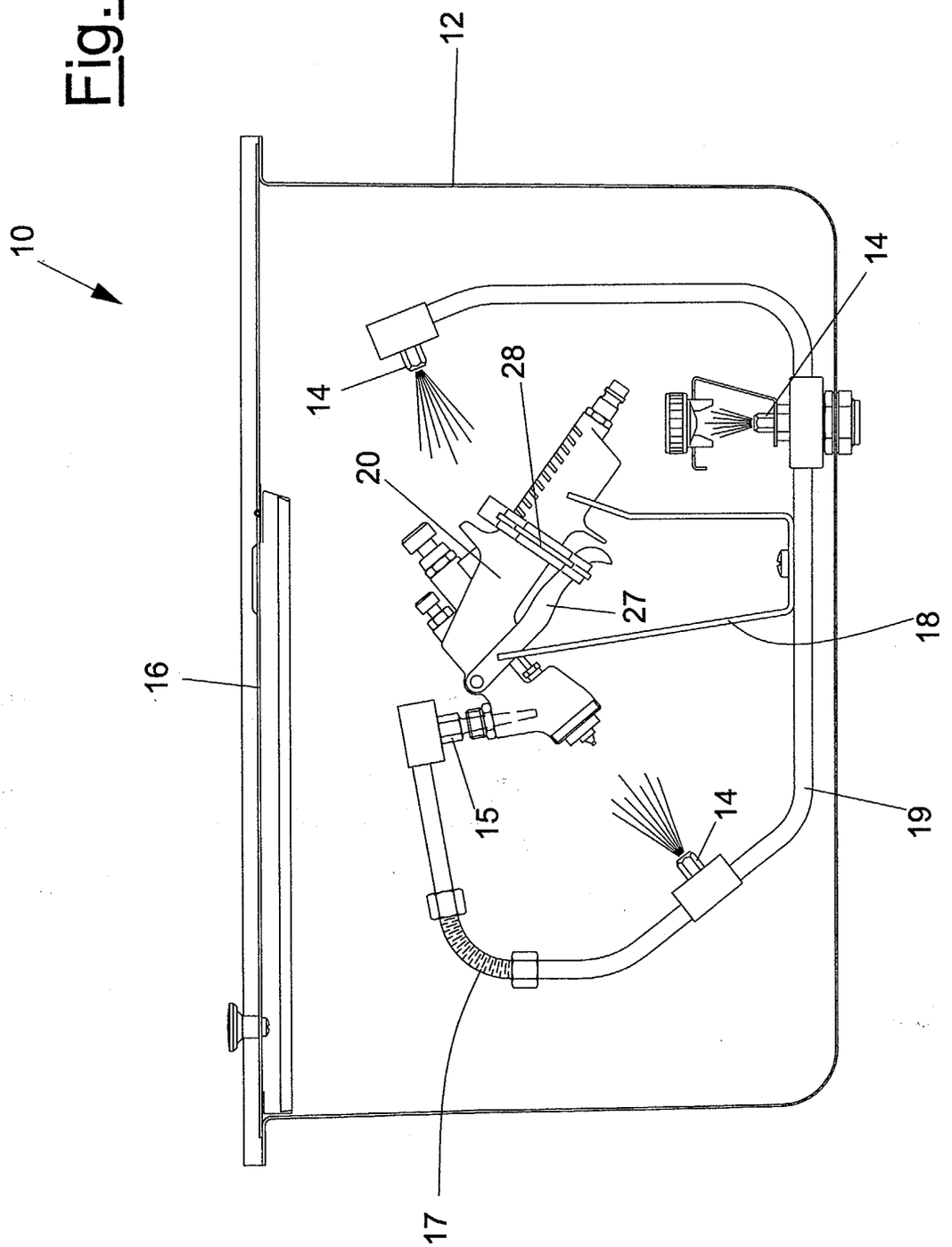
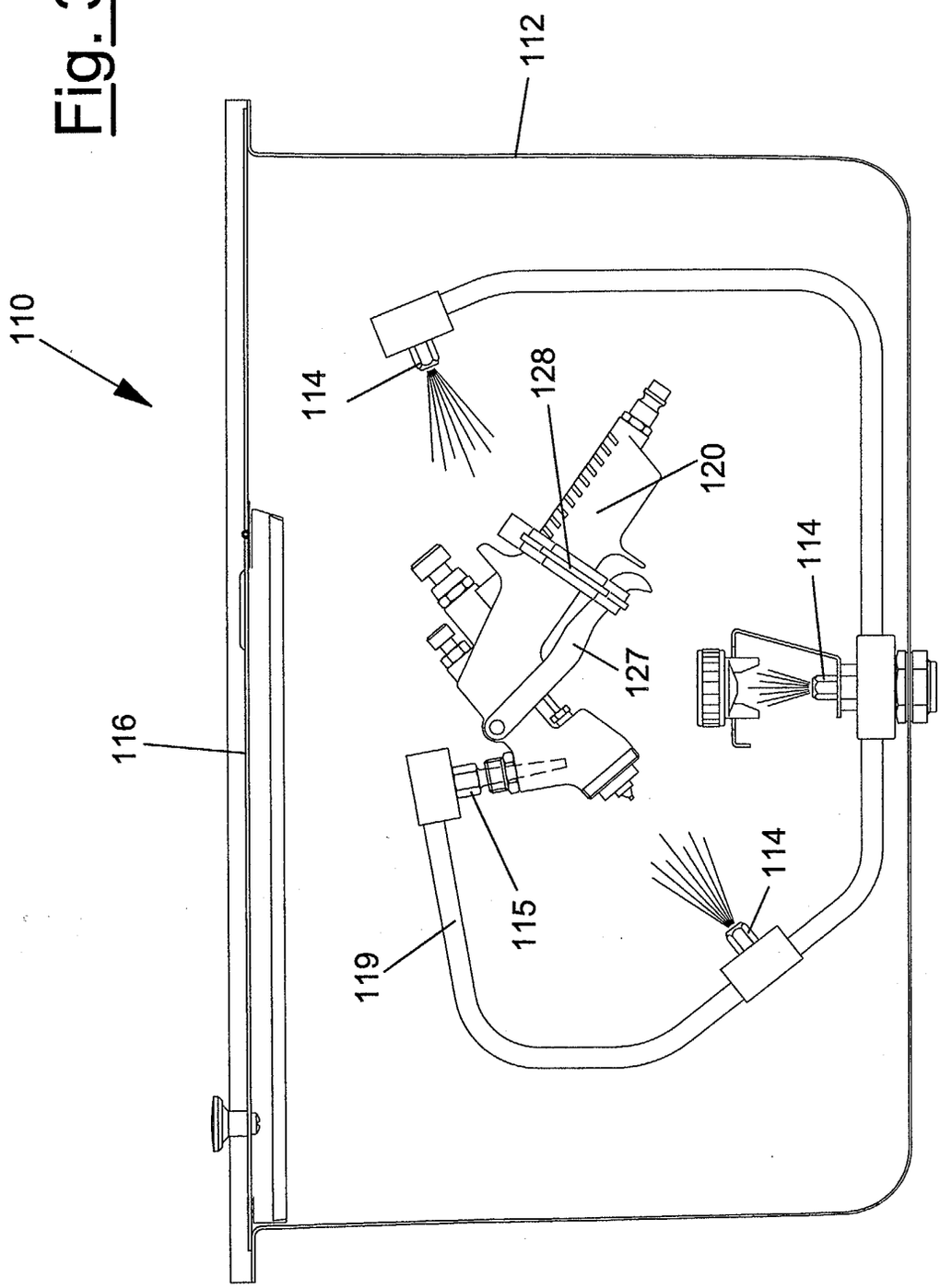


Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 03 07 7394

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 5 937 875 A (NYGREN RICHARD) 17 August 1999 (1999-08-17) * abstract; figure 2 *	1	B05B15/02
A	US 6 361 617 B1 (SEVERINSSON LARS MATTIS ET AL) 26 March 2002 (2002-03-26) * abstract; figure 1 *	1	
A	US 5 485 860 A (ASANGER JAMES T ET AL) 23 January 1996 (1996-01-23) * abstract; figure 2 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	17 October 2003	Eberwein, M

CATEGORY OF CITED DOCUMENTS

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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