

(19)



(11)

**EP 3 106 233 B1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**21.08.2019 Bulletin 2019/34**

(51) Int Cl.:  
**B05B 15/68 (2018.01)**

(21) Application number: **16382256.2**

(22) Date of filing: **06.06.2016**

**(54) PAINT SPRAY GUN WITH A GRADUATED SCALE**

FARBSPRITZPISTOLE MIT EINER GRADUIERTEN SKALA

PISTOLET DE PULVÉRISATION DE PEINTURE AVEC UNE ÉCHELLE GRADUÉE

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB  
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO  
PL PT RO RS SE SI SK SM TR**

(30) Priority: **18.06.2015 ES 201530720 U**

(43) Date of publication of application:  
**21.12.2016 Bulletin 2016/51**

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## Description

### Object of the Invention

[0001] The object of the present invention is a paint spray gun with a graduated scale that allows quickly and easily establishing the correct positioning angles of the paint spray gun for the "incidence" on the part to be painted, which thereby makes its initial installation faster and allows optimizing its position for correctly painting and recording the inclination parameters with respect to the horizontal and vertical position of said gun for future tasks according to the model of the part to be painted, or possible later assemblies of the paint spray gun after maintenance or repair.

### Background of the Invention

[0002] Paint spray guns today are often used in a wide range of operations, such as painting parts off a manufacturing line, for example, where each part will be painted independently either manually (by means of an operator) or else by means of an automated element (painting robot).

[0003] Although in both cases the result of the similarity or correct painting of the parts will be determined by the degree of adjustment of the painting, i.e., it is determined by the expertise of the operator or by the efficiency of the robot.

[0004] This means that in one and the same batch of parts, there may be significant differences as regards the quality thereof because in order for the painting to be optimal, it would have to be done the same way throughout the entire work day.

[0005] Although invention patents US 2012/0273632 and WO 2007071235 define means for regulating paint spray gun position control, they are external means acting by way of accessories to be applied in already existing guns, which mean that they are more complex structure-wise and take up a larger volume than a gun devised for such purpose with specific position regulating means, said means being less accessible and precise.

### Description of the Invention

[0006] The technical problem that the present invention solves is that it obtains a paint spray gun, providing a tool that can quickly and simply define a horizontal and vertical angle of incidence for painting the part. To that end, the paint spray gun incorporates several graduated scales, object of the present invention, characterized in that it comprises a body which, in its upper portion, has a graduated numerical scale and respective signs + - for recording the direction of the horizontal angle, engraved on its upper surface, and where, on both sides or at least on one of its sides it incorporates a second graduated scale on its surface with 4 areas a-b-c-d for recording the direction of the vertical angle.

[0007] As a result of its design, the operator may adjust its positioning with simple parameters in the gun itself on the optimal degree of "incidence" for painting the part, which in the long-run will provide optimal results in painting same, and therefore, fewer parts will be rejected due to deficiencies or significant differences between the painting of the parts from a batch.

[0008] Therefore, an operator could initially perform a series of adjustments or tests to optimize painting the part correctly and later record the vertical and horizontal position angles of the gun according to the numbers, signs +- and quadrants a-b-c-d in the graduated scale engraved on the paint spray gun, leaving the optimal painting mode set so that any operator will know how the gun should be positioned in a quick and simple manner following the previously recorded parameters, either according to the model of the part to be painted or else the reassembly after a malfunction, improving the worker and production output.

[0009] In turn, the paint spray gun could be fitted to a robotic painting arm, such that the information in the graduated scale of the gun is programmed in the robot, optimizing robotic arm output and minimizing possible minor graduation deficiencies that the mentioned arm may have.

[0010] This will allow the gun herein described to be used in any robotic system, whether it is for painting an immobile part or for painting parts moving on a conveyor belt.

[0011] Throughout the description and claims the word "comprises" and its variants do not seek to exclude other technical features, additions, components or steps. For those skilled in the art, other objects, advantages and features of the invention will be deduced in part from the description and in part from putting the invention into practice. The following examples and drawings are provided by way of illustration and do not seek to restrict the present invention. Furthermore, the present invention covers all the possible combinations of particular and preferred embodiments indicated herein.

### Brief Description of the Drawings

[0012] A set of drawings that help to better understand the invention and which are expressly related to an embodiment of said invention presented as a non-limiting example thereof are very briefly described below.

Figure 1 shows a perspective view of an embodiment of the paint spray gun with a graduated scale, object of the present invention.

Figure 2 shows a top view of the gun herein described.

Figure 3 shows a side view of the gun, object of the present invention.

Figure 4 shows a first side perspective view of the gun.

Figure 5 shows a front perspective view of the gun.

Figure 6 shows a second side perspective view of the gun.

### Preferred Embodiment of the Invention

**[0013]** The attached drawings show a preferred embodiment of the invention. More specifically, the paint spray gun with a graduated scale, object of the present specification, is characterized by comprising a body (1) in the form of a gun of those commonly used in the state of the art, and it is characterized in that said body (1) comprises a graduated numerical scale (2) and respective signs (3) engraved on its surface in its upper portion (1a).

**[0014]** In a preferred embodiment, the signs (3) will be a positive sign and a negative sign, as shown in Figure 1.

**[0015]** The body (1) further comprises a central opening (1b) housing a screw which secures an essentially V-shaped metal plate (5) which will allow precisely setting the correct position on the graduated numerical scale (2) so that the operator will know the correct painting angle. Likewise, the body (1) has a second graduated scale (4) engraved on at least one of the side surfaces (1c) of the body (1).

**[0016]** This second graduated scale (4) will be numerical and divided into four quadrants (4a) referenced with a letter (4b), said quadrants (4a) having an essentially circular shape.

**[0017]** In turn, as a complement, the side surface (1c) will incorporate a second central opening (1d) the function of which is identical to the central opening (1b) located on the upper surface (1a) of the body (1).

### Claims

1. A paint spray gun with a graduated scale, comprising a body (1) in the form of a gun and **characterized in that** said body (1) comprises a graduated numerical scale (2) and respective signs (3) engraved on its surface in its upper portion (1a); and where at least one of its side surfaces (1c) incorporates a second graduated scale (4), the upper surface (1a) and at least one side surface (1c) incorporate respective central openings (1b, 1d) where each of them houses a screw which secures an essentially V-shaped metal plate (5), allowing a free 360° rotation, for setting respectively the horizontal and vertical angles according to the numbers on the scale (2, 4) and the orientation according to the signs (3, 4b).
2. The gun according to claim 1, wherein the signs (3) are a positive sign and a negative sign.

3. The gun according to any of claims 1-2, wherein the second graduated scale (4) is numerical and essentially circular-shaped, and is divided into four quadrants (4a) referenced with a letter (4b) for each quadrant A, B, C, D.

### Patentansprüche

1. Farbspritzpistole mit einer graduierten Skala, umfassend einen Körper (1) in Form einer Pistole und **dadurch gekennzeichnet, dass** der genannte Körper (1) eine graduierte numerische Skala (2) und jeweilige Zeichen (3), welche auf deren Oberfläche in deren oberen Teil (1a) graviert sind, umfasst; und wobei mindestens eine deren Seitenflächen (1c) eine zweite graduierte Skala (4) enthält, wobei die obere Oberfläche (1a) und mindestens eine Seitenfläche (1c) jeweilige mittige Öffnungen (1b, 1d) enthalten, wobei jede derselben eine Schraube aufnimmt, welche eine im Wesentlichen V-förmige Metallplatte (5) sichert, so dass eine freie 360°-Rotation erlaubt wird, zum jeweiligen Feststellen der horizontalen und vertikalen Winkel gemäß den Nummern auf der Skala (2, 4) und die Ausrichtung gemäß den Zeichen (3, 4b).
2. Pistole nach Anspruch 1, wobei die Zeichen (3) ein positives Zeichen und ein negatives Zeichen sind.
3. Pistole nach einem der Ansprüche 1-2, wobei die zweite graduierte Skala (4) numerisch und im Wesentlichen kreisförmig ist, und in vier Quadranten (4a) unterteilt ist, welche mit einem Buchstaben (4b) für jeden Quadrant A, B, C, D bezeichnet sind.

### Revendications

1. Pistolet pulvérisateur de peinture avec une échelle graduée, comprenant un corps (1) en forme d'un pistolet et **caractérisé en ce que** ledit corps (1) comprend une échelle graduée numérique (2) et des signes respectifs (3) gravés sur sa surface dans sa partie supérieure (1a); et dans lequel au moins une de ses surfaces latérales (1c) incorpore une deuxième échelle graduée (4), la surface supérieure (1a) et au moins une surface latérale (1c) incorporent des ouvertures centrales respectives (1b, 1d) où chacune d'elles loge une vis qui fixe une plaque métallique sensiblement en forme de V (5), permettant une rotation libre de 360°, pour établir respectivement les angles horizontaux et verticaux selon les nombres sur l'échelle (2, 4) et l'orientation selon les signes (3, 4b).
2. Pistolet selon la revendication 1, dans lequel les signes (3) sont un signe positif et un signe négatif.

3. Pistolet selon l'une quelconque des revendications 1-2, dans lequel la seconde échelle graduée (4) est numérique et de forme essentiellement circulaire, et est divisé en quatre quadrants (4a) indiqués avec une lettre (4b) pour chaque quadrant A, B, C, D.

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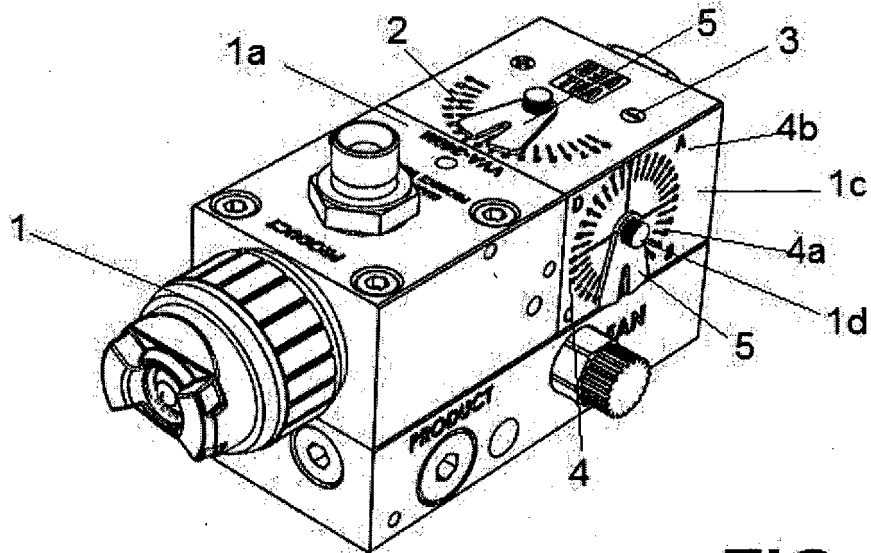
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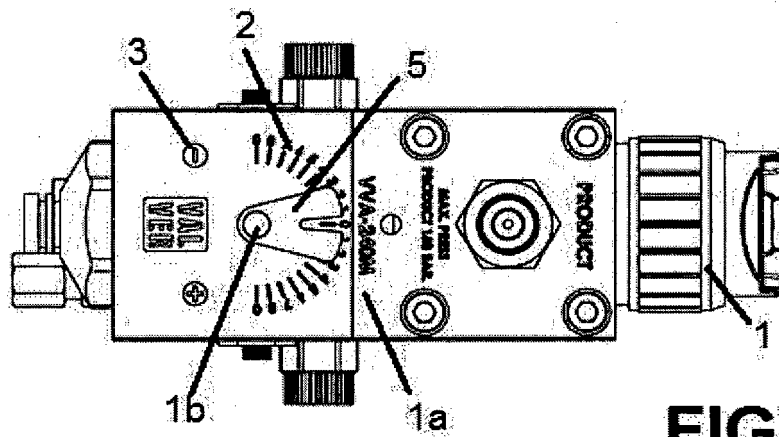
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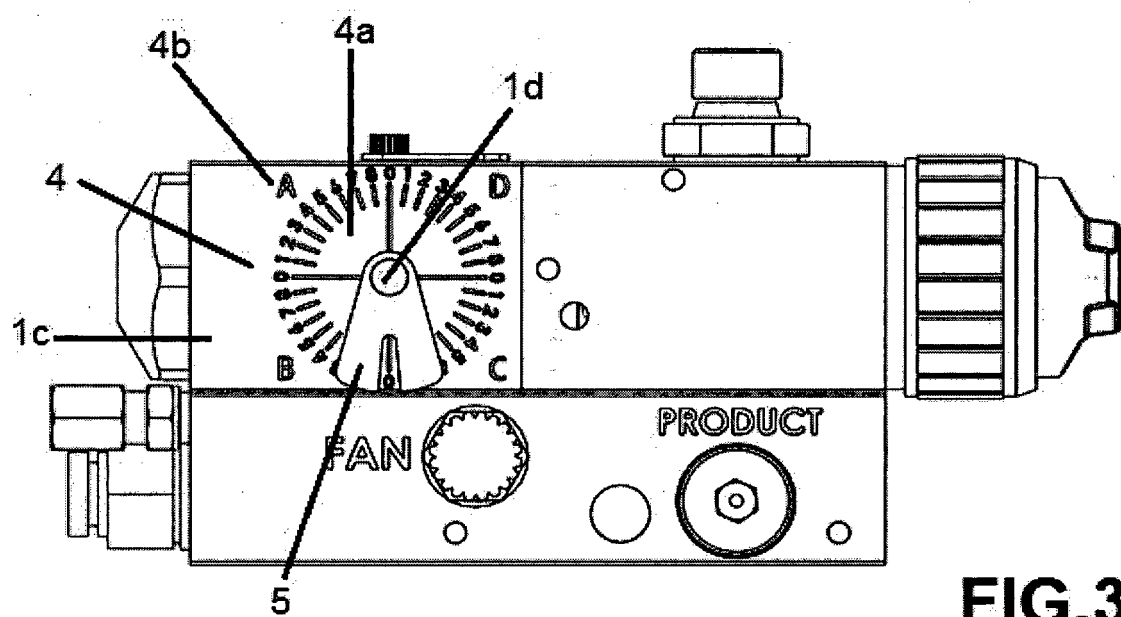
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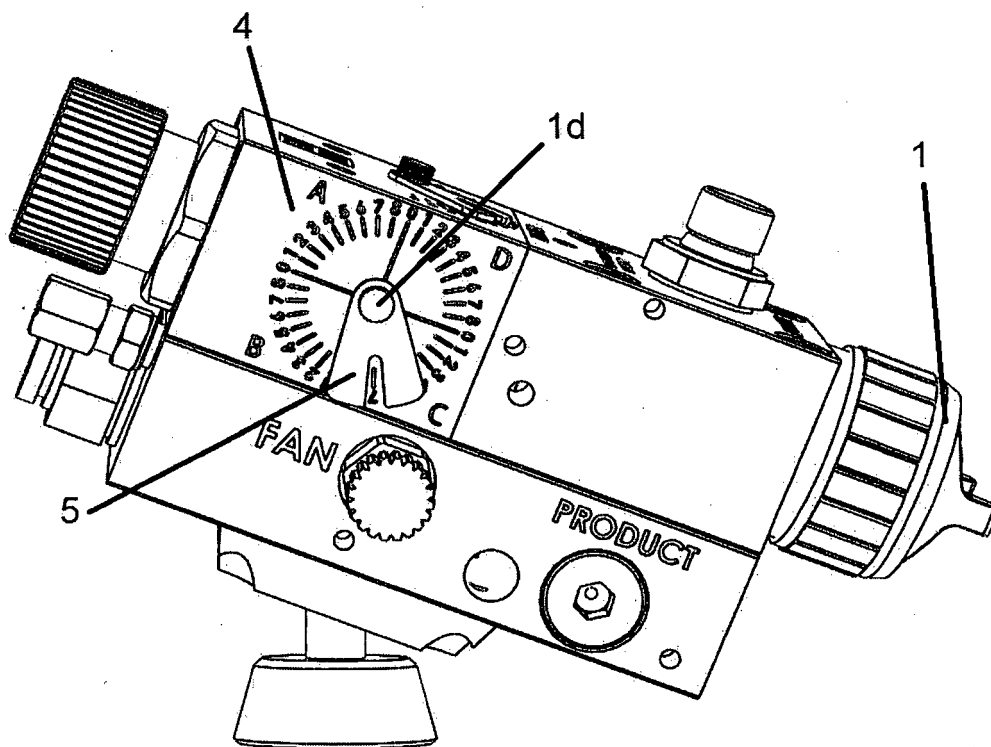
**FIG.1**



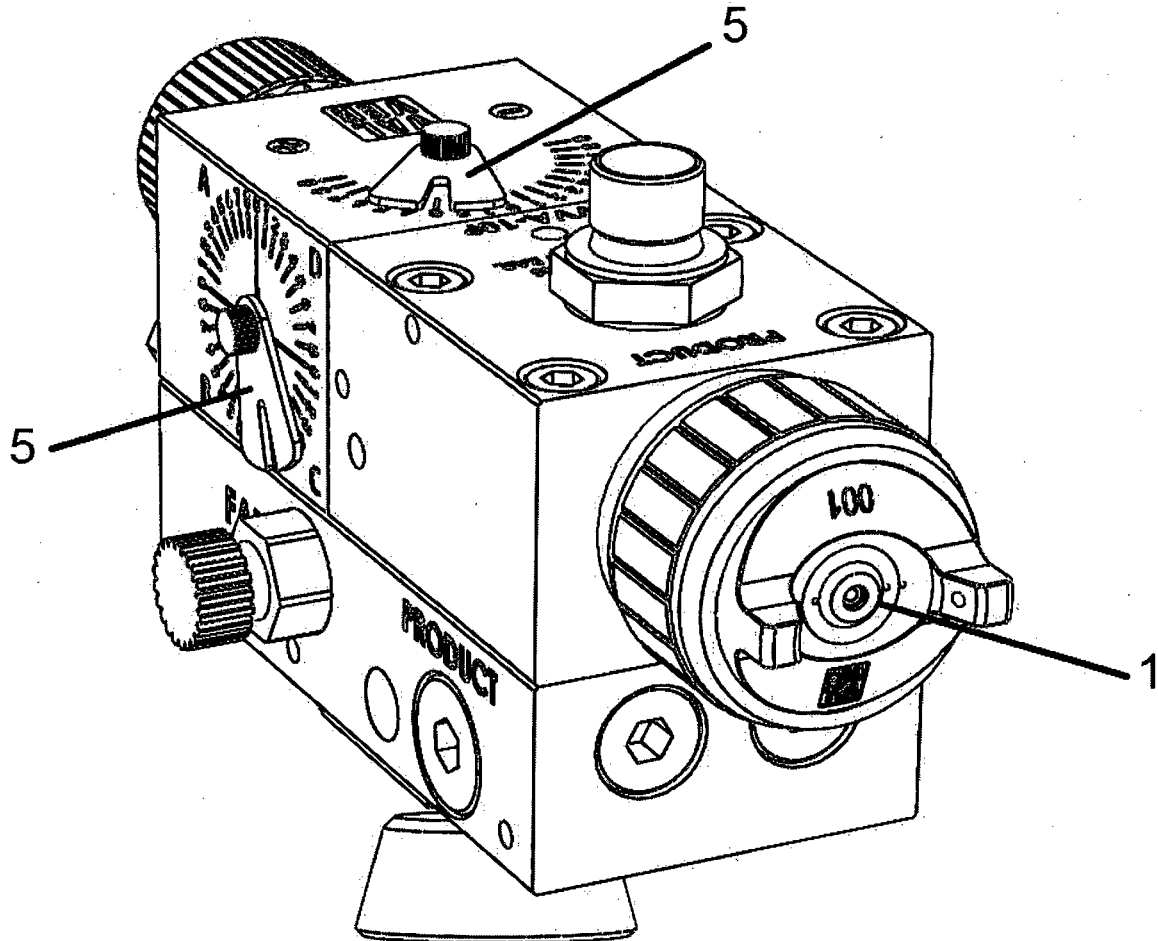
**FIG.2**



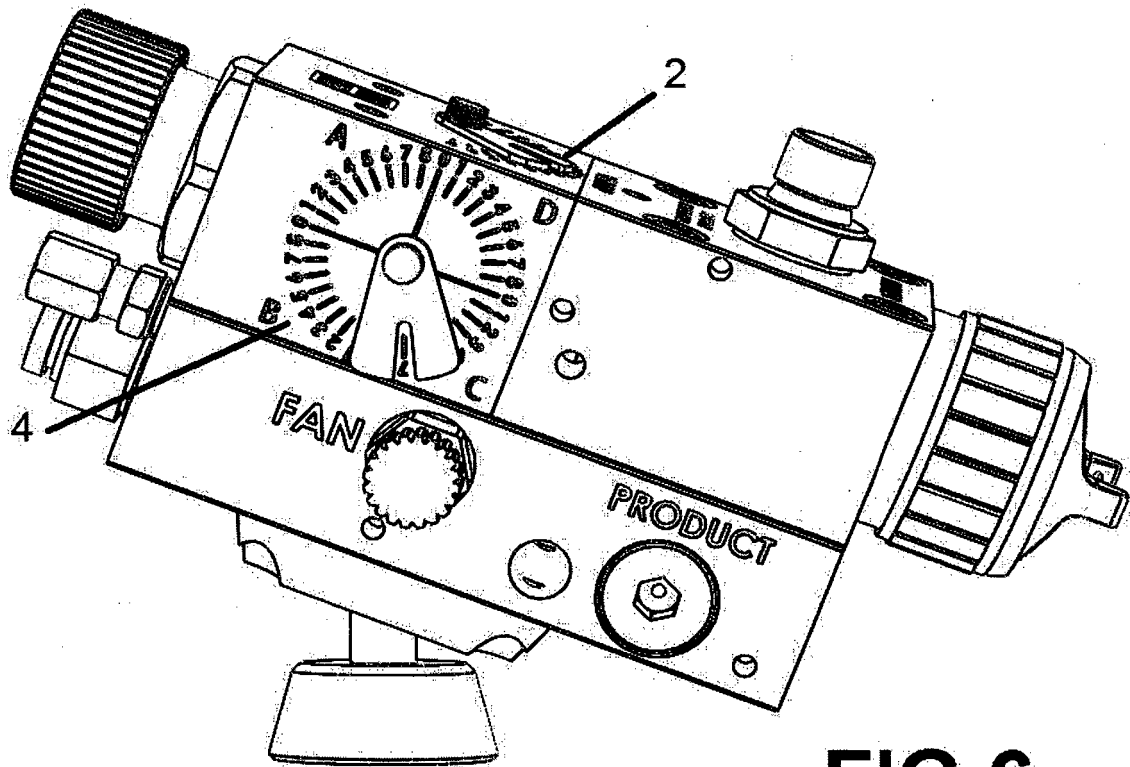
**FIG.3**



**FIG. 4**



**FIG.5**



**FIG.6**

**REFERENCES CITED IN THE DESCRIPTION**

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