(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 223 752**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **86830349.6**

(22) Date of filing: **18.11.86**

(51) Int. Cl.⁴: **F 16 K 1/14**, F 16 K 31/44

(30) Priority: **19.11.85 IT 2387585 U**

(43) Date of publication of application: **27.05.87 Bulletin 87/22**

(84) Designated Contracting States: **DE ES FR GB**

(71) Applicant: **Gervasoni, Bono, Via Laxolo, 7, Brembilla Bergamo (IT)**

(72) Inventor: **Gervasoni, Bono, Via Laxolo, 7, Brembilla Bergamo (IT)**

(74) Representative: **Adorno, Silvano et al, c/o SOCIETA' ITALIANA BREVETTI S.p.A. Via Carducci, 8, I-20123 Milano (IT)**

(54) Improved air gun body with valve housed in the connection with the compressed air feeding pipe.

(57) An air gun or pistol has a body of simple construction by moulding with a valve to be assembled separately therein, and also shows a higher ease of handling, as the valve is housed within an end fitting "nipple" connected with a compressed air feeding pipe. The lever controlling the valve opening is mounted on the upper part of the body and the valve, normally closed, is operated through an elongated rod driven by the lever and extending along a longitudinal cavity provided in the body itself.

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"IMPROVED AIR GUN BODY WITH VALVE HOUSED IN THE CONNECTION WITH THE COMPRESSED AIR FEEDING PIPE"

The present invention relates to an air gun or pistol having the control valve housed within a threaded fitting or "nipple" communicating with the compressed air pipe.

It is known that the air guns hitherto adopted for a number of various utilizations, although generally classifiable as of blowing, washing and inflating type, all show the control valve housed in a gun body so shaped as to form a longitudinal passage therein for the air fed through a threaded end fitting or "nipple", and transverse passages for housing and controlling a valve having a body designed to obstruct said longitudinal passage. It is also known that usually the lever for the control of valve opening is positioned in the low front portion of the gun, like in the weapon from which this device takes its name by analogy.

The foregoing structure involves some known drawbacks of the compressed air pistols, among which a remarkably complicated construction of the gun body with consequently high costs caused by the difficulty of obtaining mutually transverse, inner holes by moulding, as well as by the high number of members forming the valve drive to supply the valve with the movement of the control lever. As a matter of fact the valve should be mounted within the gun body at the same time while the latter is assembled, thus giving rise to a

heavy utilization of labour due to the time required, as well as strong difficulties, or even unfeasibility in case of valve replacement.

Additional non negligible inconveniences derive from the usual location of the control lever, which compels to hold the gun improperly, sometimes in a precarious manner, above all the so-called "washing" guns with which the user has also to lift a liquid tank underneath the pistol, having a weight that may be of about 1 kg at the beginning of the washing operation.

The object of the invention is to provide an improved air gun body in which the valve is housed within the inlet fitting itself, the lever controlling its opening is placed in the upper portion of the gun and the drive for its operation is simply comprised of an elongated small rod which extends longitudinally inside the gun body.

Thereby the gun body has a simplified construction as it can be simply obtained by moulding due to the fact that there are provided no transverse holes, and the valve is suitable to be mounted separately therein with a consequent appreciable reduction of the time required in assembling and a good practical feasibility in replacement. Furthermore the particular positioning of the control lever allows to hold the gun with four fingers while operating the lever by means of the thumb. Therefore a better ease of handling the gun is afforded, especially if it is of the washing type, as well as a greater efficiency of the action exerted on the lever itself, whereby a lower muscular effort is required to

the operator in order to depress the lever for opening the valve.

Further objects and advantages will result clearly from the following detailed description of one non-limiting embodiment of the invention with reference to the annexed drawing showing a longitudinal cross-section of a gun body according to the invention in which the front portion has been intentionally omitted, as this may be differently formed, as it is known, according to the utilization of the pistol, namely whether it is a blowing, washing or inflating gun, or for possible other applications.

With reference to the drawing, the gun body 1 shows, as it is known, a longitudinal hollow 10 as a passage for the compressed air flowing from a feed conduit 9 connected therewith by means of a threaded fitting or "nipple" 6.

According to the invention the valve 3 is housed within said passage 10 and operates coaxially therewith, having its valve body or sealing cone 5 housed inside the "nipple" 6 itself. A small drive rod 3a communicates said sealing cone with a control lever 2 located at the upper portion of the gun body 1, with a pivot point 2a on the front part of the body itself, thus forming a second class lever wherein the active force is applied onto the end of lever 2 which is opposite the pivot 2a and the resisting force is exerted at an intermediate point by the end of rod 3a opposite to the sealing cone 5. A spring means 4, compressed between a stop member 7 on the rod 3a, such as a stop ring, and the inner end of the fitting or "nipple" 6 keeps normally

closed the valve 3, with the cone 5 abutting in an air-tight manner against the inner wall of the "nipple" 6. In a preferred embodiment shown in the drawing said spring means is a spiral spring 4 which is co-axial with the rod 3a along a length thereof at the valve body end, opposite to the end engaging lever 2.

As shown in the drawing it results that when depressing the free end of lever 2 by the user's thumb only, the rod 3a is moved toward the right side against the force of spring 4, thus causing the valve body 5 to disengage its seat and to relieve the air-tight sealing of pipe fitting 6. Then the pressurized air in the conduit 9 is allowed to flow in the cylindrical passage surrounding the rod 3a until reaching a utilization region 11.

It should be appreciated that the valve body 5 has been represented in a preferred "double cone" embodiment, i.e. symmetrical to a transversal plane, so as to be suitable to be applied without difficulty in both directions with a consequent further reduction of the assembling time. It may be made hollow to be fixed to the end of rod 3a which has been shown with a reduced cross-section in the drawing and can retain the member 5 such as by means of a nut or rivet 8.

Finally it should be understood that the fact of providing the rod 3a of relatively extended length between the front end of the gun body and the rear fitting or "nipple" is of further advantage, as it allows the sealing cone 5 to be perfectly self-centered, thus ensuring in any case an air-tight sealing, even when the inner walls of the fitting had some coupling

tolerance.

From the foregoing it is clear that the gun body 1 can be easily obtained by moulding as it does not show hollow parts having a perpendicular direction to the main longitudinal passage 10 of air and the valve control is greatly simplified both for its assembly and for the body moulding there being required no additional cavities to house the drive members for giving movement from the lever to the valve. It appears also clear a better gripping and handling of the pistol itself which can be operated with only the user's thumb on the lever 2 while the other four fingers can be firmly positioned around the gun body 1.

It is finally clear that the valve body 5 could have a different shape from the one illustrated and be fixed to the rod 3a by a different means without exceeding the scope of the present invention.

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CLAIMS

1. An improved air gun body, comprising a valve (3) with a control lever (2) and provided with a longitudinal cavity (10) communicating with an end inlet fitting or "nipple" (6) connected to a compressed air feeding pipe (9), characterized by the said valve (3) being housed within said inlet fitting (6), the lever (2) for controlling valve opening being positioned on the upper portion of the gun itself, and the drive member for the valve operation being formed of an elongated small rod (3a) which extends longitudinally at the inside of said cavity (10), there being provided spring means (4) for keeping normally closed said valve (3).

2. A gun body according to claim 1, characterized by said control lever (2) being of the second class, as it is pivotedly mounted at the front portion of the gun body (1) to control the valve opening by being pressed by only the user's thumb through the said actuating rod (3a) being thrusted toward said inlet fitting (6) against said compression spring means (4).

3. A gun body according to claim 2, characterized by said spring means being a spiral spring (4) wound around said rod (3a) and compressed between a stop means (7) fixed to the rod (3a) and the inner end of said inlet fitting (6).

4. A gun body according to at least one of the preceding claims, characterized by said valve (3) comprising a body (5) with cone-shaped walls, adapted to abut in an air-tight manner against the inner walls of said fitting and connected to the end of said rod (3a)

opposite to the end engaged by said lever (2).

5. A gun body according to claim 4, characterized by said valve body (5) being substantially shaped as a double cone, symmetrical to a central transverse plane.

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