



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 447 181 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.08.2004 Bulletin 2004/34

(51) Int Cl.7: **B25G 1/06**, B05B 15/06,
B25G 1/00, B08B 3/02

(21) Application number: **03002942.5**

(22) Date of filing: **11.02.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT SE SI SK TR**
Designated Extension States:
AL LT LV MK RO

(72) Inventor: **Worm, Erik Kristensen**
9240 Nibe (DK)

(74) Representative: **Roerboel, Leif et al**
Budde, Schou & Ostenfeld A/S,
Vester Soegade 10
1601 Copenhagen V (DK)

(71) Applicant: **Alto Danmark A/S**
9560 Hadsund (DK)

(54) **Lateral handgrip**

(57) The invention relates to a laterally extending handgrip (6) for releasable attachment (8) to the lance (2) of a high-pressure washing gun with the purpose of providing an ergonomically improved grip of the lance section during a large variety of applications of such high-pressure washing guns. The handgrip (6) is provided with attachment means (8), which makes a displacement along the lance and a rotation about the

lance possible and fastening means (14,15,18) for fastening the handgrip in a chosen position and orientation according to the specific need. According to one embodiment of the invention, the attachment means is formed in such a manner that it can not be accidentally released from the lance even though said fastening means are not fastened, for instance during individual adjustment of the handgrip on the lance.

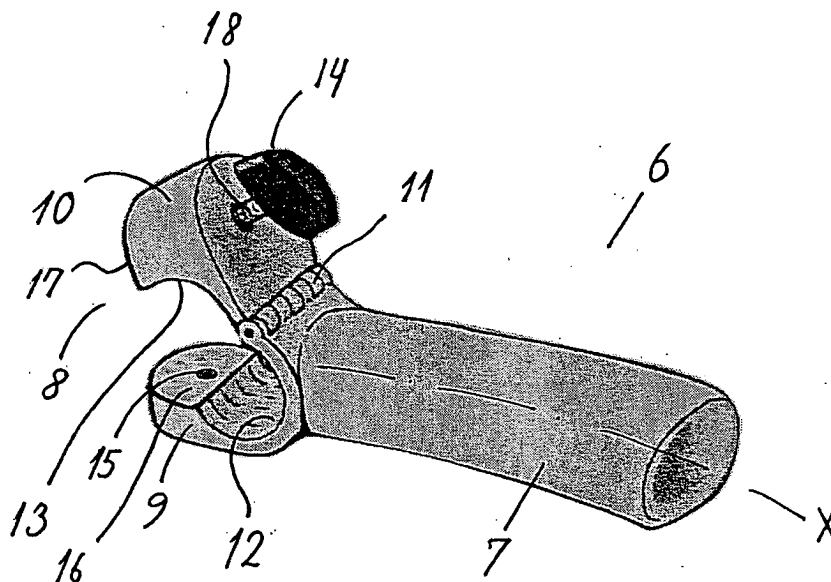


Fig. 2

Description

TECHNICAL FIELD

[0001] The present invention relates generally to handgrips for washing guns, especially high-pressure washing guns, and more particularly to handgrips designed for optimal ergonomic properties.

BACKGROUND OF THE INVENTION

[0002] High-pressure washers generally comprise a washing gun with a handgrip section connected to the main body of the washer by means of a flexible hose. The handgrip section typically comprises the handgrip portion itself for holding the handgrip section by means of one hand of the user, this portion being also generally provided with a trigger mechanism for activating the flow of high-pressure cleansing fluid from the washing gun. This delivery of fluid usually takes place via a lance section connected to the handgrip section. Such lances are provided in a large variety of designs according to the specific application of the high-pressure washer. During use of the washer, the user typically grips the handgrip section with one hand and directs and supports the washing gun by gripping around the lance with the other hand in the manner indicated in Figure 1.

[0003] Directing and supporting the washing gun in the above manner is not always optimal from an ergonomic point of view and can lead to stress and fatigue of the user's hand, wrist and arm used for supporting the washing gun at the lance section. It would thus be desirable to provide means for obtaining a more ergonomically optimal grip around the lance section, especially during prolonged use of the washing gun, said means providing for the possibility to adapt the grip to the specific situation, e.g. to varying characteristics of the user and/or to varying orientations of the washing gun during a specific use.

DISCLOSURE OF THE INVENTION

[0004] On the above background, it is the object of the present invention to provide means for facilitating said support of the lance section of a washing gun during use hereof in an ergonomically more optimal manner than by simply gripping around the lance section itself.

[0005] It is a further object to provide such means for supporting the lance section which can be adapted to specific characteristics of the user and/or to the various orientations of the lance section during use hereof. Pertinent user characteristics would for instance be the length of the arm of the user and whether the user is right- or left-handed.

[0006] Furthermore, the proper placement and orientation of said means on the lance section may depend on the physical characteristics of the washing gun itself and on the manner, in which it is connected to the hose

of the washer, as such physical characteristics will influence e.g. the weight distribution of the washing gun inclusive lance section and the torque exerted by the hose connected to the washing gun.

[0007] According to the invention, these and further objects are attained by a laterally extending handgrip for releasable connection to the lance section according to claim 1. Various advantageous embodiments hereof are defined by the dependent claims.

[0008] Although such means for supporting the lance section could in principle be connected to the lance section in a non-releasable manner, it is generally preferable if the support means are provided as separate means, which can be attached to the lance section in an easy and reliable manner, and when not needed if desired released from the lance section. As a lance section at one end hereof during use of the high-pressure washer is fixed to the handgrip of the washing gun, and as the lance section is often provided at the other end hereof with some kind of a nozzle section, which may be of a larger diameter than the lance section, it is preferable if the lateral handgrip is provided with attachment means that allow an insertion of the lance section into the attachment means through a suitable lateral opening in the attachment means. By these means it becomes unnecessary to either detach the lance section from the handgrip of the washing gun or alternatively remove the nozzle section in order to allow attachment of the lateral handgrip to the lance section. In some cases, lance sections are even provided with extending cross-sections towards either end of the lance section, in which cases the solution according to the invention becomes even more desirable. At any rate, removal of either the lance from the handgrip of the high-pressure washer or removal of the nozzle section from the lance section requires the use of suitable tools and may in itself be a cumbersome process, which is avoided by the lateral handgrip according to the invention.

[0009] According to the present invention, there is thus provided a lateral handgrip for support of the lance section of a washing gun during use hereof, said lateral handgrip comprising a laterally extending grip section extending at a certain angle relative to the longitudinal axis of the lance section. According to one embodiment, the lateral handgrip may extend substantially normal to said longitudinal axis, but it is understood that it may extend at other angles relative to this axis without departing from the invention as defined by the appended claims. The lateral handgrip furthermore comprises attachment means for attaching it to the lance section in such a manner that its position on and orientation relative to the lance section can be adjusted to the specific requirements as outlined above. Preferably said attachment means are releasable, whereby the lateral handgrip can be removed from the lance section if desired and if desired purchased as an optional part of the washer.

[0010] According to a preferred embodiment of the in-

vention, the attachment means is formed in such a manner that the lateral handgrip can not be accidentally released when attached to the lance section, but it is understood that this is not to be regarded as a limiting feature but an optional feature. According to the embodiment described in detail in the following, the above feature is attained by forming one portion of the attachment means in such a manner that this portion extends circumferentially around the lance over an angle exceeding 180 degrees thus providing a lateral opening for insertion of the lance into said portion, said portion being furthermore made from a material of sufficient resiliency to allow this lateral insertion of the lance. Other kinds of retainment means for preventing accidental release of the attachment means could however also be conceived by a skilled person without departing from the invention as defined by the appended claims.

[0011] Furthermore, the attachment means can preferably be provided with fastening means for maintaining it in a given position and orientation on the lance section according to the specific needs. When these fastening means are released, the lateral handgrip can be rotated about the longitudinal axis of the lance section, thereby making it possible to obtain a given, optimal rotational orientation relative to the lance section, and also to adapt the lateral handgrip optimally to both right- and left-handed users. It can furthermore be displaced along the lance section in order to adapt its longitudinal position on the lance section to different arm lengths of users.

[0012] The lateral handgrip itself can be formed as a straight body, e.g. of a substantially cylindrical form, but it can also be of a generally curved form, which could be a desirable shape as it adapts more naturally to the shape of the gripping surface of the hand, which is generally more or less curved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] In the following detailed part of the present description, the invention will now be described in more detail with reference to the accompanying drawings, in which

Figure 1 is a schematic and exemplary view of a typical washing gun with a lance section as used in connection with high-pressure cleaners;

Figure 2 is a schematic view of one embodiment of the lateral handgrip according to the invention; and

Figure 3 is a schematic view of the lateral handgrip in Figure 2 attached to the lance section of a washing gun.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] In the following, a detailed description of one embodiment of the lateral handgrip according to the invention is given.

[0015] With reference to Figure 1, there is shown a typical washing gun with a lance section during use. The user holds the handgrip section with one hand and grips around the lance and supports it from beneath as shown in the Figure.

[0016] A schematic view of one embodiment of the lateral handgrip according to the invention generally designated by reference numeral 6 is shown in Figure 2.

The handgrip 6 comprises two sections, i.e. the laterally extending handgrip portion 7 and the attachment means 8 for releasable and adjustable attachment to the lance 2, as shown in Figure 3. The laterally extending handgrip portion 7 exhibits in this embodiment a substantially cylindrical cross-section and is slightly curved as indicated by the curved X-axis in Figure 2. The attachment means 8 comprises two sections 9 and 10 hingedly connected to each other as indicated by 11. One of these sections is provided with fastening means 14, 18 for engagement with cooperating means 15 in the other section 9. In this embodiment, the fastening means comprises a screw 18 provided with a suitably shaped knob 14 for engagement with a thread 15 in the other section of the attachment means. It is, however, understood that other fastening means could in principle also be used without thereby departing from the present invention.

[0017] The attachment means 8 is formed to provide a firm grip around the lance 2 when the fastening means 14, 15, 18 are applied. This is accomplished by providing the two sections 9 and 10 of the attachment means 8 with curved inner surfaces 12, 13 of a shape corresponding to the circumferential shape of the lance 2. In order to prevent the handgrip 6 from detachment from the lance 2 when positioned hereon without the fastening means being applied, the curved surface 12 extends over a circumferential angle somewhat exceeding 180 degrees. Due to the resiliency of the fastening means, at least of the lower section 9 hereof, it is possible to push the lance 2 through the opening of the curved section 12, whereby this section locks to the lance 2 in a manner preventing accidental release of the handgrip 6 from the lance 2. As mentioned above, this retaining mechanism may be omitted if desired, for instance by the choice of a circumferential angle of less than 180 degrees. By proper dimensioning of the radius of the curved surface 12, the handgrip can now be displaced and/or rotated relative to the lance 2 in order to obtain its optimal position and orientation hereon. After this, the fastening means 14, 15, 18 can be applied to secure the lateral handgrip 6 to the lance 2.

[0018] According to the embodiment of the invention shown in Figures 2 and 3, the laterally extending handgrip portion 7 is of a slightly curved shape along the lon-

gitudinal axis X hereof, but it is understood that other shapes, such as linear, e.g. cylindrical, could also be used, and may be beneficial for certain applications. Likewise, the angle between the longitudinal axis X of the handgrip and the longitudinal axis of the lance section could be chosen as desired, a typical - but not limiting - range of angles being between 50 and 89 degrees and preferably around 85 degrees.

[0019] Finally, Figure 3 shows the laterally extending handgrip 6 attached to a lance 2 at a position between the nozzle section 3 and the other end 19 of the lance 2, where the lance is connected to the handgrip section (not shown) of the washing gun.

[0020] Although a specific embodiment of the present invention has been shown and described in the preceding parts of the detailed description, it is understood that a person skilled in the art may conceive other embodiments of the invention without departing from the scope of the invention as defined by the following claims.

Claims

1. A handgrip for attachment to the lance section of a washing gun, **characterised in that** said handgrip (6) comprises a laterally extending portion (7) provided with attachment means (8) for releasable attachment to said lance (2).
2. A handgrip according to claim 1, **characterised in that** said attachment means (8) are formed in such a manner that they allow said handgrip (6) to be displaced along the longitudinal axis (X) of said lance (2).
3. A handgrip according to claim 1 or 2, **characterised in that** said attachment means (8) are formed in such a manner that they allow said handgrip (6) to be rotated about the longitudinal axis (X) of said lance (2).
4. A handgrip according to any of the preceding claims 1 to 3, **characterised in that** said attachment means (8) being furthermore provided with fastening means (14, 15, 18) for retaining the handgrip (6) at a given position along said longitudinal axis (X) and with a given rotational orientation about the longitudinal axis (X).
5. A handgrip according to claim 1, **characterised in that** said attachment means (8) comprise a first (9) and a second (10) section connected to each other by connecting means (11), whereby said attachment means (8) can be opened for insertion of said lance (2) into the attachment means (8).
6. A handgrip according to claim 3, **characterised in that** said connecting means (11) is a hinge.
7. A handgrip according to claim 5, **characterised in that** said first (9) and second (10) section of the attachment means (8) comprise internal surfaces (11, 12), the shape of which corresponds to at least a portion of the circumferential surface of the lance (2).
8. A handgrip according to claim 7, **characterised in that** said internal surface (12) of said first (9) section of the attachment means (8) extends circumferentially over an angle exceeding 180 degrees, whereby the lance (2) can be retained within said first section (9) without the application of said fastening means (14, 15, 18).
9. A handgrip according to claim 4, **characterised in that** said fastening means comprises a screw (18) connected to one of said first (9) or second (10) attachment means for engagement with a corresponding threaded member (15) connected to the opposite of said first (9) or second (10) attachment means.
10. A handgrip according to claim 8, **characterised in that** said first (9) section of the attachment means is formed of a resilient material.
11. A handgrip according to claim 1, **characterised in that** said laterally extending portion (7) extends at an angle of 50 to 89 degrees relative to the longitudinal axis (X) through the lance section (2).
12. A handgrip according to claim 11, **characterised in that** said angle is substantially 85 degrees.
13. A handgrip according to claim 1, 11 or 12, **characterised in that** said laterally extending portion (7) is of a substantially circular cross-sectional shape.
14. A handgrip according to any of the preceding claims 1, 11, 12 or 13, **characterised in that** said laterally extending portion (7) is substantially straight.
15. A handgrip according to any of the preceding claims 1, 11, 12 or 13, **characterised in that** said laterally extending portion (7) is curved.



Fig. 1

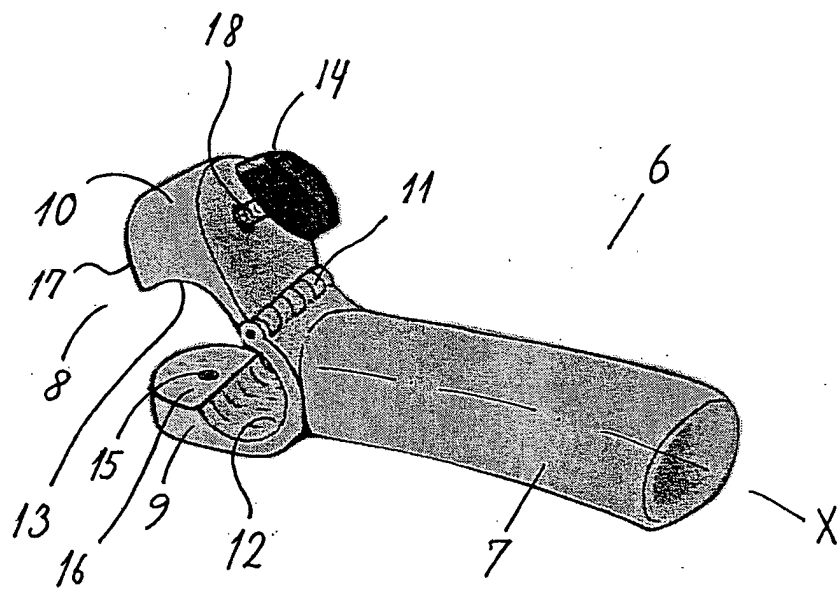


Fig. 2

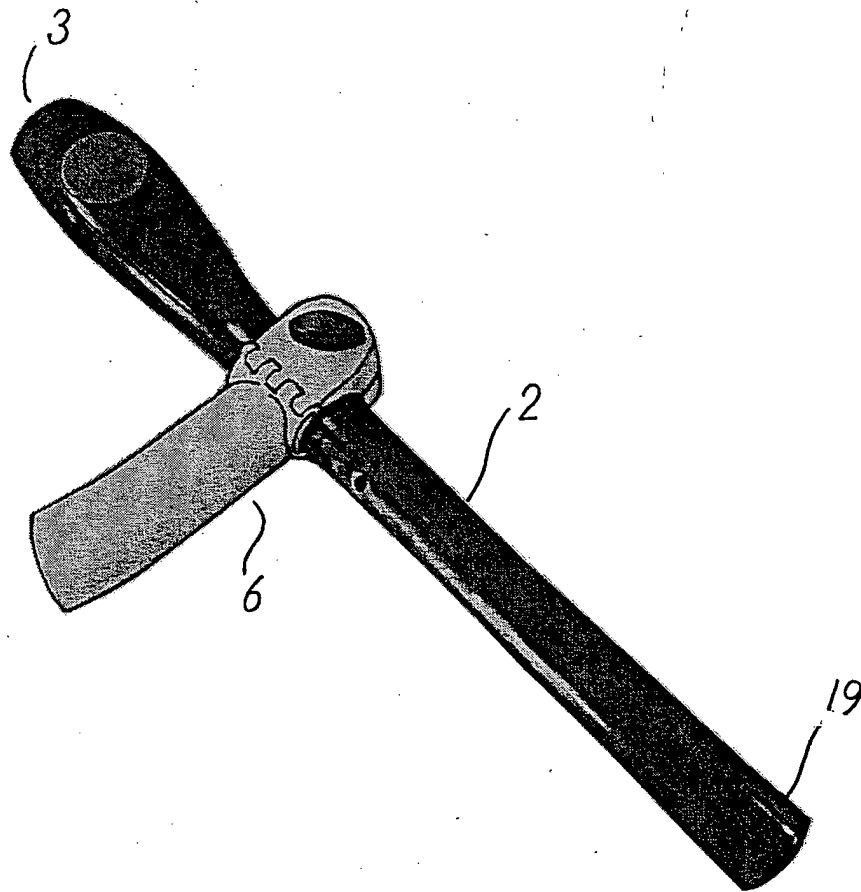


Fig. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 00 2942

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)
X	EP 0 890 524 A (WUERTH ADOLF GMBH & CO KG) 13 January 1999 (1999-01-13) * abstract; figures 1-4 * ---	1-15	B25G1/06 B05B15/06 B25G1/00 B08B3/02
X	WO 98 12023 A (PROCTER & GAMBLE) 26 March 1998 (1998-03-26) * abstract * * page 3, paragraph 3 * * claim 10 * * figures 1,2 * ----	1,3, 11-13,15	
X	US 4 783 883 A (SZALAY ALEXANDER) 15 November 1988 (1988-11-15) * column 4, line 3 - line 5 * * figures 1,2 * ----	1-5,7,8, 13,14	
X	US 5 496 085 A (MIDDLETON DAVID J) 5 March 1996 (1996-03-05) * abstract; figures * ----	1-7,11, 13,15	
X	US 5 400 471 A (LICHFIELD WILLIAM H ET AL) 28 March 1995 (1995-03-28) * abstract; figures * -----	1-5, 7-11,14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B25G B05B B08B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 July 2003	Examiner Roldán, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 B2 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 00 2942

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-07-2003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0890524	A	13-01-1999	DE	29712211 U1	11-09-1997
			EP	0890524 A1	13-01-1999
WO 9812023	A	26-03-1998	WO	9812023 A1	26-03-1998
US 4783883	A	15-11-1988	NONE		
US 5496085	A	05-03-1996	NONE		
US 5400471	A	28-03-1995	NONE		

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82