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(54) **HANDGRIP FOR A DOMESTIC CLEANING-APPLIANCE NOZZLE**

HANDGRIFF FÜR EINE DÜSE EINES HAUSHALTREINIGUNGSGERÄTS

POIGNEE POUR BUSE D'UN APPAREIL DE NETTOYAGE ELECTROMENAGER

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## Description

**[0001]** The present invention relates to a handgrip for a nozzle of a cleaning appliance for domestic use, in particular, to a handgrip for a nozzle for hot fluids and/or liquids under pressure, according to the preamble of Claim 1.

**[0002]** Steam appliances are known to be an effective aid in domestic cleaning operations and, as well as cleaning thoroughly by virtue of the high water temperature, they can also sterilize, eliminating bacteria, germs, mites, fungi, and pollen which often give rise to allergic reactions of the skin and of the respiratory tract.

**[0003]** These steam appliances therefore offer several advantages over conventional cleaning systems.

**[0004]** Dirt is in fact softened by the heat of the steam alone and it is not necessary to "rub" with the use of hand force.

**[0005]** Moreover, detergents are not used so that there is no pollution of the environment and there is also no risk of poisoning by excessive use of chemical products.

**[0006]** In general, steam appliances may be divided into:

1) steam guns, which have a small boiler with a capacity of about 1/2 a litre of water and are specifically for limited areas;

2) steam brushes, which have a boiler at the base of the brush and which are suitable only for cleaning flat surfaces such as floors;

3) steam generators, which have boilers with various capacities according to the model but do not have suction motors, and which have accessories for various uses; these are suitable for surfaces of any type;

4) multifunctional appliances which combine with the steam further functions such as vacuum cleaning, dry pickup, pickup of liquids, and shampooing with extraction; these are suitable for any surface and also for fabrics.

**[0007]** Although these appliances offer undoubted advantages over conventional domestic cleaning appliances, steam brushes, steam generators and multifunctional appliances are not actually easy to use because of their bulk, weight, and aesthetic configuration.

**[0008]** Even though steam guns offer the advantage of being compact, they nevertheless have some drawbacks such as, for example, limited autonomy and considerable weight due precisely to the presence of the tank, leading to poor manoeuvrability of the implement.

**[0009]** It is also known that a cleaning appliance of this type usually has a switch, located on the handgrip of the steam-supply nozzle, for operating a solenoid valve. This enables the user of the cleaning appliance to control the steam-supply nozzle directly from the handgrip.

**[0010]** Although this location is optimal from the ergonomic point of view, it does not ensure the necessary protection against accidental knocks which could operate the switch and consequently lead to an undesired escape of steam with obvious and imaginable consequences.

**[0011]** It has therefore been proposed to locate the switch in a more protected position or even to provide a protective switch housing made of plastics material or the like.

**[0012]** For example, US patent 6,314,972 describes an embodiment of a housing for the steam control/supply switch which also performs the functions of a hand guard.

**[0013]** However, this solution also has disadvantages such as, for example, the need to design and to produce moulds for additional elements (that is, the hand-guard or protective housing) which involve a lengthening of design and production times and an increase in production costs.

**[0014]** Other examples of handgrips for nozzles of similar cleaning appliances are known from EP-B-0746999, EP-A-0836828 and US-A-5 459 901.

**[0015]** In the field of cleaning appliances, the above-described disadvantages affect not only appliances in which steam is used, but also appliances in which other fluids, such as water, detergents, and the like have to be sprayed or atomized in the liquid state with the use of a nozzle on which the control for the operation of the nozzle is to be disposed.

**[0016]** This disadvantage also similarly affects cleaning appliances for picking up liquids and/or dust.

**[0017]** In view of the prior art described, the object of the present invention is to provide a nozzle which overcomes the disadvantages mentioned above with reference to the prior art.

**[0018]** According to the present invention, this object is achieved by means of a steam-cleaning nozzle for domestic use according to the characterizing part of Claim 1.

**[0019]** By virtue of the present invention, it is possible to provide a handgrip which is light and easier to use than known devices so that even frailer people such as the elderly can confidently undertake large cleaning operations.

**[0020]** Moreover, the present invention also permits a considerable saving in production times and costs.

**[0021]** Finally, the present invention also ensures a degree of protection against undesired switching-on of the solenoid valve which is at least equal to that of the handgrips of known devices so as also to satisfy the most stringent accident-prevention regulations in force.

**[0022]** The characteristics and the advantages of the present invention will become clear from the following detailed description of a practical embodiment which is illustrated by way of non-limiting example in the appended drawings, in which:

Figure 1 is a perspective view of the nozzle according to the present invention in the condition of use, and

Figure 2 is a perspective view of the nozzle to which a cleaning accessory according to the present invention is connected.

**[0023]** With reference to the drawings, an appliance for domestic use, for cleaning by the blowing of steam, is generally indicated 1.

**[0024]** The appliance 1 has a substantially parallelepipedal casing 2 and comprises a nozzle 3 for cleaning operations which can supply steam by means of an accessory 4 disposed on one of its ends.

**[0025]** It should be noted that the accessory shown in the drawings is an example of the accessories which can be connected to the nozzle 3.

**[0026]** The accessory 4 may in fact be a nozzle intake-outlet element useful for performing cleaning of the crevices or spaces between tiles as well as, for example, for the internal walls of an oven, or the accessory 4 may be a triangular brush for corners, or the accessory 4 may be a glass-cleaning brush for windows, mirrors and all vertical surfaces, etc.

**[0027]** The appliance 1 further comprises a tube 5 and releasable coupling means 6 associated with the casing 2.

**[0028]** The tube 5 extends between the releasable coupling means 6 and the nozzle 3.

**[0029]** It should be noted that the coupling means 6 can be released by the user of the appliance 1 by pressing a manual operating member 6a.

**[0030]** Inside the casing 2 there are devices well known to persons skilled in the art such as, for example, a steam-generating boiler, a solenoid valve associated with the boiler for the supply of the steam, a communication tube for fluid, that is, for steam, between the accessory 4 and the solenoid valve, and a motor (a turbine) suitable for drawing in dust or similar material, with an associated paper bag, etc.

**[0031]** It should be noted that, in the embodiment described, the tube 5 is constituted by a first tube 5a suitable for conveying a substantially compressible fluid such as, for example, air during the normal operation of the appliance 1, and a second tube 5b suitable for conveying the steam generated by the boiler housed inside the casing 2, the first tube 5a and the second tube 5b being associated with one another.

**[0032]** With particular reference now to the nozzle 3, this is constituted by a body 7 from which an appendage 8 extends so as to constitute a handgrip for the user of the nozzle 3 (as shown by the hand indicated in broken outline in Figure 1).

**[0033]** The appendage 8 advantageously has at least a portion 8a which extends above the tube 5a, and the appendage 8 also has a free end 8b.

**[0034]** The appendage 8 is shaped in the manner of a handgrip so as to facilitate cleaning operations, also permitting mobility of the nozzle 3 by virtue of the gripping area that is available for the user's hand. In fact with an appendage 8 of this type, the nozzle 3 becomes an actual

extension of the user's arm.

**[0035]** In the embodiment described, the appendage 8 is formed as a handgrip having an arcuate profile but it may also have appendages provided with profiles defined, for example, by discontinuous lines.

**[0036]** The nozzle 3 adopts substantially the configuration of a dispenser gun since it has dimensions such that a user can easily grip it in his hand by grasping the appendage 8 with several fingers.

**[0037]** In fact, a space having a depth of between 4 and 8 cm. is advantageously provided between the appendage 8 and the tube 5a for the insertion of the fingers of the user's hand.

**[0038]** It should be noted that the handgrip 8 is preferably made of a plastics material such as, for example, nylon.

**[0039]** The body 7 of the nozzle 3 has first releasable connection means 9 at its inlet and second releasable connection means 10 at its outlet.

**[0040]** The first releasable connection means 9 enable the tube 5 to be connected to the body 7 of the nozzle 3, and the second releasable connection means 10 permit the connection of one of the accessories 4 listed above.

**[0041]** In fact, the first releasable connection means 9 are composed of a threaded connector 9a and of a coupling element 9b by means which the connection to the first tube 5a and to the second tube 5b take place, respectively. In other words, a threaded connection is provided between the first tube 5a and the connector 9a and a snap-in coupling is provided between the second tube 5b and the coupling element 9b.

**[0042]** There is thus a leaktight connection between the tube 5 and the body 7 of the nozzle 3.

**[0043]** It should be noted that this connection can be released by virtue of the presence of the threaded connector 9a.

**[0044]** The second releasable connection means 10 provide an engagement intake portion 10a and a steam-supply jet 10b on which one of the preselected accessories 4 is engaged in order to perform domestic cleaning operations.

**[0045]** Pressure-generating means (not shown in the drawings), known *per se* to persons skilled in the art, are provided inside the nozzle 3 and can be operated manually by means of a first manual operating member 11.

**[0046]** The nozzle 3 also has a second manual operating member 12 the purpose of which will be described below.

**[0047]** The first operating member 11 enables the steam to be supplied through the preselected accessory 4 since it is the member for the switching on/off of the solenoid valve housed inside the casing 2. In other words, once the first operating member 11 has been operated by the user of the appliance 1, it permits fluid communication between the tubes 5a and 10a and between the tubes 5b and 10b.

**[0048]** The second manual operating member 12 is constituted substantially by an electrical switch which can

regulate the suction produced by the motor (turbine) which is also housed in the casing 2 of the appliance 1, so as to draw in small items of debris and/or dust and collect them in the bag provided for the purpose.

[0049] In other words, the second manual operating member 12 is an electrical control of the type with a variable electrical resistance which is constituted, for example, by a wire wound on a cylinder over which a slider slides, and which acts as a potentiometer. In this application, the potentiometer thus serves for the continuous regulation of the suction rate of the motor.

[0050] During the normal operation of the appliance 1 small items of debris and dust drawn in by the motor thus flow between the tubes 5a and 10a and are stored in the waste-collection bag, whilst the steam generated by the boiler and expelled by the accessory 4 flows between the tubes 5b and 10b.

[0051] With reference now to Figure 2 in particular, it is pointed out that the steam-supply jet 10b and the engagement intake portion 10a are also connected to a further tube 13 by means of the releasable connection means 10 already mentioned.

[0052] The tube 13 acts as a connector between the nozzle 3 and the accessory 4.

[0053] It should be noted that this connection can be released by the operation of a connecting push-button 14 so that the various accessories can be replaced easily and conveniently.

[0054] With reference to the drawings, it can be seen that the presence of the tube 5 advantageously prevents accidental operation of the first operating member 11.

[0055] In other words, the presence of the tube 5 acts as a protection for the user's hand and as a protection against accidental operation of the first operating member 11, that is, the first operating member 11 advantageously faces the tube 5a whilst the second tube 5b faces outwards.

[0056] In practice, the hand-guard function and the function of protection against inadvertent switching-on of the first operating member 11 are performed by the first tube 5a, that is, by the air-conveying tube.

[0057] Moreover, the nozzle 3 is easy to manoeuvre by virtue of the characteristic configuration which the handgrip adopts, ensuring easier handling of the nozzle 3 for the user of the appliance.

[0058] Finally, there is the advantage of a low cost for the production of an appliance as described since it enables the number of parts and the quantity of plastics material necessary for the production of the protection for the first operating member 11 to be reduced.

[0059] Naturally, in order to satisfy contingent and specific requirements, a person skilled in the art will be able to apply to the above-described appliance many modifications and variations all of which, however, are included within the scope of protection of the invention as defined in the appended claims.

## Claims

1. A handgrip for a nozzle (3) for fluids, in particular for hot fluids and/or liquids under pressure, of the type comprising:

- a body (7) connectable to at least one accessory (4) at one of its ends, and to at least one flexible tube (5) at the other of its ends, said flexible tube(s) consist of a first tube (5a) suitable for conveying a substantially compressible fluid and a second tube (5b) suitable for conveying steam;
- and an appendage (8) extending from the body (7) having a free end (8b) which can be gripped by a user, and comprising at least one operating member (11)

**characterized in that** when the body (7) is connected to the at least one flexible tube (5) a portion (8a) of

- said appendage (8) extends above said first tube (5a), and
- said at least one operating member (11) is positioned in the appendage (8) so as to face said first tube (5a),

whereby said first tube (5a) acts as a protection for the user's hand and as a protection against accidental operation of said at least one operating member (11)

2. A handgrip for a nozzle for fluids according to Claim 1, in which the body (7) comprises first releasable connection means (9) and second releasable connection means (10), the first releasable connection means (9) comprising a threaded connector (9a) and a coupling element (9b), the second releasable connection means (10) comprising an intake portion (10a) and a jet (10b).
3. A handgrip for a nozzle for fluids according to Claim 2, **characterized in that** the first tube (5a) is connected to the threaded connector (9a) and the second tube (5b) is connected to the coupling element (9b).
4. A handgrip for a nozzle for fluids according to any one of Claims from 1 to 3, **characterized in that** the accessory (4) can be connected to the body (7) of the nozzle (3) by the second connection means (10), by means of a connection push-button (14).
5. A handgrip for a nozzle for fluids according to any one of proceeding Claims, **characterized in that** the handgrip (8) has an arcuate shape.
6. A handgrip for a nozzle for fluids according to any

one of proceeding Claims, **characterized in that** the handgrip (8) has a shape with a discontinuous outline.

7. A handgrip for a nozzle for fluids according to any one of proceeding Claims, **characterized in that** the at least one operating member (11) is suitable for being operated manually.

#### Patentansprüche

1. Handgriff für eine Düse (3) für Fluide, insbesondere für heiße Fluide und/oder Flüssigkeiten unter Druck, der Art, die Folgendes umfasst:

- ein Körper (7), an einem seiner Enden mit wenigstens einem Zubehöerteil (4) und am anderen seiner Enden mit wenigstens einem flexiblen Schlauch (5) verbindbar, wobei der flexible Schlauch (5) aus einem ersten Schlauch (5a), der sich für die Beförderung eines im Wesentlichen komprimierbaren Fluids eignet, und aus einem zweiten Schlauch (5b), der sich für die Beförderung von Dampf eignet, besteht;
- ein Anhang (8), der sich vom Körper (7) erstreckt, der ein freies Ende (8b) aufweist, das von einem Benutzer ergriffen werden kann und der wenigstens ein Bedienelement (11) aufweist;

**dadurch gekennzeichnet, dass,**

wenn der Körper (7) mit dem wenigstens einen flexiblen Schlauch (5) verbunden ist, sich ein Abschnitt (8a) des Anhangs (8) über dem ersten Schlauch (5a) erstreckt und das wenigstens eine Bedienelement (11) in dem Anhang (8) derart angeordnet ist, dass es dem ersten Schlauch (5a) zugewandt ist, wobei der erste Schlauch (5a) als ein Schutz für die Hand des Benutzers und als ein Schutz vor unbeabsichtigter Betätigung des wenigstens einen Bedienelements (11) dient.

2. Handgriff für eine Düse für Fluide gemäß Anspruch 1, in dem der Körper (7) erste lösbare Verbindungsmittel (9) und zweite lösbare Verbindungsmittel umfasst, wobei die ersten lösbaren Verbindungsmittel (9) einen Schraubverbinder (9a) und ein Kupplungselement (9b) beinhalten und die zweiten lösbaren Verbindungsmittel (10) einen Ansaugbereich (10a) und eine Strahldüse (10b) beinhalten.
3. Handgriff für eine Düse für Fluide gemäß Anspruch 2, **dadurch gekennzeichnet, dass** der erste Schlauch (5a) mit dem Schraubverbinder (9a) verbunden ist und der zweite Schlauch (5b) mit dem Kupplungselement (9b) verbunden ist.

4. Handgriff für eine Düse für Fluide gemäß einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das Zubehöerteil (4) mit dem Körper (7) der Düse (3) durch die zweiten Verbindungsmittel (10) verbunden werden kann, mittels eines Verbindungsdruckknopfs (14).

5. Handgriff für eine Düse für Fluide gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Handgriff (8) eine gekrümmte Form aufweist.

6. Handgriff für eine Düse für Fluide gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Handgriff (8) eine Form mit einem diskontinuierlichen Umriss aufweist.

7. Handgriff für eine Düse für Fluide gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das wenigstens eine Bedienelement (11) die-Bedienung von Hand gestattet.

#### Revendications

1. Poignée pour une buse (3) pour des fluides, en particulier pour des fluides chauds et/ou des liquides sous pression, du type comprenant :

- un corps (7) susceptible d'être relié à au moins un accessoire (4), à l'une de ses extrémités, et à au moins un tube flexible (5), à l'autre de ses extrémités, ledit tube flexible (5) étant constitué d'un premier tube (5a), convenant pour transporter un fluide sensiblement compressible, et d'un deuxième tube (5b), convenant pour transporter de la vapeur ;
- et un prolongement (8) s'étendant depuis le corps (7), ayant une extrémité libre (8b) qui peut être saisie par un utilisateur, et comprenant au moins un organe d'actionnement (11), **caractérisée en ce que**, lorsque le corps (7) est connecté au moins un tube flexible (5), une partie (8a) dudit prolongement (8) s'étend au-dessus dudit premier tube (5a), et
- ledit au moins un organe d'actionnement (11) est positionné dans le prolongement (8), de manière à être placé face audit premier tube (5a),

de manière que ledit premier tube (5a) agisse comme protection pour la main de l'utilisateur et comme protection contre un actionnement accidentel dudit au moins un organe d'actionnement (11).

2. Poignée pour une buse pour des fluides selon la revendication 1, dans laquelle le corps (7) comprend de premiers moyens de connexion (9) désolidarisables et de deuxièmes moyens de connexion (10) dé-

solidarisables, les premiers moyens de connexion (9) désolidarisables comprenant un connecteur fileté (9a) et un élément de couplage (9b), les deuxièmes moyens de connexion (10) désolidarisables comprenant une partie d'admission (10a) et une tuyère (10b). 5

3. Poignée pour une buse pour des fluides selon la revendication 2, **caractérisée en ce que** le premier tube (5a) est relié au connecteur fileté (9a) et le deuxième tube (5b) est relié à l'élément de couplage (9b). 10
4. Poignée pour une buse pour des fluides selon l'une quelconque des revendications 1 à 3, **caractérisée en ce que** l'accessoire (4) peut être relié au corps (7) de la buse (3) par les deuxièmes moyens de connexion (10), au moyen d'un bouton poussoir de connexion (14). 15  
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5. Poignée pour une buse pour des fluides selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la poignée (8) présente une forme arquée. 25
6. Poignée pour une buse pour des fluides selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la poignée (8) présente une forme ayant un profil discontinu. 30
7. Poignée pour une buse pour des fluides selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le au moins un organe d'actionnement (11) convient pour être actionné manuellement. 35

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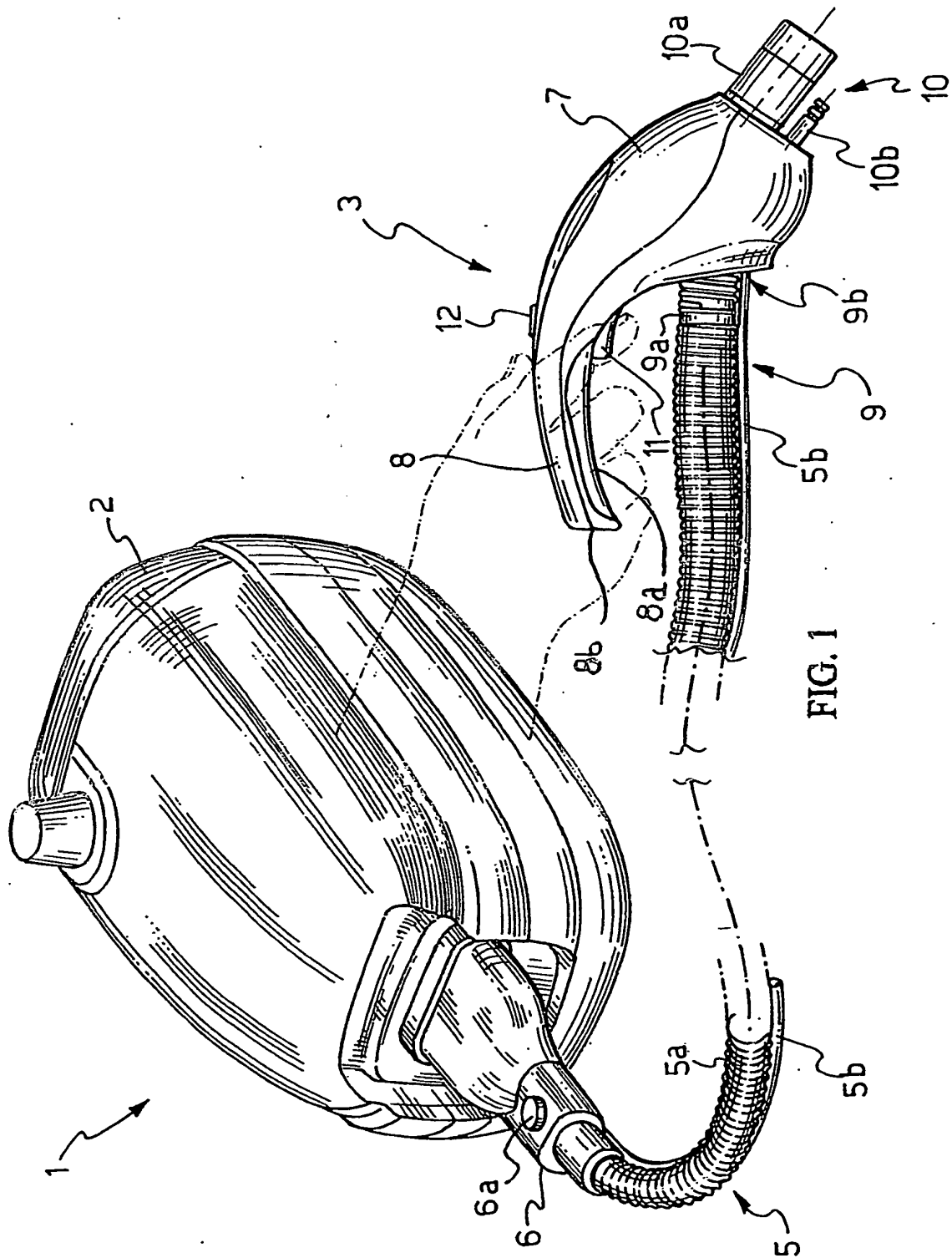


FIG. 1

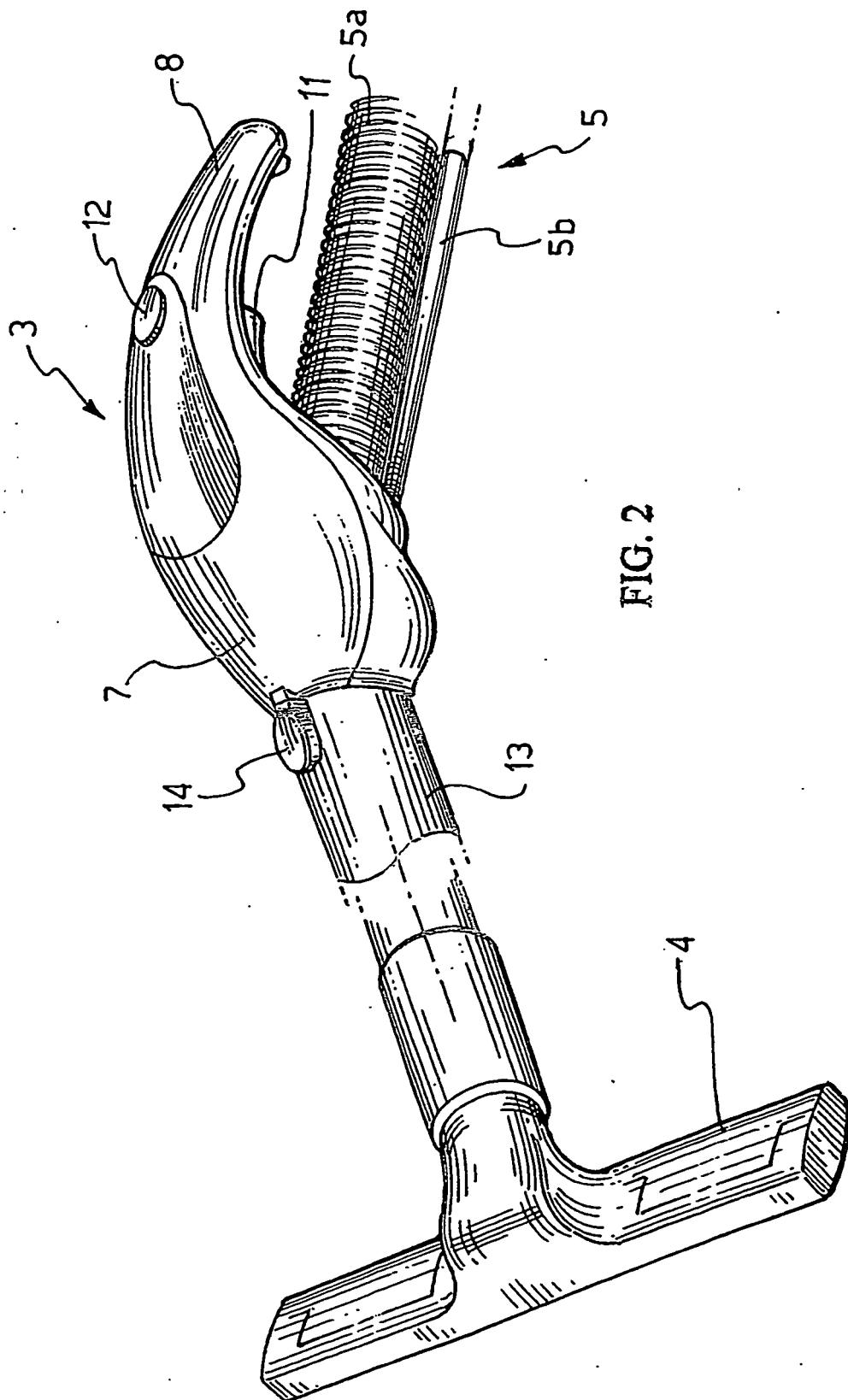


FIG. 2