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(54) **A VACUUM CLEANER HANDLE WITH A SYSTEM FOR COUPLING A HOSE**

STAUBSAUGERHANDGRIFF MIT EINEM SCHLAUCHKUPPLUNGSSYSTEM

MANCHE D'ASPIRATEUR AVEC UN RACCORD DE TUYAU

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Description

Field of the invention

[0001] The present invention relates to the field of suction and cleaning systems, more specifically to a system for coupling a hose to a vacuum cleaner handle and a vacuum cleaner handle equipped with such a system.

Background art

[0002] The vacuum cleaner is a particular household appliance intended for cleaning floors and other surfaces. Its internal mechanism allows it to suck dust and other particles mixed with air, and to hold them inside its body by means of a filter element, so as to release clean air. The motor, in particular, which is typically and electric one, allows sucking external air by creating a sort of a vacuum, by means of a fan, inside the vacuum cleaner.

[0003] A vacuum cleaner typically consists of a body enclosing the internal mechanism, possibly fitted with castors for ease of movement, to which a flexible and/or at least partly rigid extension tube is connected, which in its turn is connected to cleaning tools such as brushes or nozzles; cleaning tools are characterized by different shapes, each one suitable for a particular application.

[0004] A vacuum cleaner with the body separated from the cleaning tool is normally equipped with a rigid handle, much like a broom, with a grip at one end; the tool is integrally pivoted to the other end, so that the handle can at least rotate relative to the tool through at least one rotary joint.

[0005] The rigid handle may consist of two parts connected to each other by means of a central joint, so that the two parts can at least partially rotate relative to each other. The handle has a coupling for a hose to be connected to the vacuum cleaner body, as for example described in JP2006311943-A.

[0006] In some known embodiments, the hose can be fitted in the lower region of the handle, in the vicinity of the cleaning tool connection. A problem arises in this case, since when moving the handle backwards, e.g. in order to insert the tool into small spaces such as under beds or other pieces of furniture, the hose coupling will get in touch with the floor, thus hindering movement; in addition, the hose will be subject to excessive bending, and may thus be cut or choked, hence stopping the air flow.

[0007] In other known embodiments, the hose is applied to the upper region of the handle, near the grip, as described, for example, in EP-1226777-A1. Such a design poses the problem that, when tilting the upper part of the handle, especially backwards, the hose will adversely interfere with the grip.

Summary of the invention

[0008] It is therefore the object of the present invention

to propose a system for coupling a hose to a vacuum cleaner handle, as well as a vacuum cleaner handle equipped with such a coupling, which can overcome the above-mentioned problems.

[0009] According to the invention, the hose coupling is provided in the region of the central joint, extending in a direction substantially parallel to the lower part of the handle, thereby creating a straight line between the lower part of the handle and the hose.

[0010] In this manner, the handle becomes independent of the intake region, thus solving the mutual interference problem. At the same time, also the cleaning tool turns out to be independent of the intake region, thus solving the problem of the excessive bending of the hose when the handle is tilted backwards, which might choke the hose. In fact, in any case the hose will bend moderately and naturally, thus also facilitating the pulling function exerted by the hose on the body of the vacuum cleaner.

[0011] The present invention particularly relates to a system for coupling a hose to a vacuum cleaner handle and to a vacuum cleaner handle equipped with such a system, as set out in the claims, which are an integral part of the present description.

Brief description of the drawings

[0012] Further objects and advantages of the present invention will become apparent from the following detailed description of a preferred embodiment (and variants) thereof and from the annexed drawings, which are only supplied by way of non-limiting example, wherein:

Figure 1 shows a vacuum cleaner equipped with a rigid handle, a hose and a coupling system in accordance with the present invention;

Figure 2 is an enlarged view of the handle area, including the hose coupling system.

[0013] In the drawings, the same reference numerals and letters identify the same items or components.

Detailed description of some embodiments of the invention

[0014] With reference to the drawings, 1 designates the body of the vacuum cleaner, 2 designates the hose, 3 designates the central joint, 6 designates the hose coupling, 7 designates the grip, 8 designates the cleaning tool, e.g. a suction brush, 4 designates the lower part of the handle to be connected to the cleaning tool, and 5 designates the upper part of the handle to be connected to the grip.

[0015] The air being sucked enters the tool 8, flows through the lower part of the handle 4, the coupling 6 and the hose 2, and then enters the body 1 of the vacuum cleaner.

[0016] The coupling 6 has a shape suitable for firmly

but removably receiving the end portion of the hose.

[0017] As can be seen, the hose coupling 6 is provided in the region of the central joint 3, extending in a direction substantially parallel to the lower part of the handle. In this manner, in the most adverse condition, i.e. when the lower part of the handle is fully folded backwards and parallel to the ground, the lower part of the handle 4 and the hose 2 will arrange themselves in parallel directions. Also in normal conditions, with the lower part of the handle tilted backwards at an average angle, the hose will be subject to a slight bending, which will not however be detrimental.

[0018] The grip 7 and the tool 8 are connected to the handle through respective joints that allow the respective angles to be adjusted.

[0019] The joint 3 is so designed as to offer some resistance to the rotary folding of the two parts of the handle, e.g. by means of a stepped contact or clutch between the two parts. For example, the stepped contact or clutch is controlled through a button fitted to the joint: when pressed, the handle can be folded; when released, the handle locks into the upright or folded position. The joints at the grip and at the tool are designed in a known manner.

[0020] The upper part of the handle is shaped like a fork with two spaced parallel arms 5' and 5" extending from both sides of the joint, with an empty space at the center. The fork-shaped part with the empty central area allows the upper part of the handle to be fully folded against the lower part without interfering with the joint, resulting in improved storage and transport conditions due to the fact that the handle needs not be disassembled, and halved outer dimensions. Also the grip 7 can be folded towards the central empty area, thereby further reducing the outer dimensions of the handle.

[0021] Therefore, the maximum tilting angle of both parts of the handle is approx. 180°C forwards relative to the straight alignment in idle conditions, and approx. 90°C forwards in operation.

[0022] The above-described example of embodiment may be subject to variations without departing from the protection scope of the present invention, including all equivalent designs known to a man skilled in the art.

[0023] The elements and features shown in the various preferred embodiments may be combined together without however departing from the protection scope of the present invention. From the above description, those skilled in the art will be able to produce the object of the invention without introducing any further construction details.

Claims

1. A system for coupling a hose to a vacuum cleaner handle, said handle being divided through a central joint (3) into at least a lower part (4), adapted to be connected to a cleaning tool, and an upper part (5),

which comprises said central joint and a coupling (6), located in the region of said central joint and extending in a direction substantially parallel to said lower part (4), wherein said coupling (6) is adapted for insertion in it of an end portion of the hose firmly and removably, **characterised in that** said upper part (5) is shaped like a fork with two spaced parallel arms (5', 5") extending from both sides of said central joint (3) and defining an empty intermediate area, and wherein said central joint is adapted to allow the upper part of the handle to be fully folded against the lower part.

2. A coupling system according to claim 1, wherein said joint (3) is adapted to offer a resistance to the rotary folding of said two parts of the handle.
3. A coupling system according to claim 2, wherein said resistance to folding is obtained by means of a stepped contact or clutch between the two parts of the handle.
4. A coupling system according to claim 3, wherein said stepped contact or clutch is controlled through a button fitted to the joint.
5. A vacuum cleaner handle, **characterized in that** it comprises a coupling system according to any one of the preceding claims.

Patentansprüche

1. System zum Verbinden eines Schlauchs mit einem Staubsaugerhandgriff wobei der Handgriff durch ein zentrales Gelenk (3) in zumindest einen unteren Teil (4), der eingerichtet ist, mit einem Reinigungswerkzeug verbunden zu werden, und einen oberen Teil (5) geteilt ist, wobei das System das zentrale Gelenk und eine Kupplung (6), die im Bereich des zentralen Gelenks angeordnet ist und sich in einer Richtung im Wesentlichen parallel zum unteren Teil (4) erstreckt, umfasst, wobei die Kupplung (6) eingerichtet ist, um in die Kupplung den Endbereich des Schlauchs fest und entfernbar einzuführen, **dadurch gekennzeichnet, dass** der obere Teil (5) gabelförmig mit zwei beanstandeten parallelen Armen (5', 5") geformt ist, die sich von beiden Seiten des zentralen Gelenks (3) erstrecken und einen leeren Zwischenebereich definieren, wobei das zentrale Gelenk eingerichtet ist, den oberen Teil des Handgriffs vollständig gegenüber dem unteren Teil umzuklappen.

2. Verbindungssystem nach Anspruch 1, wobei das Gelenk (3) eingerichtet ist einen Widerstand gegenüber dem drehbaren Umklappen der zwei Teile des Handgriffs entgegen zu setzen.

3. Verbindungssystem nach Anspruch 2, wobei der Widerstand gegenüber dem Umklappen durch gestufte Kontaktmittel oder eine Verspannung der zwei Teile des Handgriffs erhalten wird. 5
4. Verbindungssystem nach Anspruch 3, wobei der gestufte Kontakt oder die Verspannung durch einen Knopf, der im Gelenk eingepasst ist, kontrolliert wird.
5. Staubsaugerhandgriff, **dadurch gekennzeichnet, dass** er ein Verbindungssystem nach einem der vorhergehenden Ansprüche umfasst. 10

Revendications

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1. Système de couplage d'un tuyau à un manche d'aspirateur, ledit manche étant divisé par l'intermédiaire d'une articulation centrale (3) en au moins une partie inférieure (4), adaptée pour être raccordée à un outil de nettoyage, et une partie supérieure (5), qui comprend ladite articulation centrale et un couplage (6), situé dans la région de ladite articulation centrale et s'étendant dans une direction sensiblement parallèle à ladite partie inférieure (4), ledit couplage (6) étant adapté pour une insertion en son sein d'une portion d'extrémité du tuyau de façon ferme et amovible, **caractérisé en ce que** ladite partie supérieure (5) a la forme d'une fourche avec deux bras parallèles espacés (5', 5'') s'étendant à partir des deux côtés de ladite articulation centrale (3) et définissant une zone intermédiaire vide, et ladite articulation centrale étant adaptée pour permettre le repliement complet de la partie supérieure du manche contre la partie inférieure. 20 25 30 35
2. Système de couplage selon la revendication 1, dans lequel ladite articulation (3) est adaptée pour offrir une résistance au repliement par rotation desdites deux parties du manche. 40
3. Système de couplage selon la revendication 2, dans lequel ladite résistance au repliement est obtenue au moyen d'un contact ou d'un embrayage par paliers entre les deux parties du manche. 45
4. Système de couplage selon la revendication 3, dans lequel ledit contact ou embrayage par paliers est commandé par l'intermédiaire d'un bouton équipant l'articulation. 50
5. Manche d'aspirateur, **caractérisé en ce qu'il** comprend un système de couplage selon l'une quelconque des revendications précédentes. 55

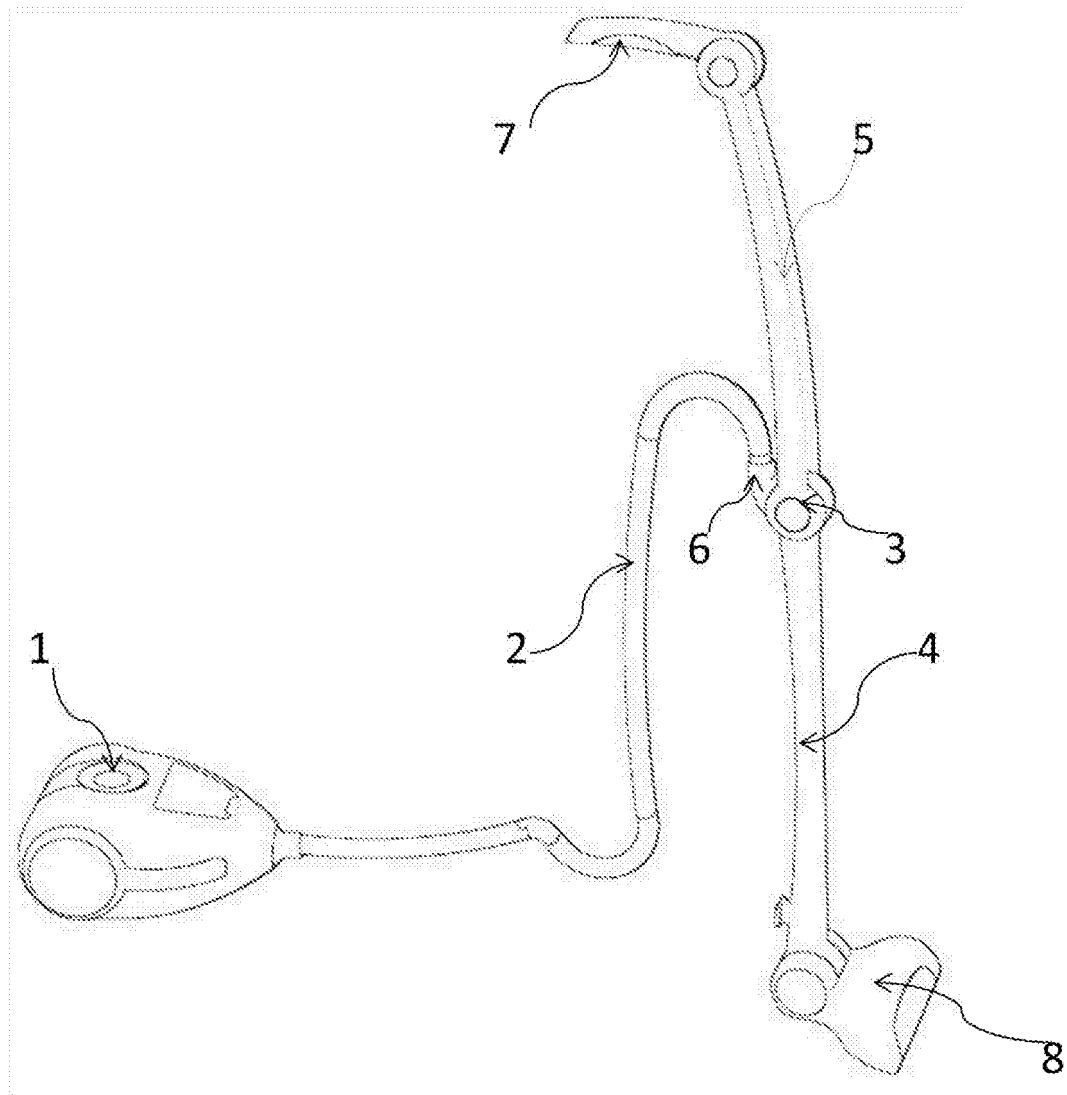


FIG. 1

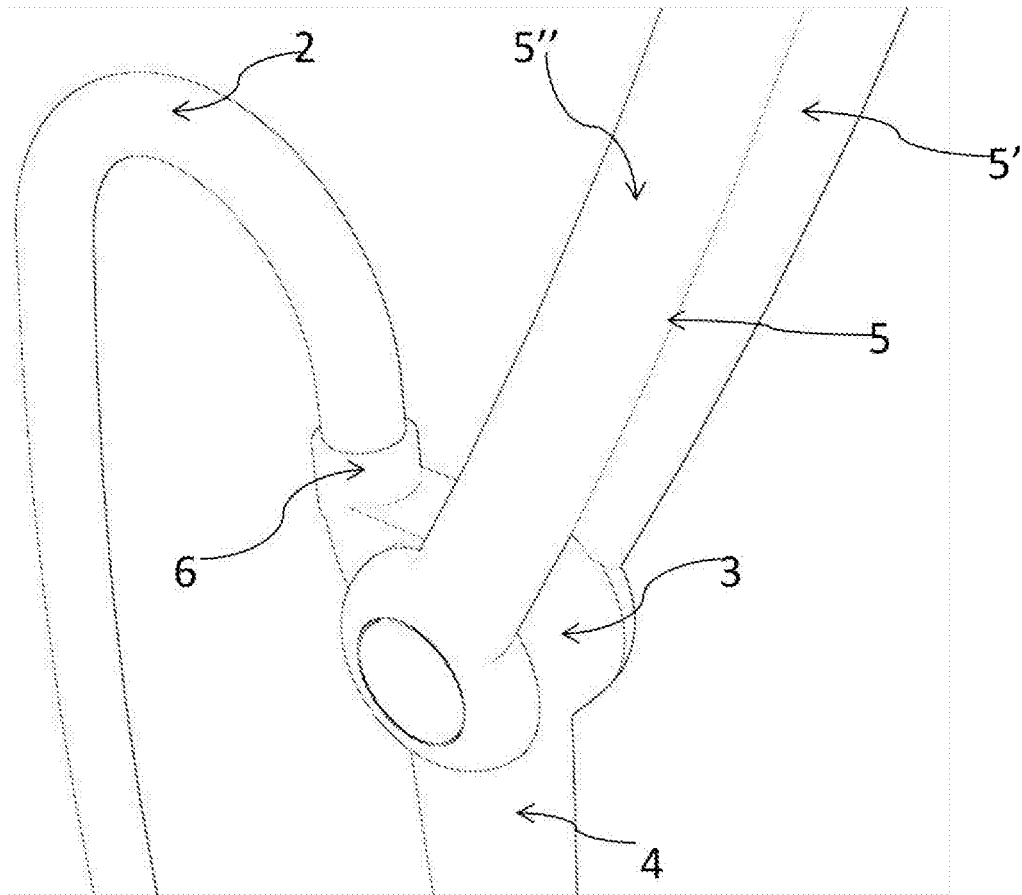


FIG. 2

REFERENCES CITED IN THE DESCRIPTION

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- JP 2006311943 A [0005]
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