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**(54) UNIVERSAL CONNECTION FOR VACUUM CLEANER NOZZLE**

UNIVERSALVERBINDUNG FÜR EINE STAUBSAUGERDÜSE

RACCORD UNIVERSEL POUR SUCEUR D'ASPIRATEUR

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**EP 2 775 892 B1**

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## Description

### Background of the invention

[0001] There are lots of versions of connections for the vacuum cleaner accessories at which the most important accessory is the nozzle.

[0002] The most common connecting solution today is when cylindric vacuum cleaner pipes with different diameters is inserted and get stuck by friction in a tubular counterpart with gradually reducing innerdiameter often together with a turning movement of the pipe. There are today also vacuum cleaner pipes with other designs than cylindric, as ovals and squares which not need a turning movement for the connection. It is also common that a locking device is used for keeping the nozzle fixed on the vacuum cleaner pipe.

[0003] US Patent No. 3,159,412 discloses a connecting solution for detachably keeping the segments of the pipe of a vacuum cleaner together by means of couplings between the sections. European Patent Application No 02008589.0 discloses a detachable connecting solution for the segments of the pipe of a vacuum cleaner. German published patent application No. De 36 05 605 discloses a coupling for tubes and hoses, using a sleeve coupling. None of these documents discuss how to provide a coupling that will allow the connection of tubes of different diameters

[0004] When nozzles are sold separately they often have argument for the product written on the package about the correct dimension for some stated vacuum cleaners and their pipes. In the package there are besides also often one or several loose adaptors in order to make the product possible to use together with several different versions of vacuum cleaner pipes.

[0005] The problems indicated have caused that some adaptors for adaptation to additional models of vacuum cleaner is sold separately which results in increased costs and engagement for the customer to be sure that the new nozzle will fit the existing vacuum cleaner. The most common adaptors for cylindric pipes in different dimensions have also the disadvantage that the fixation by friction which is above mentioned implies that this type of adaptors can get loose randomly and then stay fixed by friction either within the original connection of the nozzle or on the pipe when releasing them from each other, but a pipe with a randomly fixed adapter will not be useful when connecting it to the other existing vacuum cleaner accessories. The purpose of described invention is to show a universal connection for vacuum cleaner nozzles with an extremely universal character with an adaptor which is possible to fix and release by a ratchet which solves the above mentioned disadvantages and in the design also integrates and works functionally together with a chosen existing design of not cylindric vacuum cleaner pipe.

### Description of the shown Embodiment

[0006] A not restricting example of embodiment of a universal connection for vacuum cleaner nozzle is according to the present invention described below with reference to the drawings in which:

Fig. 1 is showing a complete universal connection 1 with the adaptor-holder 2 with the fixed adaptor 4 and the visible push-button 10 of the ratchet 3. Fig. 2 is showing a section of the complete universal connection where the adaptor-holder 2 in one part 5 is arranged for a chosen vacuum cleaner nozzle and in the other part 6 shaped inwardly for comprising the adaptor 4 at which the ratchet 3 in the normal position is placed in the cavity 7 and at an axial movement of the adaptor 4, the side of the cavity 8 provide the resistance and the fixation of the adaptor 4 according to the requested function. The part 6 of the adaptor-holder 2 is inwardly shaped for comprising the adaptor 4 and besides shaped to fit an existing not cylindric vacuum cleaner pipe on the market, at which the mentioned function is accessible by releasing the adaptor 4 from the adaptor-holder 2 by means of the movable ratchet 3.

Fig. 3 is showing the ratchet 3 with the spring 9 and the push-button 10 who are integrated in the same part and material.

Fig.4 is showing the adaptor 4 with the cavity 7 and the side 8 of tile cavity.

## Claims

1. Universal connection for vacuum cleaner nozzle, comprising an adaptor (4) which inwardly is shaped cylindric with different diameters at different length sections for matching different dimensions of cylindric vacuum cleaner pipes, **characterized in that** it further comprises a tubular adaptor-holder (2) which is in one part (5) shaped for connection to a chosen vacuum cleaner nozzle and in the other part (6) inwardly shaped for comprising and fixing the adaptor (4) by means of a ratchet (3).
2. Universal connection for vacuum cleaner nozzle, according to Claim 1 **characterized in that**, the ratchet (3) in the adaptor-holder (2) is movable for fixing and releasing the adaptor (4) at which the ratchet (3) and the spring (9) and the push-button (10) is integrated in the same part and material.
3. Universal connection for vacuum cleaner nozzle, according to Claim 1 or 2 or these both claims **characterized in that**, the adaptor (4) is externally shaped to be comprised by the part (6) of the adap-

tor-holder (2) and besides with a cavity (7) with a side (8) arranged to provide the resistance towards the ratchet (3) which in the normal position is counteracting towards an axial movement of the adaptor (4).

4. Universal connection for vacuum cleaner nozzle, according to any previous Claim or Claims **characterized in that**, the part (6) of the adaptor-holder (2) is inwardly shaped as a not cylindric tube, comprising and working functionally together with a chosen existing design of not cylindric vacuum cleaner pipe.

#### Patentansprüche

1. Universalverbindung für eine Staubsaugerdüse, umfassend einen Adapter (4), welcher nach innen mit unterschiedlichen Durchmessern an unterschiedlichen Längenabschnitten zylindrisch geformt ist, zum Anpassen unterschiedlicher Dimensionen von zylindrischen Staubsaugerrohren, **dadurch gekennzeichnet, dass** sie ferner einen röhrenförmigen Adapter-Halter (2) umfasst, welcher an einem Teil (5) zur Verbindung mit einer gewählten Staubsaugerdüse geformt ist und an dem anderen Teil (6) zum Umfassen und Befestigen des Adapters (4) mittels einer Klinke (3) nach innen geformt ist.
2. Universalverbindung für eine Staubsaugerdüse nach Anspruch 1, **dadurch gekennzeichnet, dass** die Klinke (3) in dem Adapter-Halter (2) zum Befestigen und Freigeben des Adapters (4), an welchem die Klinke (3) und die Feder (9) und der Druckknopf (10) in dem gleichen Teil und Material integriert ist, beweglich ist.
3. Universalverbindung für eine Staubsaugerdüse nach einem oder beiden der Ansprüche 1 und 2, **dadurch gekennzeichnet, dass** der Adapter (4) außen geformt ist, durch den Teil (6) des Adapter-Halters (2) umfasst zu sein, und daneben mit einem Hohlraum (7) mit einer Seite (8) geformt ist, angeordnet, um den Widerstand zu der Klinke (3) hin bereitzustellen, welche in der Normalposition einer axialen Bewegung des Adapters (4) entgegenwirkt.
4. Universalverbindung für eine Staubsaugerdüse nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Teil (6) des Adapter-Halters (2) als eine nicht-zylindrische Röhre nach innen geformt ist, umfassend eine und funktionell zusammenwirkend mit einer gewählten vorhandenen Ausgestaltung eines nicht-zylindrischen Staubsaugerrohrs.

#### Revendications

1. Raccord universel pour suceur d'aspirateur, comprenant un adaptateur (4) dont la forme intérieure est faite de cylindres de différents diamètres sur différents segments de longueur, pour correspondre aux différentes dimensions des tuyaux cylindriques d'aspirateur, **caractérisé en ce qu'il** comprend en outre un support d'adaptateur (2) tubulaire dont une partie (5) est formée pour être reliée au suceur d'aspirateur choisi et l'autre partie (6) possède une forme intérieure permettant de recevoir et de fixer l'adaptateur (4) au moyen d'un cliquet (3).
2. Raccord universel pour suceur d'aspirateur selon la revendication 1, **caractérisé en ce que** le cliquet (3) du support d'adaptateur (2) est mobile afin de fixer et de libérer l'adaptateur (4), le cliquet (3), le ressort (9) et le bouton poussoir (10) étant constitués d'un seul tenant et dans un même matériau.
3. Raccord universel pour suceur d'aspirateur selon la revendication 1 ou 2, **caractérisé en ce que** l'adaptateur (4) possède une forme extérieure telle qu'il peut s'insérer dans la pièce (6) du support d'adaptateur (2), et comporte une cavité (7) dont une face (8) est agencée pour exercer une résistance dirigée vers le cliquet (3) qui, en position normale, s'oppose au mouvement axial de l'adaptateur (4).
4. Raccord universel pour suceur d'aspirateur selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** la pièce (6) du support d'adaptateur (2) possède la forme intérieure d'un tube non cylindrique, comprenant et coopérant avec un modèle existant choisi de tuyau d'aspirateur non cylindrique.

Fig. 1

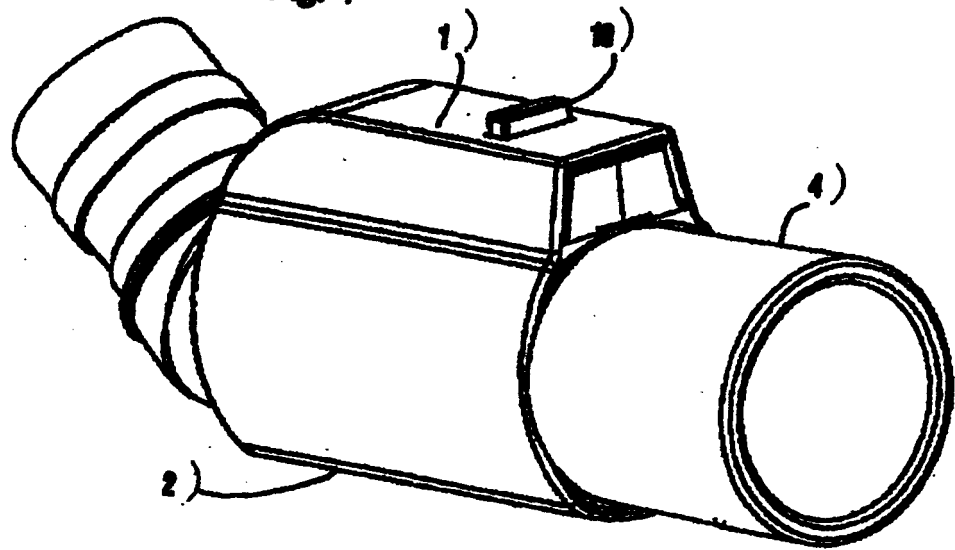
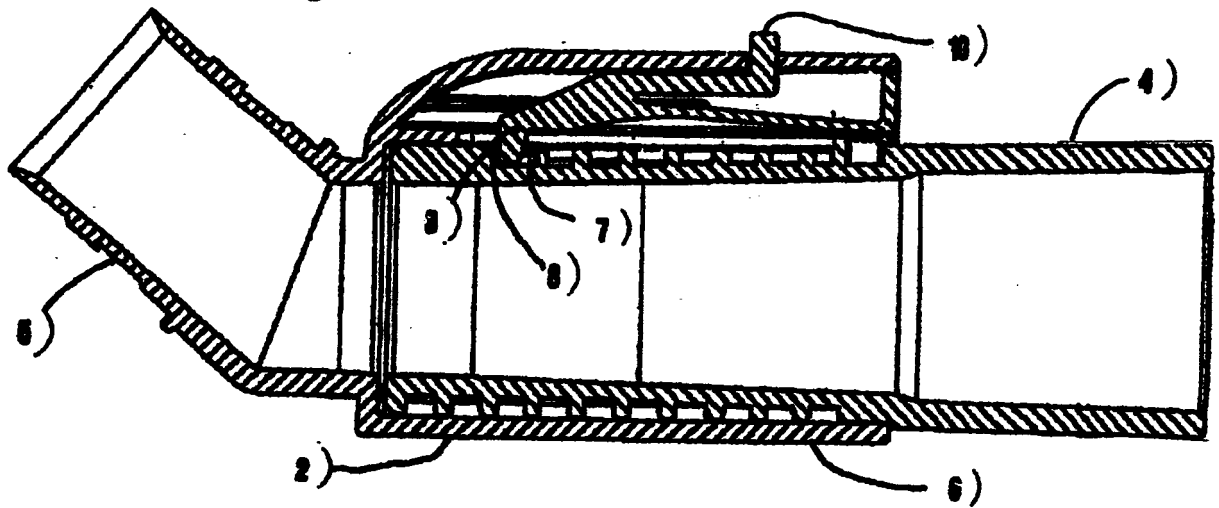
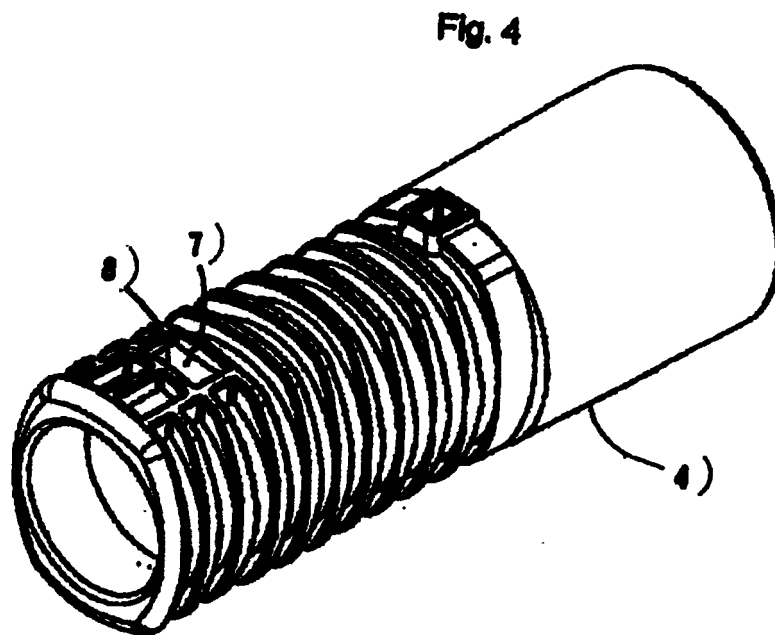
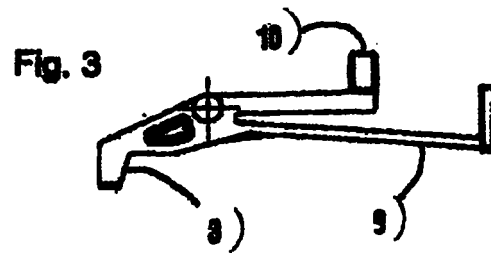


Fig. 2





**REFERENCES CITED IN THE DESCRIPTION**

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