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ADJUSTABLE LENGTH VACUUM CLEANER WAND

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2 Claims. (Cl. 285—7)

This invention pertains, in general, to telescoping conduits; and, more particularly, to a vacuum cleaner wand, the length of which may be telescopically adjusted and latched at any one of a number of desired positions to provide an adjustable length wand.

With a tank-type or canister-type vacuum cleaner it is usual to connect a rigid bollard between a suction hose and a suction cleaning tool. The wand serves the dual purpose of providing a handle for manipulating the nozzle and providing a conduit for conveying air and dust from the suction nozzle to the hose. Hence, the wand must be able to transmit substantial force applied in a longitudinal direction and it must be airtight as well. One conventional kind of wand includes two wand sections which may be coupled end-to-end to form a long wand. If a smaller length of wand is required only one section is used. Therefore with such a wand arrangement the housewife can use either a long or short wand, depending on the kind of cleaning task involved, but is not able to have a wand of intermediate length.

One object of the present invention is to provide a new and improved vacuum cleaner wand.

Another object of the present invention is to provide a vacuum cleaner wand the length of which may be adjusted to any one of a plurality of lengths and is positively locked in each such position of adjustment.

Another object of the present invention is to provide a vacuum cleaner wand which, although adjustable as to length, is nevertheless airtight.

Briefly, in accordance with one embodiment of the present invention, there is provided a vacuum cleaner wand comprising inner and outer tubular wand sections which are coaxially arranged so that the inner wand section may be telescopically moved within the outer wand section. The inner wand section has at one end thereof a resilient ring which provides a sliding seal between the outer surface of the inner wand section and the inner surface of the outer wand section. Mounted on the outer surface of the inner wand section and extending along a substantial length thereof is a bar-like element which has a series of spaced apart slots therein. The series of slots extends from one end of the bar-like element to the other. Mounted at one end of the outer wand section is a releasable latch member which includes a protruding tongue adapted to be received in any one of the slots in the bar-like element, depending upon the telescoped position of the inner wand section relative to the outer wand section. The latch member also includes a stop member which limits the length to which the inner section can be extended outwardly from the outer wand section.

Further objects and advantages of the invention will be apparent from the following description when considered in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of a tank type vacuum cleaner apparatus employing the adjustable wand according to the present invention;

FIG. 2 is a perspective view, partly cut away, of a length of a two-section wand according to the present invention;

FIG. 3 is a longitudinal section, on an enlarged scale, of the wand of FIG. 2 as viewed along the section line 3-3 of FIG. 2;

FIG. 4 is a plan view of the wand of FIG. 2 as viewed along the line 4-4 of FIG. 2;

FIG. 5 is a cross-sectional view of the wand of FIG. 2 as viewed along the section line 5-5 of FIG. 4; and,

FIG. 6 is another cross-sectional view of the wand as viewed along the section line 6-6 of FIG. 3.

In FIG. 1 there is illustrated the telescoping wand, designated generally by the reference number 16, in accordance with the present invention. It is comprised of an outer wand section 18 and an inner wand section 20. As shown, there is provided a tank or canister 10 which includes therewithin a dust bag and a suction producing fan. Coupled to the suction port of the tank 10 is one end of a flexible suction hose 12. The suction hose 12 has at the other end thereof a rigid hollow handle 14 which is inserted into the flanged, tapered end 18c of the outer wand section 18. Telescopically arranged within the outer wand section 18 is the inner wand section 20.

FIGS. 2-6 illustrate the wand of the present invention in more detail. As shown the inner wand section 20 has at one end thereof a tapered end section 20b which is adapted for insertion into cleaning tools, such as the dusting brush 22 shown in full lines in FIG. 1 or the floor nozzle 24 shown in dotted lines in FIG. 1. At the opposite end of the inner wand section 20 there is provided an enlarged diemeter end section 20a. A circular groove 20c is defined in the outer periphery of the enlarged end section 20a. Seated within the groove 20c is a resilient sealing element 34, such as, for example, an O-ring which may be made from rubber or the like.

Fastened along the outer surface of the inner wand section 20 is a channel or bar-like member 30. Rivets such as 26 and 28 are used for fastening the channel member 30 on the surface of the inner wand section 20. As shown the channel member 30 has a series of slots 32 and 33 defined therein. This series of slots extends from one end of the channel member to the other.

The outer wand section 18 has a skirt or inwardly turned flange 18e at one end thereof which, as shown in FIG. 3, is in close contact with the outer surface of the inner wand section 20. At the other end of the wand section 18 there is a tapered flange 18c (FIG. 1) which receives the hose handle 14. There is a slot 18b (FIGS. 2 and 3) formed in the skirt 18e of the wand section 18. This slot 18b allows the channel member 30 to move unobstructedly into and out of the outer wand section 18 as the inner wand section 20 is telescopically positioned within the outer wand section, but, the slot 18b prevents rotative movement of one wand section relative to the other.

As shown in FIG. 3 there is provided a slot 48 in the outer wand section 18 and as shown at FIG. 6 there is also provided additional slots 50 and 52. The slots 48, 50 and 52 serve to receive various portions of a latch 36 for the purposes hereinafter described.

Mounted by means of a rivet 38 on the outer wand section 18 is the releasable latch designated, generally, by the reference number 36. The latch 36 is made of
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resilient spring steel and, as shown at FIG. 3, is formed at one end with an upturned lifting tap 46 which, as hereinafter explained, may be manipulated to release an inwardly extending tongue 40 of the latch from engagement with any of the slots 32 so that the wand sections 18 and 20 may be telescopically moved relative to each other. When the desired overall length of the wand is thus attained, the latch 36 is released. If it happens to be aligned with a slot 32 the tongue 40 will enter the slot; but if, for instance, the tongue 40 will bear against the channel 30 between slots and a slight telescopic movement in either direction will cause the tongue 40 to be aligned with and enter a particular slot 32 so as to positively lock the wand sections in this position.

As is illustrated in FIG. 3 the latch 36, being of spring steel or the like, is normally in the position shown, in heavy lines. When finger pressure is applied to the lifting tab 46 to move it upwardly, the latch 36 will assume the dotted line position. However, as shown in full lines the tongue 40 normally passes through the slot 48 and one of the slots 32 which is in register with slot 48. As a result, the wand sections 18 and 20 cannot be slidably moved with respect to each other. The lifting of the latch 36 to the dotted line position will enable the inner wand section 20 to be positioned so that any one of the slots 32 may come into register with the slot 48 thereby enabling the tongue 40 when tab 46 is released, to lock the wand sections together.

As shown at FIGS. 3 and 6, the tabs 42 and 44, or stop members, formed in the latch 36 limit the extent to which the inner wand section 20 may be withdrawn from the outer wand section 18 because these tabs 42 and 44 abut against the enlarged diameter end section 20B of the inner wand section 20. As shown at FIG. 6 the tabs 42 and 44 of the latch 36 pass through the slots 50 and 52 which are provided in the outer wand section 18. The tabs also prevent the latch 30 from pivoting about the rivet 38.

At every one of the telescoped positions of the inner and outer wand sections, the O-ring seal 34 provides an airtight seal between the inner surface of the outer wand section and the outer surface of the enlarged diameter end section 20B of the inner wand section. The inner and outer wand sections as well as the channel member 30 may be made from a rigid metallic material, such as aluminum or chrome plated steel. Also, hardened plastic compouds may be used if desired. The latch member 36 is advantageously formed from a spring steel, or if desired a hard resilient plastic material.

There are numerous reasons why it is advantageous to be able to adjust the length of wand 16. When cleaning a floor, a suction nozzle 24, shown in dotted lines in FIG. 1, is connected to the lower end of section 20. Ordinarily, the sections would be fully extended, but if the operator is under average height, the sections 18 and 20 may be telescoped to some intermediate position. For cleaning stairs, it is convenient to fully telescope the sections. Also, for cleaning above the floor, such as drapes, picture frames, moldings and the like, a dusting brush 22, shown in full lines in FIG. 1, may be used, and the wand adjusted to various lengths in accordance with the height of the object above the floor.

While there is shown and described one more or less specific embodiment of the invention, it is to be understood that this has been done for purposes of illustration, only, and that the scope of the invention is to be determined from the appended claims.

What is claimed is:

1. A fluid conveying device comprising: an imperforate inner conduit having an elongated section spaced from the surface of said inner conduit and extending a substantial distance along the length of the inner conduit, said elongated section having a series of apertures therethrough, said series extending a substantial distance along the length of said elongated section; an outer conduit telescopically receiving for sliding movement therewithin said inner conduit including its enlarged end section and said elongated member, the enlarged end section of said inner conduit leading the telescopic advancement of said inner conduit and the elongated member through said outer conduit starting from next to a short longitudinal end section of the outer conduit whilst said sealing members continuously provides an airtight seal between both said conduits, the short longitudinal end section of said outer conduit having first and second longitudinally spaced apertures therethrough; a resilient latch mounted on the end section of said outer conduit, said latch including a tongue, a tab and a lifting member, said tongue normally protruding through said first aperture and through any one aperture of said series which may be situated in registry with said first aperture so that said conduits may be latched in any one of a plurality of telescopic positions, said lifting member being operable to withdraw said tongue from said one aperture of said series to permit the telescopic repositioning of said conduits, said tab protruding through first aperture to engage the enlarged end section of the inner conduit when said enlarged end section is next to said end section of said outer conduit to prevent withdrawal of the inner conduit from the outer conduit, said second aperture and tab being laterally offset from said first aperture and tongue to permit said elongated member to move unobstructedly into and out of said outer conduit.

2. A fluid conveying device comprising: a first tubular body having an enlarged diameter end section which has a groove circumferentially defined therein; a resilient ring situated in said groove and protruding outwardly therefrom; an elongated bar member fastened to the outer surface of the first body and extending a substantial distance along the length of the first body, said bar member having defined therein a plurality of slots arranged in series extending a substantial distance along the first body; a second tubular body coaxially receiving the first body and bar member for telescopic movement with respect thereto, said resilient ring forming a seal between the outer surface of the first body's end section and the inner surface of the second body; and a released tab latch member mounted on the second body and adapted for engagement with said bar member through any one of the slots therein in order to latch the first tubular body in any of a plurality of positions between a position in which it is substantially fully extended from an end of said second tubular body and a position in which it is substantially fully inserted within said second tubular body, said end section of the second body having an aperture therethrough, said latch member including a first protruding member which passes through said aperture to engage with said bar member through any one of said slots when said second body is in register with said aperture, said protruding member being releasable from one of said slots to permit coaxial sliding of the first body, said end section of the second body having a second aperture therethrough, and said latch member including a second protruding member which passes through the second aperture, said second protruding member being of sufficient radial length to abut the enlarged diameter end section of the first body to prevent withdrawal of the first body from the second body, said second protruding member and second aperture being offset relative to said bar member whereby the bar member and first body may slide into the second body without contacting the second protruding member.

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