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H. B. WHITE

2,064,397

SUCTION CLEANER

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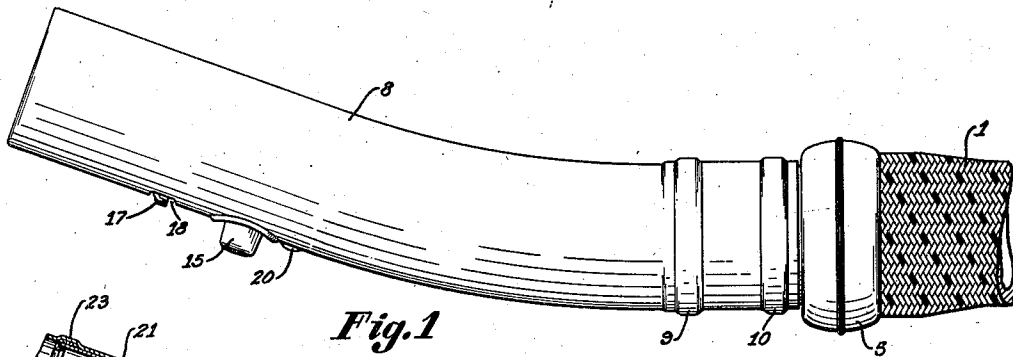


Fig. 1

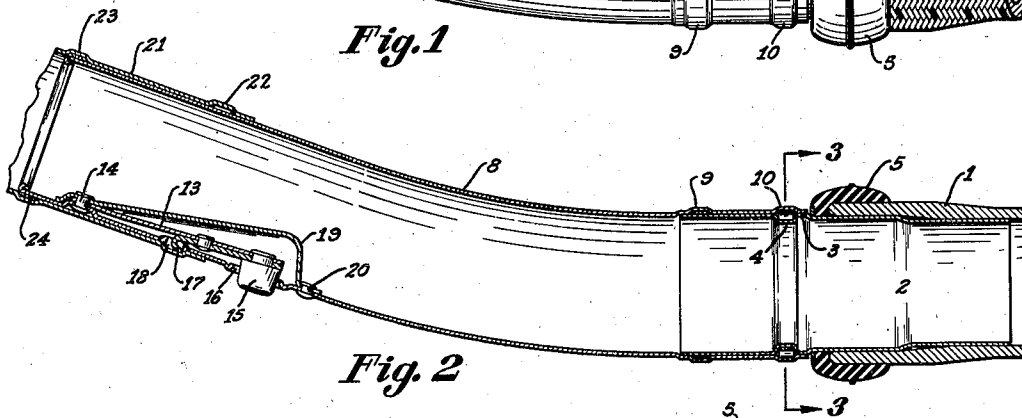


Fig. 2

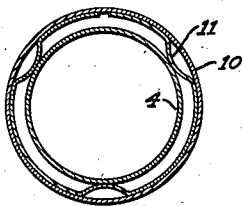


Fig. 3

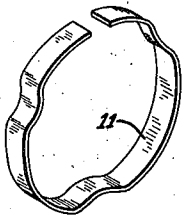


Fig. 5

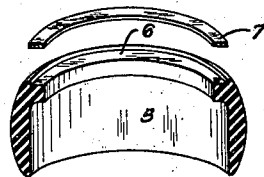
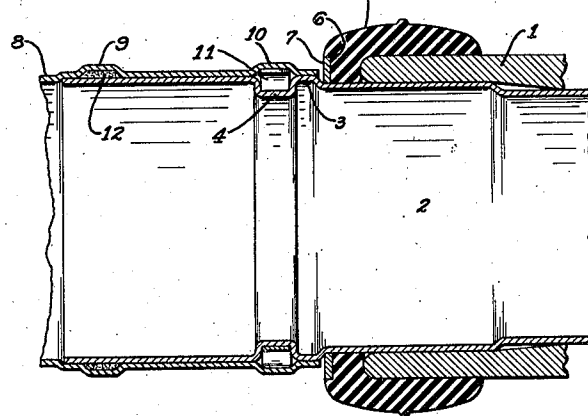


Fig. 6

BY

Fig. 4



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SUCTION CLEANER

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1 Claim. (Cl. 285—174)

The present invention relates to suction cleaners in general and particularly to a new and novel improved air conduit for a suction cleaner. More specifically, the invention comprises a dusting tool conduit including a flexible hose at the end of which is provided a novel swivel joint and attaching means.

It is an object of the present invention to provide a new and improved air conduit for a suction cleaner. It is another object of the invention to provide new and improved connecting means at the end of a dusting tool conduit. Another object is the provision of an improved swivel joint in an air conduit for a suction cleaner. A still further object is the provision of improved latching means to secure sections of air conduits in operative relationship. These and other more specific objects will appear upon reading the following specification and claim and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is disclosed.

Figure 1 is a side view of the end of the dusting tool air conduit constructed in accordance with the present invention;

Figure 2 is a longitudinal cross section showing the conduit attached to an adjacent conduit;

Figure 3 is a cross section upon the line 3—3 of Figure 2;

Figure 4 is an enlarged cross section showing the swiveled joint;

Figure 5 is a perspective view of the locking spring;

Figure 6 is an exploded sectional view of the resilient grip member and wear plate.

The present invention relates to air conduits used with suction-creating units of suction cleaners. In cleaning drapes, curtains, and other articles positioned above a supporting surface, the suction created by the suction cleaner is made available at the point of work by means of an air conduit. This conduit normally comprises an elongated flexible circular hose which is suitably connected to the suction-creating means and which may itself comprise a plurality of disengageable sections. The conduit illustrated in the drawing comprises such a flexible hose with connecting means at its end to permit it to be connected to a cooperating conduit section. The specific details of the invention are hereinafter described.

Referring again to the drawing the air conduit constructed in accordance with the present invention is seen to comprise a flexible tubular

hose 1, only the end of the hose being shown in the drawing. Hose 1 telescopes a metallic sleeve member 2 and is suitably retained thereon as by cementing. Metallic sleeve 2 extends beyond the end of rubber hose 1 and is formed at a point positioned slightly beyond the end of that tube with an expanded inwardly facing circular channel or groove 3. Immediately adjacent groove 3 is an outwardly facing circular channel, groove or seat 4, of somewhat greater depth and width than groove 3. Beyond outer groove 4 sleeve 2 continues as an uninterrupted smooth cylinder.

Over the end of hose 1 and around the metallic sleeve 2 is positioned a collar 5 of resilient material such as rubber. On its forward side adjacent groove 3 collar 5 is counterbored, as at 6, and seats a metallic wear plate 7 which is frictionally retained and which may also be cemented into place. With collar 5 positioned over the end of hose 1 and with sleeve 2 telescopically positioned within both of those members, wear plate 7 extends closely adjacent inwardly facing groove or channel 3.

A metallic air conduit or tube 8 with a slight curvature in its central portion telescopically encloses the outer end of sleeve 2. Member 8 is provided with spaced inwardly facing grooves or channels 9 and 10, and when operatively positioned upon sleeve 2 the end of member 8 extends closely adjacent wear plate 7 and rests upon the outer surface of inwardly facing groove 3. When so positioned outwardly facing groove 4 in sleeve 2 is positioned exactly opposite inwardly facing groove 10 in tube 8 and a circular, closed, seat is formed. In this seat is positioned a leaf spring 11 which is provided throughout its length at spaced points with deviations from its normal circular shape, the deviations being of such extent that they cause the spring to be clamped in its seat. When so positioned spring 11 contacts both groove 4 and groove 10 and longitudinal displacement of sleeve 2 and member 8 is prevented. In groove 9 positioned in member 8 is a seal 12 of suitable material which renders the swivel joint formed by the two members substantially airtight.

At its outer end conduit member 8 is provided with a manually operable latch member adapted to lock adjacent conduit sections to member 8. The latch comprises an elongated flexible leaf spring 13 which is pivotally supported at one end within the tube 8 by a rivet 14 the outer head of which is countersunk below the normal surface of the tube. At its opposite end leaf spring 13 is

provided with an outwardly projecting head 15 which extends through an opening 16 in the tube 8. A hook or latch proper 17 is also carried by spring 13 between head 15 and the pivot point of the spring, the tube 8 also being provided with an opening 18 adjacent the hook to permit it to extend therethrough. To prevent the leakage of air into conduit 8 through openings 16 and 18 an enclosing housing 19 is provided which is riveted to the interior of member 8 at its front end by rivet 14 and at its rear end by an additional rivet 20. The space within casing 19 is open to atmosphere through openings 16 and 18 but is sealed from the remainder of the interior of tube 8. Housing 19 is so shaped that leaf spring 13 can be pivoted by a force exerted upon head 15 to move hook 17 within the normal contour of the body against the normal resilience of the spring.

20 The latching means described on the end of air conduit 8 is adapted to cooperate with the adjacent end of a second metallic air conduit which telescopes over the end thereof and is indicated in the drawing by the reference character 21. This last air conduit 21 is provided with spaced inwardly facing channels or grooves 22 and 23. With the member 21 in place upon the end of conduit 8 channel 22 surrounds the conduit at hook 17 of the latch and the normal resilience of that member holds the hook within the channel and prevents the withdrawal of the conduit 21 from the conduit 8. Channel 23 is provided interiorly with an air seal 24 of a type similar to air seal 12 afordescribed and performs the function of making the joint between the two conduits substantially airtight.

The construction of the air conduit of the present invention is such that relative rotation between the end of the conduit, the tube 8, and the main body thereof, the hose 1, is possible. Spring lock 11 prevents longitudinal separation of the two members while permitting relative rotation. If desired, the frictional force exerted by spring 11 may be such that unintended relative rotation between the two parts is prevented. The presence of the seal 12 at the swivel joint makes possible relative movement between the two parts without air leakage to decrease operating deficiency. The provision of the manually operable latching means at the end of the metallic conduit member 8 permits of the attachment of additional sections of conduit. The provision of the locking means is accomplished without decrease in efficiency through mounting the entire latch within a housing which is interiorly sealed from the interior of the conduit proper.

I claim:

An air conduit for a suction cleaner including a flexible hose, a metallic sleeve extended into the end of said hose, a metallic tube telescopically enclosing said sleeve, a resilient collar enclosing the end of said hose, a metallic wear plate carried by said collar closely adjacent the end of said tube, a circular channel formed with its sides in said sleeve and said tube, and a circular lock member positioned in said channel and preventing longitudinal separation of said parts without interference with relative rotation therebetween.

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