My invention relates to the vacuum cleaning art and more particularly to a double purpose cleaning tool.

In accordance with my invention I provide a cleaning tool which may be selectively employed as either a dusting brush or upholstery nozzle without disturbing its connection with the vacuum cleaner suction hose. The arrangement is preferably such that a rigid pipe or wand may be connected to the suction hose while the double purpose tool is still connected thereto. Consequently the tool may be permanently secured to the hose and hence is always immediately available for use and cannot be mislaid or lost.

Further objects and advantages of my invention will be apparent from the following description when considered in connection with the accompanying drawings which form part of this specification and of which:

FIG. 1 is a side elevational view of a cleaning tool in accordance with my invention mounted on the end of a suction hose to which a rigid wand is also connected;

FIG. 2 is a cross-sectional view on an enlarged scale of the tool and a portion of the hose and wand shown in FIG. 1;

FIG. 3 is a cross-sectional view taken on the line 3—3 of FIG. 2;

FIG. 4 is a cross-sectional view taken on the line 4—4 of FIG. 2;

FIG. 5 is a cross-sectional view taken on the line 5—5 of FIG. 2;

FIG. 6 is a side elevational view of one of the elements of the cleaning tool shown in the preceding figures;

FIG. 7 is a cross-sectional view similar to FIG. 2, but with the wand removed and the brush partially extended;

FIG. 8 is a cross-sectional view similar to FIG. 7, but with the brush fully extended;

FIG. 9 is a side elevational view of the tool shown in FIG. 8;

FIG. 10 is a cross-sectional view of the cleaning tool with the brush fully retracted and the upholstery nozzle parts extended to operative position; and

FIG. 11 is a cross-sectional view taken on the line 11—11 of FIG. 10.

Referring first to FIG. 1, reference character 10 designates one end of a flexible hose, the opposite end of which is adapted to be connected to any suitable vacuum cleaner. Affixed to the end 10 is a rigid curved tube 12.

Mounted on the tube 12 is a double purpose cleaning tool designated generally by the reference character 14. A rigid conduit or wand 16 is connected at one end to tube 12 within the tool 14. The other end of wand 16 is connected to a similar wand 18 to which in turn is connected any suitable form of suction nozzle 20.

As is shown more particularly in FIGS. 2 through 6, cleaning tool 14 includes a hollow elongated double walled body wall 24 and an inner wall 26 between which is formed an annular space 28 which is open at one end and is closed at the other. Adjacent to the closed end of space 28 the body 22 is formed with a smooth circular opening 27 through which extends the end of tube 12. An airtight joint is formed between opening 27 and tube 12 and the body is preferably permanently fixed to the tube, as by being shrink therearound. Axial ribs 29 extend inwardly from opening 27 in order to provide ample bearing surface so that the tool will not wobble on the tube.

As is shown in FIG. 2, the inner diameter of inner wall 26 is greater than the outer diameter of tube 12, whereby the end of wand 16 may be telescoped over a portion of tube 12 which is within the hollow body. The end of tube 12 is preferably tapered, as shown at 30 so that it may enter the wand 16 to provide an airtight but separable joint therewith.

Slidably mounted within the annular space 28 is a bristled ring 32 which is shown in elevation in FIG. 2. This ring is formed with a collar 33 having an annular recess in which is retained a ring 34 carrying bristles 36 which form a round brush. The length of the bristles is such that, when the ring 32 is fully retracted as shown in FIG. 8, the ends of the bristles do not extend beyond the outer wall 24.

Extending axially from diametrically opposite points of collar 33 and spaced radially from the rest of ring 32 are resilient arms 38 each of which is formed with an outwardly extending serrated button 40. The end of each arm also carries a pair of circumferentially extending projections 42 which also extend radially outwardly a slight distance beyond the arms themselves, but not as far as do the buttons 40. The outer wall 34 is formed with a pair of axially extending slots 44. As is shown more particularly in FIG. 9, the upper end of each slot is formed with circumferentially extending notches 46 of a size sufficient to receive the projections 42. Likewise, similar notches 48 are formed near the lower end of each slot 44. The width of each slot is sufficient to receive the buttons 40, but not the projections 42.

As is shown more particularly in FIGS. 9, 10 and 11, a pair of wing members 50 is pivotally mounted at 52 to the outer wall 24 of hollow body 22 adjacent to the open end of annular recess 28. Each wing member has formed in one face thereof between ribs 53 channels 54 which are closed at the outer end of recessed 56. As shown at 58, but which are open at the inner end. The wing members 50 are pivotal through approximately 90° from the extended position shown in FIG. 10 to the retracted or folded position shown in FIG. 9. The outer surface of outer wall 24 being recessed as is indicated at 60 to permit the members 50 to be partially received therein. When in extended position the inner ends of the members 50 extend across the open end of annular space 28 and the ribs 53 extend part way across the end of tube 12, but when in folded position the members are entirely radially outside the open end of the annular space.

With the parts in the position shown in FIGS. 1 and 2, the brush 36 is fully retracted within the annular space 28, the projections 42 being received in the notches 46 at the upper end of the slot 44 so as to retain the brush in this position. The wing members 50 are in retracted position so as to leave the open end of the hollow body 22 unobstructed. Consequently, it is possible to insert the wand 16 into the end of the hollow body 22 so that it may be telescopically connected to the end of tube 12.

With the parts in this condition, and with the wand 18 and nozzle 20 connected as shown in FIG. 1, the operator may grasp the bent tube 12 and move the suction nozzle 20 back and forth over the floor so as to clean the latter.

Under these conditions the tool 14 is inactive, but is affixed to the tube 12 where it is ready for use at any time.

If it is desired to use the round brush, the wand 16 is disconnected from the tube 12 and the buttons 40 are pressed inwardly until the projections 42 are free from the notches 46. Thereupon, an axially directed force may be applied to the buttons 40 so as to slide the brush ring 32 downwardly within the annular space 28. In FIG. 7 the ring is shown at 32 in an intermediate position with the
bristles 26 extending part way out of the annular space 28 and with the projections 42 sliding along the inner surface of outer wall 24 adjacent to the slot 44. Continued downward movement will bring the projections 42 into alignment with the notches 48 near the lower end of slot 44, whereupon the resiliency of the arms 38 will cause the projections 42 to snap into the notches, as is shown in FIGS. 8 and 9, thus locking the ring in its lowestmost position with the bristles 26 fully extended.

The object of the present invention is to provide a dusting brush, the operator holding curved tube 12 to manipulate the brush over surfaces to be cleaned. If it is desired to use the tool as an upholstery nozzle, buttons 40 are depressed and an upward axial force applied thereto so as to slide the ring 32 to its fully retracted position, as shown in FIG. 10. The wing members 50 may then be individually pivoted to their extended positions, as shown in FIGS. 10 and 11. If, for example, the tool is now applied to an upholstered surface, air will be drawn into and along the channels 54 to the tube 13, which air will pass over the surface to which the tool is applied, thus removing dirt therefrom. The wing members 50 may also be pivoted to any intermediate position so as to closely conform with a curved surface, such as the arms of an upholstered chair.

It will thus be seen that, in accordance with my invention, I have provided a tool which may be permanently attached to the hose and without interfering with the connection thereto of the wands, which tool, without removing it from the hose, may be used selectively as a dusting brush or an upholstery nozzle.

While I have shown and described one more or less specific embodiment of my invention, it is to be understood that this has been done for the purpose of illustration only, and that the scope of my invention is not to be limited thereto, but is to be determined by the appended claims.

1. A vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a round brush slidably disposed in said space, means accessible for manipulation at the exterior of said body for moving said brush between a position in which it is extended out through said open end and a position in which it is retracted within said space, and a pair of wing members pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend outwardly at right angles thereto, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit.

2. In a vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a round brush slidably disposed in said space, means extending through a slot in the outer of said walls for moving said brush between a position in which it is extended out through said open end and a position in which it is retracted within said space, and a pair of wing members pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend outwardly at right angles thereto, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit.

3. In a vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a round brush slidably disposed in said space, means accessible for manipulation at the exterior of said body for moving said brush between a position in which it is extended out through said open end and a position in which it is retracted within said space, and a pair of wing members pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend outwardly at right angles thereto, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit.

4. In a vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a round brush slidably disposed in said space, means extending through a slot in the outer of said walls for moving said brush between a position in which it is extended out through said open end and a position in which it is retracted within said space, and a slot being notched at each end for releasable locking engagement with said retaining said brush in either of said positions, and a pair of wing members pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend outwardly at right angles thereto, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit.

5. In a vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a collar slidably disposed in said space, a circular brush carried by said collar, a resilient arm extending from said collar means through a slot in the outer of said walls for moving said brush between a position in which it is extended out through said open end and a position in which it is retracted within said space, said slot being notched adjacent each end for releasable locking engagement with said resilient arm for retaining said brush in either of said positions, and a pair of wing members pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend outwardly at right angles thereto, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit.

6. In a vacuum cleaner tool, a hollow elongated double walled body, said walls forming an annular space therebetween which is open at one end, a pair of wing mem-
bers pivotally mounted on opposite sides of said hollow body adjacent to the open end of said annular space and pivotal between a position in which the wings extend alongside the exterior of the outer of the double walls and a position in which the wings extend outwardsly at right angles thereto and inwardly sufficiently to bridge the open end of said annular space, each wing member having a longitudinal channel formed in the surface thereof which faces away from said wall when the wing member is alongside thereof, said hollow body having an aperture at the end thereof remote from said open end, said aperture communicating with the interior of the inner of said double walls and adapted to receive a suction conduit, a round brush slidably disposed in said annular space, and means accessible for manipulation at the exterior of said space and operable when said wing members are alongside said outer wall for moving said brush from a position in which it is retracted within said space to a position in which it is extended out through said open end.

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