March 18, 1941. A. E. ROSS 2,235,225

SUCTION NOZZLE

Filed July 11, 1939

Fig. 1.

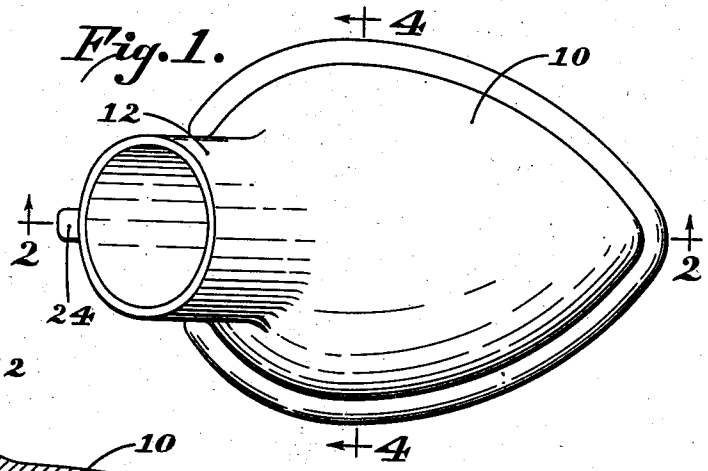


Fig. 2.

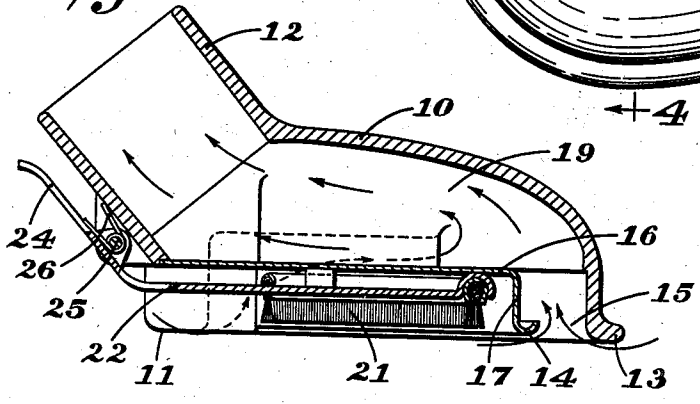


Fig. 3.

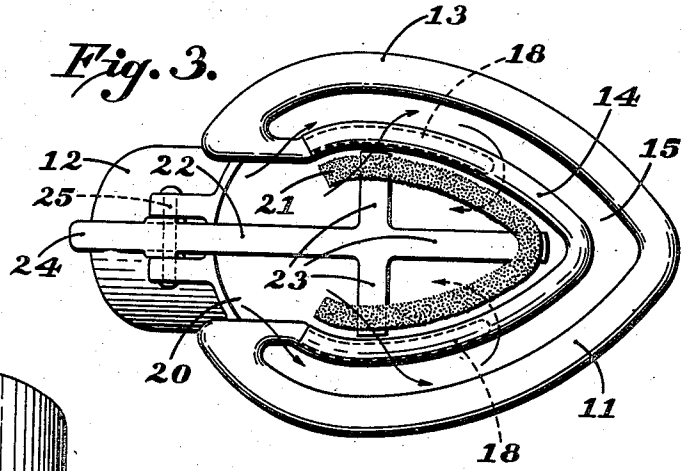
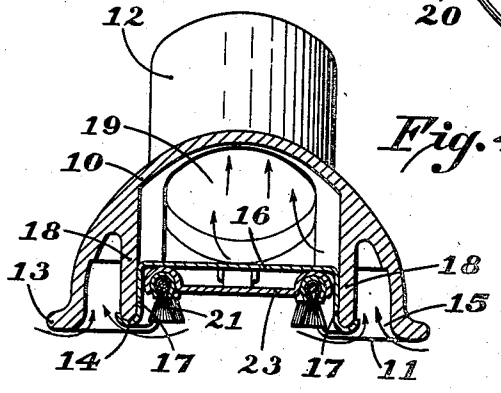


Fig. 4.



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SUCTION NOZZLE

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Application July 11, 1939, Serial No. 283,753

4 Claims. (Cl. 15—158)

My invention relates to suction nozzles and more particularly to a suction nozzle for use with a vacuum cleaner.

In the cleaning of upholstered furniture and the like, it is necessary to clean in confined spaces, such as, in corners, and crevices, and to clean curved and irregular surfaces. In cleaning under such conditions, it is often only possible to use a portion of the suction nozzle for cleaning a relatively small area. The use of only a portion of the suction nozzle would very greatly reduce the efficiency of the nozzle if not render it completely ineffective.

An object of my invention is to provide an improved suction nozzle which will efficiently clean in confined spaces and on curved and irregular surfaces by using only a portion of the suction nozzle.

What I consider to be novel and my invention may be better understood by reference to the following specification and appended claims when considered in connection with the accompanying drawing, in which—

Fig. 1 is a top view of my improved nozzle;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a bottom view; and

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 1.

Referring to the drawing, 10 indicates a suction nozzle body having a relatively flat bottom contact surface 11, and a projecting connector member 12 communicating with the hollow interior of body 10. Connector 12 is adapted to receive a suction conduit connected to a vacuum cleaner, or other source of suction, for communication with the interior of the body 10. An outer lip 13 which extends around the periphery of the bottom 11, and an inner lip 14 define between them a suction opening 15 communicating with the interior of body 10. The bottom 11 is pointed at one end and diverges outwardly from the pointed end in a smooth curve.

The inner lip 14 is formed on a plate 16 secured to body 10 by frictional engagement therewith, or by any securing means desired. As shown in the drawing, the plate 16 is secured to body 10 by two arms 17 which frictionally engage projecting walls 18, spaced from the outer walls along a portion of the side of body 10. The walls 18 in addition to performing the function of securing the plate 16 to the body 10 also serve as baffles to direct air entering the suction opening 15 remote from the pointed end, in a direction toward the pointed end in order to obtain communication with the interior of body 10 through a passage 19, as indicated by the arrows in Fig. 2. The walls 18, acting as baffles, serve to concentrate the suction, or air flow, at the pointed end of the bottom 11 for a purpose that will be explained later.

At the end of bottom 11, remote from the pointed end, a passage 20 is formed communicating with the atmosphere at one end and with the suction opening 15 across the inner lip 14. Thus, air entering the suction opening 15 can pass over the outer lip 13, or by entering through the passage 20 can pass over the inner lip 14.

For loosening tenaciously adhering dog hairs, threads, and the like, a brush 21 is provided of U-shape which extends adjacent to the inner lip 14. The brush 21 is carried by a rigging 22 having three arms 23, engaging the brush 21 at spaced points. Formed on the end of rigging 22 is a finger grip 24 adjacent to a pivot pin 25 pivotally securing the brush rigging 22 to body 10. By depressing the finger grip 24, the brush can be lowered into contact with a surface being engaged by the bottom 11. The brush 21 is urged to a retracted position by means of a torsion spring 26.

In the normal cleaning of upholstered furniture, the body 10 is connected to a source of suction and then with the bottom 11 in contact with the surface being cleaned, it is moved back and forth over the surface. To clean in a confined space or a corner of upholstered furniture, for example, the pointed end is inserted therein. As the air flow is concentrated at the pointed end by means of the baffles 18, the corner can be efficiently cleaned. Due to the shape of the pointed end, it can be readily inserted in such a space.

In cleaning the arm of an upholstered chair or the like, the whole of the bottom 11 cannot be placed in contact with a surface with an arched contour, but it is only necessary to place the pointed end of the bottom 11 in engagement with the surface to be cleaned. The baffles 18 prevent the free flow of air into the portion of the suction opening 15 not sealed in engagement with the surface being cleaned, and thus prevent the loss of suction at the pointed end of the bottom 11.

Even though air should enter relatively freely in the uncovered portion of the suction opening 15, it must pass into the portion of the suction opening adjacent to the pointed end to enter passage 19. This insures a large flow of air over a relatively small area. It is not necessary to seal the suction opening across the outer lip 13

to obtain a sufficiently high suction, as in other forms of nozzles, because the result of the baffles 18 directing the air to passage 19 at the pointed end is to produce a relatively high suction at this point regardless of the failure to seal the lips against a surface being cleaned.

By the arrangement of the connector member 12 at the end of body 10 remote from the pointed end of the bottom 11, it is possible to readily and conveniently manipulate the nozzle by a conduit or handle member connected to the connector member 12. When it is impossible or inconvenient to place the whole of bottom 11 against a surface to be cleaned, the pointed end may be placed against or in proximity to an area of such a surface for cleaning it.

What I claim is:

1. A suction nozzle including a body member having a base pointed at one end, a smooth lip extending from the pointed end along the periphery at opposite sides of said base, said base having a suction opening adjacent said lip, an inner lip extending from said base parallel to said first-named lip along the opposite side of said suction opening, said base having a passage communicating with the atmosphere remote from said pointed end and communicating with said suction opening across said inner lip, baffle members extending between said first-named lip and said inner lip to direct air entering portions of said suction opening to the pointed end of said base, and a connection member communicating with the interior of said body member.

2. A suction nozzle including a body member with a base having a flat contact surface pointed at one end and having a central chamber communicating through a passage in the base at said pointed end with a suction opening extending from the pointed end along both sides of the base, a smooth lip extending along the outside of said suction opening, an inner lip spaced inwardly from the plane of said first-named lip and extending from said base parallel to said first-named lip along the opposite side of said suction opening, said body member having a passage adjacent said base communicating with the atmosphere at the end of the base remote from said pointed end and with said suction opening across said inner lip, and a connection member communicating with said chamber.

3. A suction nozzle including a hollow body member having a flat contact surface pointed at one end with a suction opening extending from the pointed end, a smooth lip extending along the outside of said suction opening, an inner lip for said suction opening extending parallel to said first-named lip along the opposite side of said suction opening, a brush extending along and adjacent to said inner lip, said body member having a passage in the contact surface communicating with the atmosphere at the end of the contact surface remote from the pointed end and with said suction opening across said inner lip, an arm connected to said brush extending through said passage, means pivotally connecting said arm to said body member, and spring means biasing said brush to a retracted position.

4. A suction nozzle including a hollow body member having a flat contact surface pointed at one end with a suction opening extending from the pointed end, a smooth lip extending along the outside of said suction opening, an inner lip for said suction opening extending parallel to said first-named lip along the opposite side of said suction opening, a brush extending along and adjacent to said inner lip, said body member having a passage in the contact surface communicating with the atmosphere at the end of the contact surface remote from the pointed end and with said suction opening across said inner lip, an arm connected to said brush extending through said passage, pivot means for connecting said arm to said body member, spring means biasing said brush to a retracted position, and means to move said brush against the bias of said spring.

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