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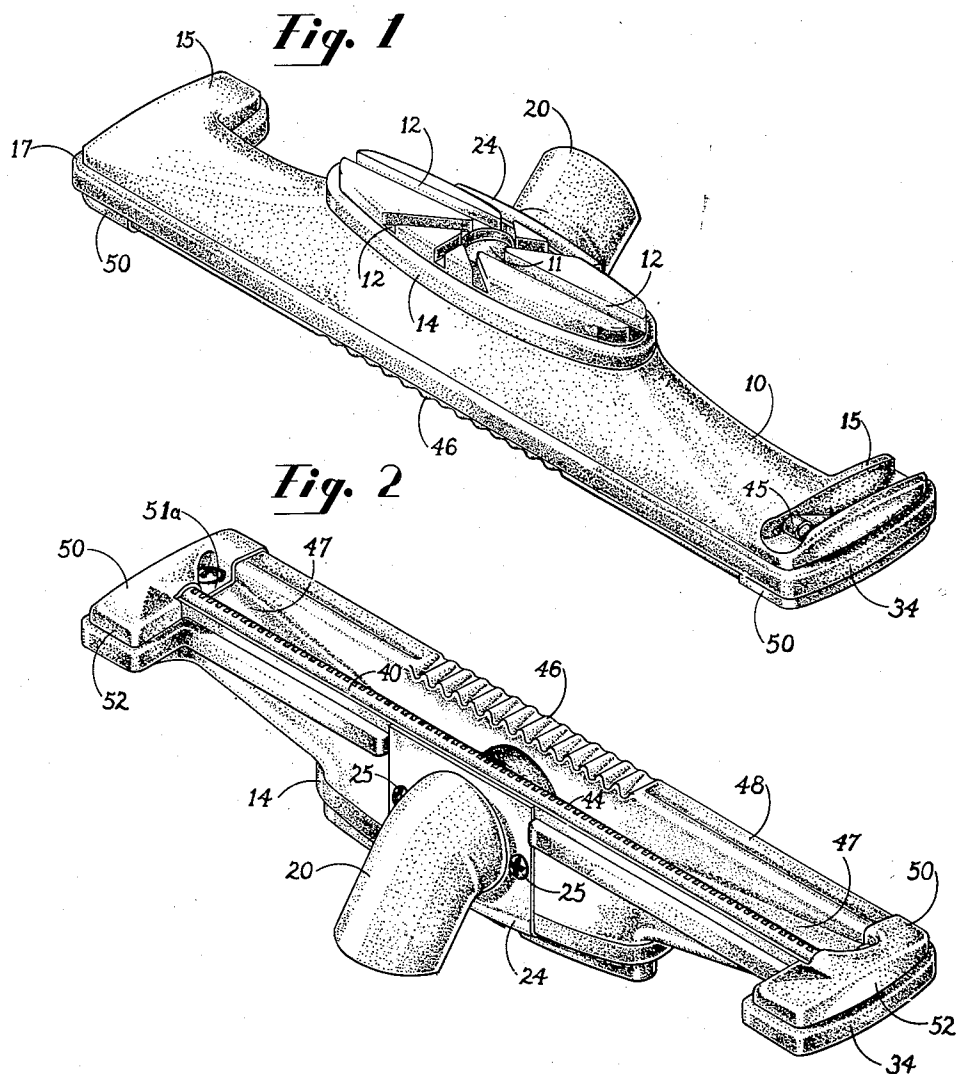
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DUAL PURPOSE RUG NOZZLE FOR SUCTION CLEANERS

Filed Nov. 8, 1947

2 SHEETS—SHEET 1



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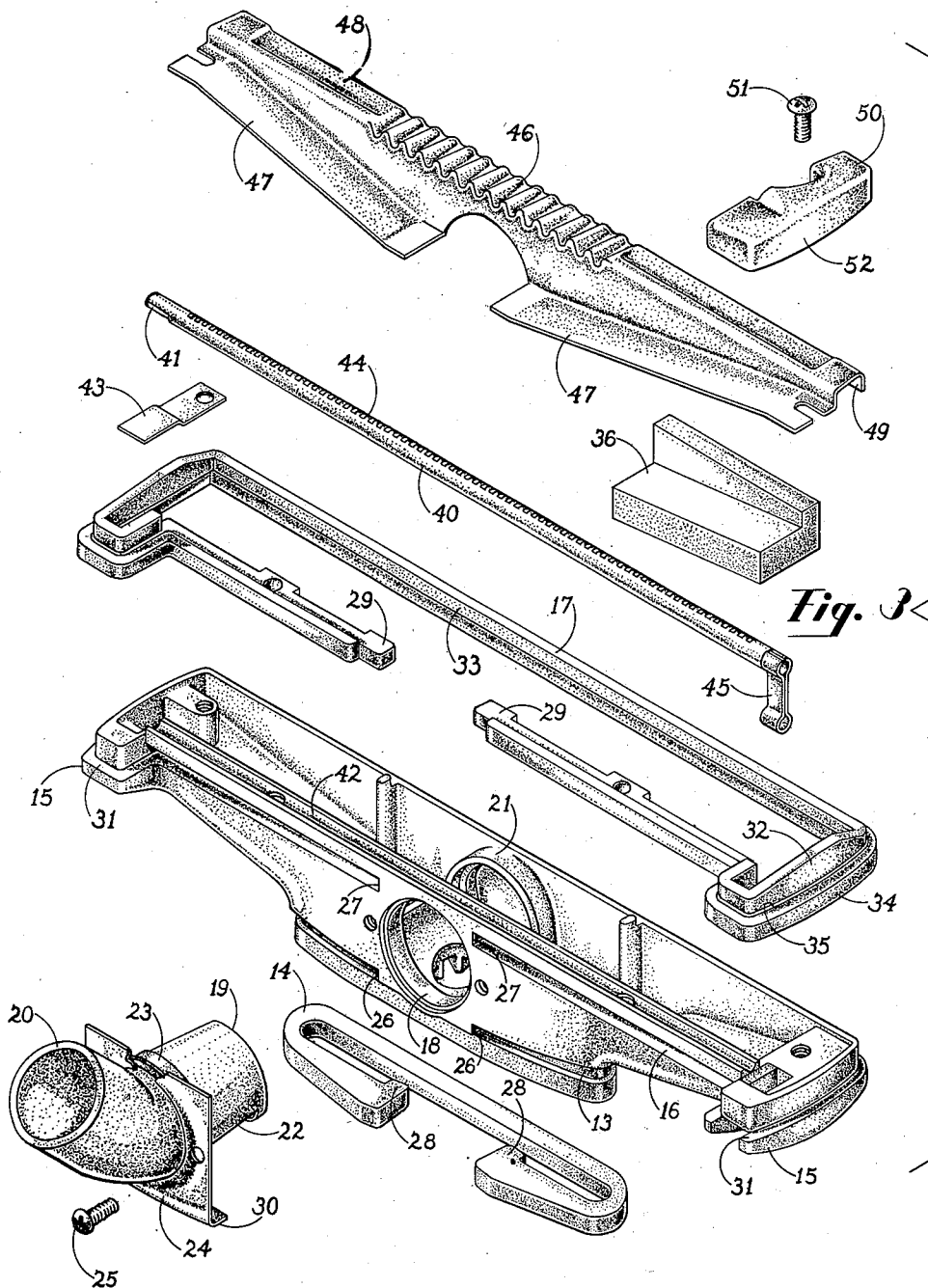


Fig. 3.

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DUAL PURPOSE RUG NOZZLE FOR
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6 Claims. (Cl. 15-367)

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The present invention relates to rug nozzles for suction cleaners which embody separately characterized rug cleaning apertures and surface engaging elements such that a plurality of types of cleaning may be accomplished by the use of a single nozzle.

The general object of the present invention is to provide a novel, simple and improved nozzle of the type set forth in which the structural arrangement is such as to facilitate manufacture and assembly and whereby the parts are securely united with the minimum of securing elements.

A specific object of the invention is to provide a novel assembly in which a pair of lip forming elements are jointly secured to the body of the nozzle by a novel and improved assembly arrangement which admirably lends itself to economy in manufacture and assembly, while insuring stability after such assembly.

Other objects and features of the present invention will be apparent from a consideration of the following specification when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view looking toward the top and front of the nozzle;

Fig. 2 is a similar view looking towards the bottom and back of the nozzle; and

Fig. 3 is an exploded view of the nozzle shown in Figs. 1 and 2.

The nozzle of the present invention comprises a body member 10 preferably formed of a casting of aluminum or magnesium or similar light metal alloy. The top of the body 10 is reduced and provided with a small central high velocity aperture 11 which is surrounded with air directing channels 12 which are designed to direct incoming air through the aperture in a swirling vortex so as to apply an intense cleaning action when the top of the nozzle is applied to the surface being cleaned.

Adjacent the face of the top portion of the nozzle there is provided an encircling channel 13 which is adapted to receive a top rubber bumper ring 14. Below the channel 13 the body extends longitudinally outwardly, its ends terminating in rearwardly extending wing portions 15. Adjacent the lower edge of the body at the rear wall thereof there is provided a bottom bumper channel 16 in which is mounted the bottom rubber bumper 17.

The body 10 is substantially hollow, its rear wall being provided with an opening 18 within which is inserted the inner end 19 of a suction elbow 20. A socket 21 is provided within the body

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which receives the inner end of the elbow. The elbow 20 is cut away as at 22 to cooperate with the socket in such manner as to direct the flow of air through the aperture of the top when the nozzle is in inverted position in contact with the surface being cleaned and to direct the suction towards the open bottom of the body when the bottom is disposed towards the surface being cleaned. The elbow is also provided with a shoulder 23 by which it is secured within the body by the medium of the securing plate 24 which is engaged with the body by means of securing plate screws 25.

As will be noted more particularly in Fig. 3, the channels 13 and 16 terminate short of complete encirclement at points 26 and 27, respectively, adjacent the rear opening 18. The terminal points 26 and 27 are provided with inwardly extending portions which receive the inwardly directed ends 28 and 29 of the respective bumper rings 14 and 17. It will be noted that at the terminal ends the bumper rings are of such configuration as to lie flush with the outer surface of the body adjacent the opening 18. When in assembled position the securing plate 24 engages over the flush terminal portions of the rings, thus securing the ends of the rings within their terminal recesses and thus securing the rings within their channels. An inwardly directed flange 30 of the securing plate also acts to overlie the terminal ends of the top bumper ring 14 to assist in securing it within its channel.

While the top bumper ring 14 is mounted throughout its entire length within the upper channel 13 it will be noted that only the rear portion of the bottom bumper ring 17 is so mounted. At the sides and the front edge of the body the bottom ring abuts a flange 31 and extends therefrom to a position below the bottom edge of the body. The downwardly extending portion of the ring 17 constitutes a flange 32 which is inwardly turned as at 33 to cover the terminal edges of the front and end walls of the body. The protruding portion 34 of the ring 17 is grooved as at 35 so as to receive and be secured by the inter-fitting parts hereinafter to be described. From the following description it will be seen that the downwardly extending portions of the ring acts not only to assist in the securement of the front end portions of the ring, but also acts as a sealing means for the associated parts.

To assist in rotation of the body with respect to the elbow a weight 36 is mounted within the body at one side of the elbow so as to dispose the center of gravity at a point displaced from

the elbow whereby mere lifting of the nozzle from the surface cleaned will impart rotation thereto.

The present nozzle is provided with a lip forming rod 40 which throughout its length is fitted within a circular groove 42 formed in the terminal edge of the rear wall of the body. One portion of the surface of the rod is formed with a longitudinal slot and a multiplicity of transverse slots which intersect the longitudinal slot and which together form a plurality of oppositely disposed surface agitating projections 44. In order to provide for a rotation of the rod so as to dispose either its smooth surface or its slotted surface toward the material being cleaned, one terminal end of the rod is provided with a right angularly disposed arm 45 which extends through a cooperating aperture in the body so that it may be conveniently manipulated from the top surface of the body.

The opposite end of the rod 40 is provided with flat surfaces 41 which selectively abut a flat retaining spring 43 by which the rod is secured in its selected rotative position.

The rod 45 constitutes one surface engaging lip of the nozzle, while the opposite lip is formed by a plate 46 which extends downwardly and into the nozzle body and includes a transverse pair of flanges 47 which extend from the socket 21 outwardly to the ends of the nozzle body. These flanges 47 provide an upper boundary for the suction passage through the nozzle, and one of them also serves to retain the weight 36 within the nozzle body 10. The plate 46 also includes a forwardly directed section 48 which terminates in an upwardly turned flange 49 which latter is received within the groove 35 of the bottom bumper ring 16 to secure the same in position.

As a means of agitating the rug surface, in a manner different from the agitation applied by the projections 44, the section 48 of the plate 46 is provided with an undulated or fluted central section through which air is drawn at a high velocity, while the nozzle is in operation. Such velocity together with movement of the pile of a rug through contact by such undulations will increase the efficiency of the cleaning at this point.

The nozzle assembly is completed by the provision of a pair of end glider members 50 which are secured to the body by suitable securing screws indicated at 51, each member 50 includes a downwardly inclined lower surface 51a which is adapted to engage the surface being cleaned to properly space the lips from such surface. The ends and sides of each member are turned upwardly to provide flanges 52 which encircle and engage the downwardly extending portion of the lower bumper ring 17. The members 50 also overlie the terminal ends of the rod 40 securing it in position and also overlie the terminal ends of the plate 46, thus constituting unitary assembly bracket means for securing the rod, the plate, and the lower ring 17 all in assembled relation with respect to the body.

From the foregoing it will be understood that the present invention provides a novel, simple, improved structural arrangement which admirably lends itself to economic manufacture and provides for new and improved cleaning action. It will be understood that numerous changes and modifications in this structural embodiment herein presented will not constitute a departure from the scope of the appended claims.

Certain subject matter disclosed but not claimed in the present application is claimed in

my copending divisional application Serial No. 61,783, filed November 24, 1948.

What I claim is:

1. In a rug nozzle for a suction cleaner, a hollow body having a suction passage therethrough and including a pair of substantially parallel side walls normally extending transversely of the surface to be cleaned, a rod mounted at the terminal edge of one of said walls and constituting a first surface engaging lip for said wall, a plate mounted upon the other side wall and extending therebelow and constituting a cooperating spaced parallel second surface engaging lip, and a pair of surface engaging end members secured to said body each engaging one end of both the rod and plate for securing the same in assembled relation with respect to said side walls.

2. In a rug nozzle for a suction cleaner, a hollow body having a suction passage therethrough and having a pair of substantially parallel elongated side walls normally extending transversely of the surface to be cleaned, a rotatably mounted rod at the terminal edge of a first one of said side walls and comprising a pair of dissimilar surface engaging lips selectively engageable with the surface to be cleaned, a plate mounted within said body and extending outwardly thereof to engage over the terminal edge of the second side wall and constituting a surface engaging lip for said second side wall, and a pair of surface engaging end members secured to said body each of which engages one end of the rod and plate to secure the same in assembled relation with respect to said side wall, and handle means extending through said hollow body and engaging one end of said rotatable rod for selectively positioning said rod.

3. A suction cleaner nozzle comprising a body formed from a unitary hollow casting having one side open the full length of the casting, a stamping mounted in said open side and forming a first rug contacting lip, a rod mounted on said body on the opposite side of said opening from the lip formed by the stamping and constituting a second rug contacting lip, and a bracket on each end of said body, each bracket engaging one end respectively of said stamping and rod for securing the same to said body.

4. In a suction nozzle for cleaning a surface, a hollow elongated body having a suction passage therethrough and including a pair of substantially parallel side walls, surface contacting structure disposed at the lower edge of each of said walls, one of said structures including a plurality of narrow closely spaced teeth occupying substantially the entire length of the wall, and the other of said structures comprising a fluted central portion and relatively smooth end portions.

5. In a suction nozzle for cleaning a surface, a hollow elongated body having a suction passage therethrough and including a pair of substantially parallel side walls, surface contacting structure disposed at the lower edge of each of said walls, one of said structures being rotatably mounted with respect to said body and including a first lip having a plurality of narrow closely spaced teeth, a second lip having a smooth surface, each of said lips extending substantially the entire length of the wall and being alternatively presentable to the surface to be cleaned, and the other of said structures comprising a fluted central portion and relatively smooth end portions.

6. In a suction nozzle for cleaning a surface, an elongated hollow body having a pair of spaced substantially parallel wall portions defining a suc-

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tion opening, a tubular member communicating with the interior of said body, means for turnably connecting said member to said body at substantially the longitudinal center thereof, a weight disposed within said hollow body adjacent to one end thereof, a plate mounted within said hollow body and extending beyond and over the lower edge of one of said walls to form a surface engaging lip, and a flange extending from said plate across said hollow body to the other wall and contacting said weight to secure the latter in place, said flange being disposed inwardly from said suction opening and being apertured to provide communication between the interior of said body and tubular member.

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