

[54] VACUUM CLEANER SHAG RUG NOZZLE CONSTRUCTION

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[51] Int. Cl. A47I 9/02

[58] Field of Search. 15/338, 362, 378, 422, 246, 15/328

[56] References Cited

UNITED STATES PATENTS

2,798,243 7/1957 Wex 15/422 X

2,893,048 7/1959 Martinec 15/422

Primary Examiner—Walter A. Scheel

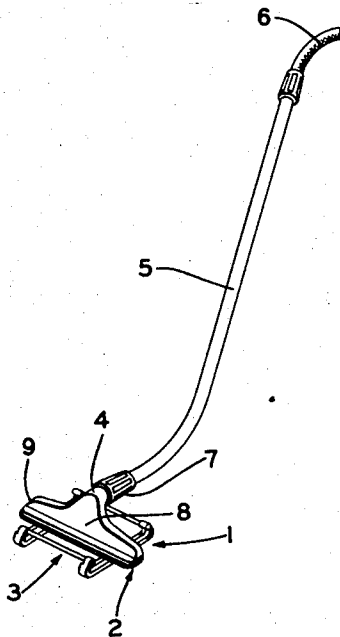
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[57] ABSTRACT

A vacuum cleaner nozzle construction having a usual nozzle body formed with an elongated cleaning mouth between a pair of rug surface contacting lips. The nozzle body is connected to a usual source of cleaning suction. A skid having a pair of spaced parallel sledlike runners extends below the nozzle lips transversely beneath the nozzle body raising the nozzle lips a sufficient distance above a deep pile shag rug being cleaned so that the nozzle lips will not seal into the pile, thus allowing air to circulate through the pile for removal of dirt. The nozzle and skid are pushed through the shag rug, the suction stands the rug fibers upright for cleaning and for uniform appearance of pile.

3 Claims, 9 Drawing Figures



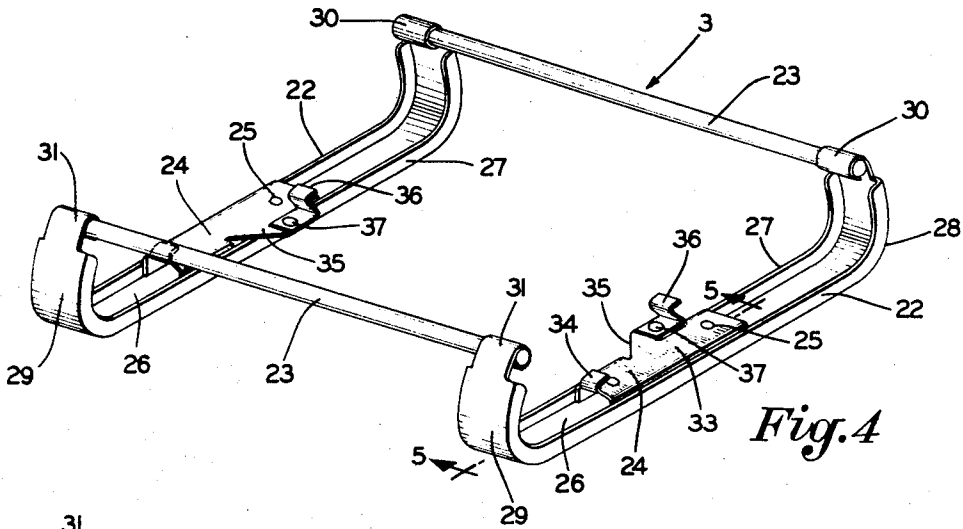


Fig. 4

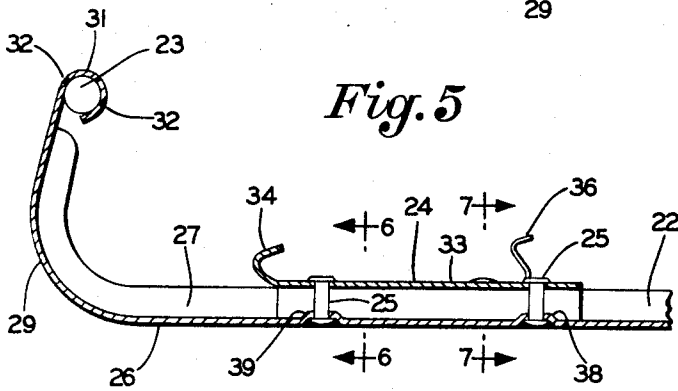


Fig. 5

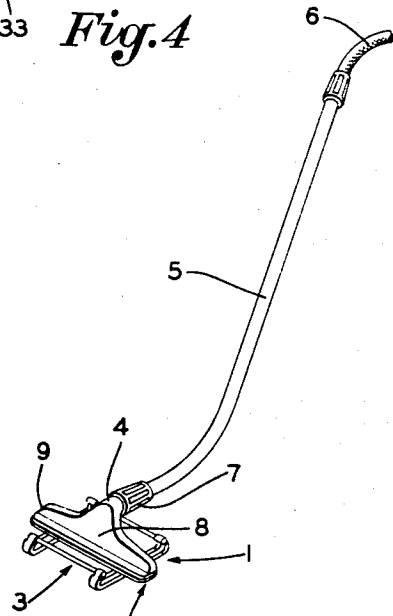


Fig. 1

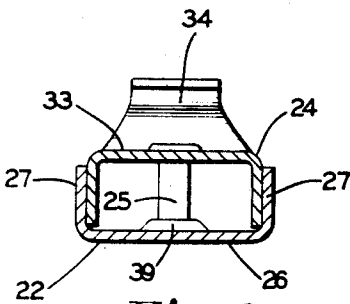


Fig. 6

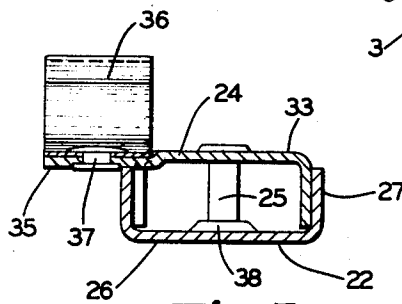
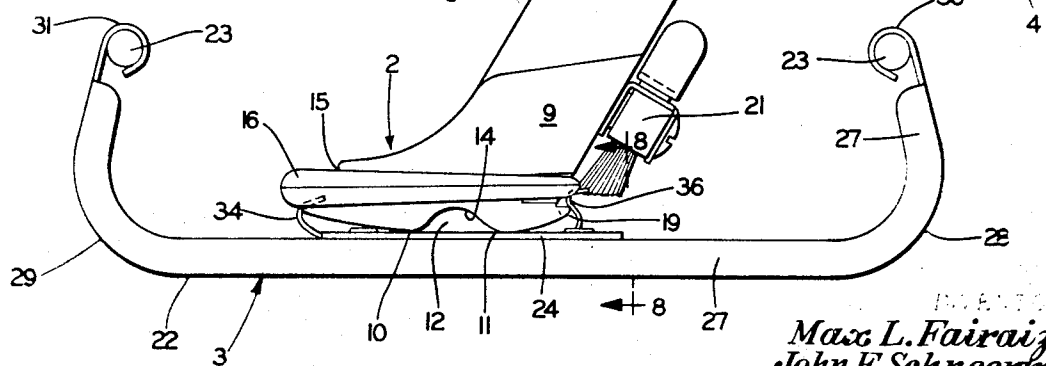
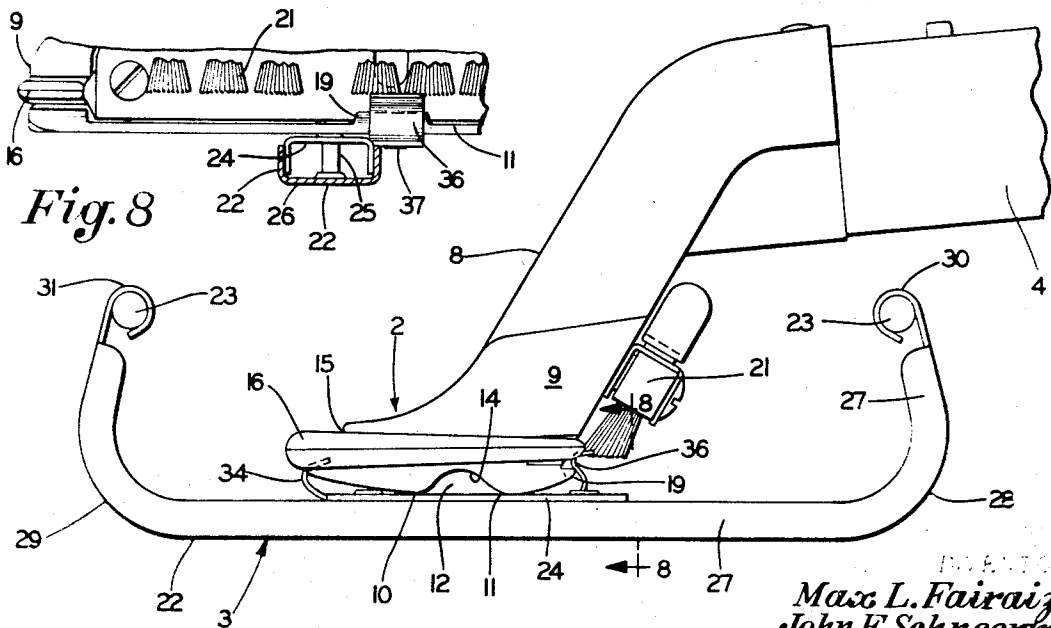
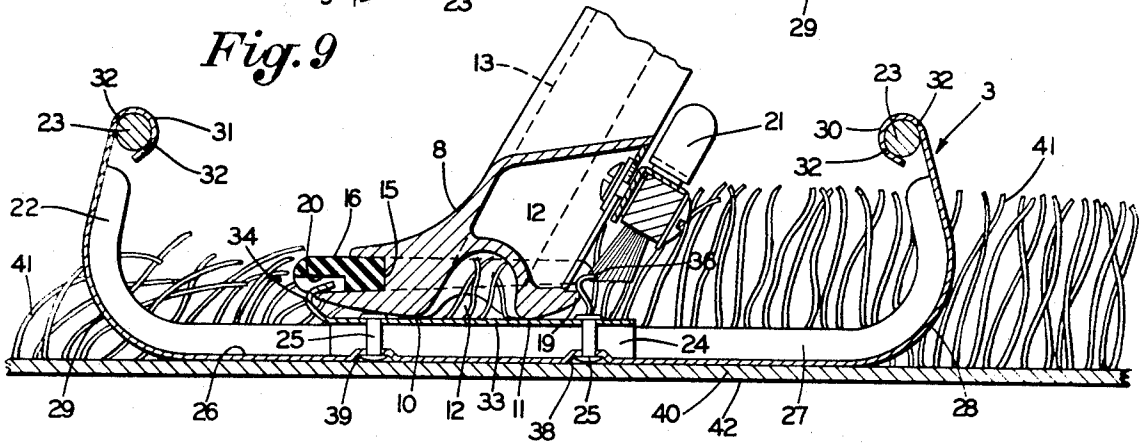
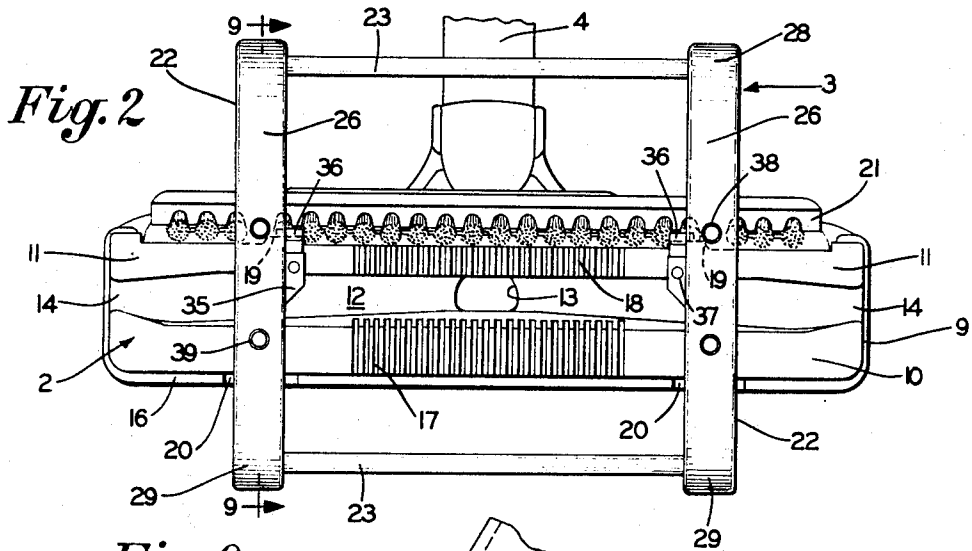


Fig. 7

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VACUUM CLEANER SHAG RUG NOZZLE CONSTRUCTION

RELATED PATENT

The new construction constitutes improvement upon the nozzle construction disclosed in Martinec U.S. Pat. No. 2,893,048 dated July 7, 1959.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to vacuum cleaners and more particularly to a vacuum cleaner nozzle construction for cleaning rugs having a shaggy nap or pile. Difficulties have been encountered in the art by shaggy rugs sealing against the nozzle, thereby preventing air from circulating through the pile for removal of dirt and resulting in poor cleaner efficiency.

2. Description of the Prior Art

Present-day high suction canister type cleaners have made it practically impossible to operate a usual floor nozzle over currently popular shag rugs. These rugs have a pile anywhere from two to four inches high. The high suction seals the floor nozzle to the rug, thus making it difficult to push the nozzle through the pile and to clean such rugs effectively.

Various devices have been proposed to overcome the problems of vacuum cleaning such shag rugs, none of which have proven entirely satisfactory. One device includes a bar attached under the nozzle with straps to prevent the rug from arching into the nozzle and to prevent the pile from sealing the nozzle opening. Another device has a member which fits into the mouth of the nozzle. This reduces the effective suction length of the nozzle and therefore its efficiency.

Revolving brush upright vacuum cleaners likewise have proven unsatisfactory for cleaning high pile shag rugs. The fibers entangle in the revolving brush necessitating frequent cleaning of the brush; and certain types of pile rugs can be ruined by brushing out the tufts of fibers.

Another prior device includes a rigid shoelike plate attached to the bottom of the nozzle, provided with several opening slots to prevent too large of an arch from being formed in the rug and to prevent the pile from sealing against the nozzle lips. This construction, like others noted above, has the disadvantage of reducing the effective suction area, and presents too broad a contact area with the rug for easy movement through the pile, and does not prevent the longer pile fibers of currently popular rugs from sealing against the nozzle opening. Likewise, the broad, flat contact area of the attachment plate tends to compress the pile upon cleaning, thereby depriving the rug of its desirable fluffy, shaggy appearance.

Accordingly, there is an existing need for a vacuum cleaner nozzle construction for use on high pile shag rugs which permits the nozzle to slide easily through the pile without the pile sealing against the nozzle lips to prevent the flow of air through the nozzle, and which enables the pile fibers to stand up after cleaning to present a pleasing uniform appearance.

SUMMARY OF THE INVENTION

Objectives of the invention include providing a vacuum cleaner nozzle construction for cleaning shag rugs having a high pile which prevents the rug from being sealed against the nozzle under ordinary suction developed by a vacuum cleaner that heretofore has occurred with prior nozzles; providing a nozzle construction which permits easy movement of the nozzle over the surface of a shag rug thereby facilitating the cleaning thereof; providing a nozzle construction which does not reduce the effective size of the nozzle mouth or affect to an appreciable extent the effective suction present in the nozzle; providing a nozzle construction which may also include a usual brush attachment; providing a nozzle construction in which the nozzle lips are raised sufficiently above the rug to prevent the rug pile from sealing the nozzle mouth and thus to permit air to circulate through the pile for removal of dirt; providing a nozzle construction which may include a runner

device detachably mounted on a usual vacuum cleaner nozzle; providing a nozzle construction which avoids compressing the rug pile upon cleaning but leaves the pile standing up with a uniform, pleasing appearance; providing a nozzle construction which does not injure the pile fibers from excessive combing or brushing; and providing a nozzle construction which is inexpensive to manufacture and sturdy and durable in use, and which eliminates difficulties heretofore encountered, achieves the objectives indicated, and solves problems and satisfies needs existing in the art.

These objects and advantages are obtained by the vacuum cleaner shag rug nozzle construction, the general nature of which may be stated as including; walls forming an elongated nozzle body terminating in front and rear parallel lips forming an elongated mouth therebetween; said mouth merging into a central opening communicating with usual vacuum cleaner suction means; skid means including spaced parallel sledlike runners having upwardly curved front and rear ends to facilitate forward and backward movement of the skid means over a rug surface, the runners having reinforcing and spacer crossbars connected to and extending between said curved front and rear ends; said runners extending beneath the nozzle body transversely of the mouth to space said nozzle body and mouth a sufficient distance above the rug surface to allow air to circulate through the pile below the nozzle mouth and to prevent sealing of the nozzle mouth by rug fibers; said skid means preferably being detachable and including hook means on the runners engageable with the front nozzle lip and spring clip means on the runners yieldingly engageable with the rear nozzle lip; preferably grooves formed in said nozzle lips in an area adjacent to the mouth to facilitate the flow of air into the mouth; and preferably brush means adjustably mounted on the nozzle body above and to the rear of the rear lip.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention — illustrative of the best mode in which applicants have contemplated applying the principles — is set forth in the following description and shown in the drawings and is particularly and distinctly pointed out and set forth in the appended claims.

FIG. 1 is a perspective view of the improved vacuum cleaner nozzle construction attached to a vacuum cleaner hose;

FIG. 2 is a bottom plan view of the nozzle construction;

FIG. 3 is an end elevational view of the nozzle construction;

FIG. 4 is a perspective view of the nozzle skid removed from the nozzle body;

FIG. 5 is an enlarged fragmentary sectional view taken on line 5—5, FIG. 4;

FIG. 6 is an enlarged fragmentary sectional view taken on line 6—6, FIG. 5;

FIG. 7 is an enlarged fragmentary sectional view taken on line 7—7, FIG. 5;

FIG. 8 is a sectional view looking in the direction of line 8—8, FIG. 3; and

FIG. 9 is a sectional view taken on line 9—9, FIG. 2, showing the manner in which a shag rug is cleaned by the nozzle.

Similar numerals refer to similar parts throughout the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The improved nozzle construction is generally indicated at 1 (FIG. 1) and includes a nozzle body 2, a skid 3 and a tubular coupling connector portion 4 by which the nozzle is detachably connected to a tubular conduit 5, the upper end of which is connected to a flexible hose 6 leading to a source of suction in the usual manner. The connector portion 4 of a nozzle 1 may be coupled telescopically within a sleeve 7 at the lower end of conduit 5.

Nozzle body 2 (FIGS. 1, 2 and 3) may be of the usual type used for canister type cleaners for cleaning non-shag rugs, carpet, wood floors and the like. Body 2 includes a flared portion

8 extending downwardly from tubular portion 4 and includes end walls 9 extending downwardly from each side of tubular portion 4. The lower ends of flared portion 8 terminate at a pair of generally parallel spaced front and rear lips 10 and 11 which define an elongated slot or nozzle mouth 12. The end walls 9 together with lips 10 and 11 constitute the limits of nozzle mouth 12 which slant upwardly from end walls 9 toward a centrally formed opening 13 which communicates through connector 4 with conduit 5 and hose 6. The lips extend in opposite directions with lip 10 extending outwardly to the front of body 2 and lip 11 extending to the rear thereof. The undersurfaces of lips 10 and 11 may be the usual arcuate, rug-contacting shaped surfaces which enable back and forth movement over a usual rug if skid 3 is omitted.

A small arched opening 14 is formed in each end wall 9 and extends between the mouth 12 and the exterior or nozzle body 2. Openings 14 are relatively shallow and are used to provide high velocity air currents sidewise into mouth 12 for cleaning surfaces, such as rugs, adjacent a wall baseboard.

A groove 15 may be formed adjacent the lower end of flared portion 8 and end walls 9 into which a resilient pad 16 may be secured. Pad 16 extends slightly outward and beyond the ends of lips 10 and 11 and walls 9 and provides protection against the scratching and nicking of walls and furniture.

A plurality of spaced grooves 17 and 18 may be formed in lips 10 and 11 for a short distance on each side of the center of mouth 12 forming air passages to mouth 12. A pair of spaced bosses 19 are formed on the rear edge of rear lip 11 and are located nearly opposite a pair of notches 20 formed in pad 16 above front lip 10. Bosses 19 and notches 20 have a function described below.

An adjustable brush 21 may be mounted on the rear of flared portion 8 above rear lip 11 and is substantially coextensive with the length of nozzle 2. Brush 21 may be constructed and mounted on nozzle body 2 in a manner similar to that shown in U.S. Pat. No. 2,199,643.

Skid 3 (FIG. 4) in accordance with the invention has a pair of spaced sledlike runners 22, connected at each end by reinforcing crossbars 23. Channel clips 24 are connected to runners 22 by rivets 25 and form part of the detachable connection means for mounting skid 3 on nozzle body 2. Runners 22 preferably are channel or U-shaped in cross-section (FIG. 6) each having a web wall 26 and side walls 27. The ends of runners 22 are curved upward and slightly reversely to provide smooth arcuate surfaces 28 and 29 for easy movement of skid 3 in a back and forth direction through the pile fibers of a rug. Web wall 26 extends beyond side walls 27 at the terminal ends of each runner 22 forming rolled beads 30 and 31 into which the ends of crossbars 23 are telescoped and secured as by spotwelds 32.

Curved runner ends 28 and 29 eliminate sharp projections to avoid scratching and nicking of furniture and walls, and to avoid tangling with the rug fibers. Likewise, crossbars 23 preferably are round in cross-section to eliminate undesirable corners or projections. Skid 3 may be coated with a plastic or rubberized material to insure a marproof and snagproof construction.

Clips 24 each include a web wall 33 formed with a reversely bent front hook 34. Wall 33 extends outwardly at 35 from its inner edge and an S-shaped spring clip 36 is secured thereto by a rivet 37. Web walls 33 are connected to runner web walls 26 by rivets 25. The heads of rivets 25 preferably are countersunk at 38 and 39 into the under surface of runner web walls 26 (FIG. 5) to prevent any projection on the runner's surface on which the rug fibers can become snagged.

Skid 3 is easily attached to nozzle body 2 by first engaging clip hooks 34 in notches 20 with front lip 10 after which the spring clips 36 are snapped into engagement with rear lips 11.

When nozzle body 2 is used on a shag rug 40 without skid 3 attached thereto in prior devices, the fibers 41 (FIG. 9) are drawn against the lips and into mouth 12, and seal off the mouth by the suction existing therein. This sealing provides re-

sistance to movement of the nozzle over rug 40 and prevents the flow of air through the pile necessary to remove dirt therefrom. Brush 21 ordinarily is retained in the upper position out of contact with the rug since contact of the brush with the pile would only add to the difficulty of moving nozzle 2 across the rug.

In accordance with the invention, skid 3 is mounted on nozzle 2, and nozzle mouth 12 is held spaced above the rug backing 42, thereby preventing fibers 41 from sealing the nozzle against the flow of air through the fibers and into the nozzle.

The side walls 27 of runners 22 (FIG. 9) have a height which spaces the nozzle lips 10 and 11 a considerable distance above the rug backing 42 so that the lips cannot seal off against the rug backing throughout the length of the nozzle even though the suction may tend to pull zones of the rug backing below the ends and central portion of the nozzle upward from the floor toward zones of the lips. The spacing of the nozzle lips above the rug backing thus provides zones between portions of the nozzle lips on either side of each runner 22 where air can flow through and between the rug fibers and into the nozzle for effectively removing dirt collected around the fibers.

The spacing of the nozzle above the rug backing in permitting air flow and preventing sealing also prevents resistance to movement of the nozzle and runners back and forth over the rug and through the pile in use of the cleaner nozzle. At the same time the fibers are left in a less flattened and more erect position above backing 42 providing a better appearance for the cleaned rug surface.

The improved construction is illustrated and described as including a skid 3 which is detachable from the nozzle 2. This is desirable so as to be able to convert a usual nozzle 2 with a brush 21 normally used for cleaning surfaces other than shag rugs into a shag rug cleaning nozzle. However, where separate complete tools or nozzles may be desirable for each type of required use, runners 22 may be formed integrally with the nozzle lips to space the nozzle lips above the rug backing when cleaning shag rugs in a special shag rug nozzle used for cleaning shag rugs only.

Accordingly, the construction provides an improved nozzle construction for cleaning deep pile shag rugs with a usual vacuum cleaner which is inexpensive in construction, which has a neat appearance, which provides sufficient clearance between the nozzle lips and the rug surface to prevent the rug from being sealed against the nozzle, which is moved easily over the rug surface, and which incorporates the new and advantageous features herein described, overcomes the prior art difficulties indicated and solves problems and obtains new results in the art.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such terms are used for descriptive purposes and are intended to be broadly construed.

Moreover, the description and illustration of the invention is by way of example, and the scope of the invention is not limited to the exact details shown or described.

Having now described the features, discoveries and principles of the invention, the manner in which the vacuum cleaner shag rug nozzle construction is constructed and used, the characteristics of the construction, and the advantageous, new and useful results obtained; the new and useful structures, devices, elements, arrangements, parts, and combinations, are set forth in the appended claims.

We claim:

1. A vacuum cleaner shag rug nozzle cleaning attachment including skid means having a pair of spaced sledlike runners provided with front and rear ends; the ends being curved upwardly to facilitate movement of the skid over a rug surface, and the runners being U-shaped channels each having a web wall and side walls, and having rolled beads formed at the ends

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of the channels; crossbars telescoped into and connected to said rolled beads and extending between said runners; and means on the runners for detachably connecting the skid means to a vacuum cleaner nozzle.

2. The construction defined in claim 1 in which the means for detachably connecting the skid means to a nozzle includes clip means on said runners intermediate the runner ends; and in which said clip means is formed with spaced hook means and spring clip means adapted to detachably engage a vacuum cleaner nozzle.

3. Vacuum cleaner shag rug nozzle construction including nozzle body walls terminating in front and rear generally parallel lips forming an elongated mouth therebetween; skid means including a pair of spaced parallel — sledlike runner means having upwardly extending front and rear ends to

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facilitate movement of said skid means over the surface of a shag rug being cleaned having pile and a backing; said runner means being U-shaped channels each having a web wall and side walls, and having rolled beads formed at the ends of the channels; and crossbar means telescoped into and connected to said rolled beads and extending between said runner means; said runner means being located below the nozzle lips and extending transversely forwardly and rearwardly of said lips and having a height spacing said lips and mouth a sufficient distance above the surface of a shag rug being cleaned to allow air to circulate through the rug pile below the lips and mouth and above the backing and to prevent sealing of the rug fibers against the lips and mouth.

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