United States Patent

Lagerstrom

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[54] **SHAG RUG TOOL**

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[52] **U.S. Cl.** **15/369,** 15/142, 15/246, 15/365, 15/371, 15/402

[51] **Int. Cl.** **A47l 9/06**

[58] **Field of Search**.....15/364, 368, 369, 371, 393, 15/396, 402, 142, 246

[56] **References Cited**

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[57] **ABSTRACT**

A tool for cleaning and straightening the elongated pile of a shag rug which comprises an assembly of elongated resilient members mounted adjacent the air intake opening of a vacuum cleaner nozzle which have limited pivotal movement about an axis generally parallel to the longitudinal axis of the air intake opening of the vacuum cleaner nozzle with the lower end of each member being maintained in resilient engagement with the elongated pile of the shag rug to effect straightening the pile when the nozzle is moved in contact with the shag rug.

6 Claims, 4 Drawing Figures

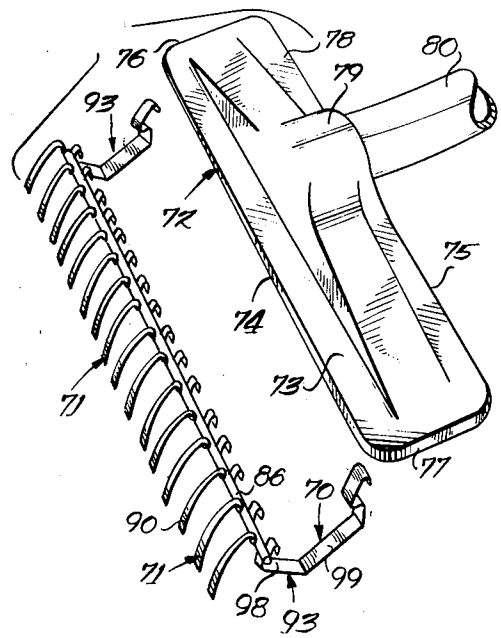


Fig. 1

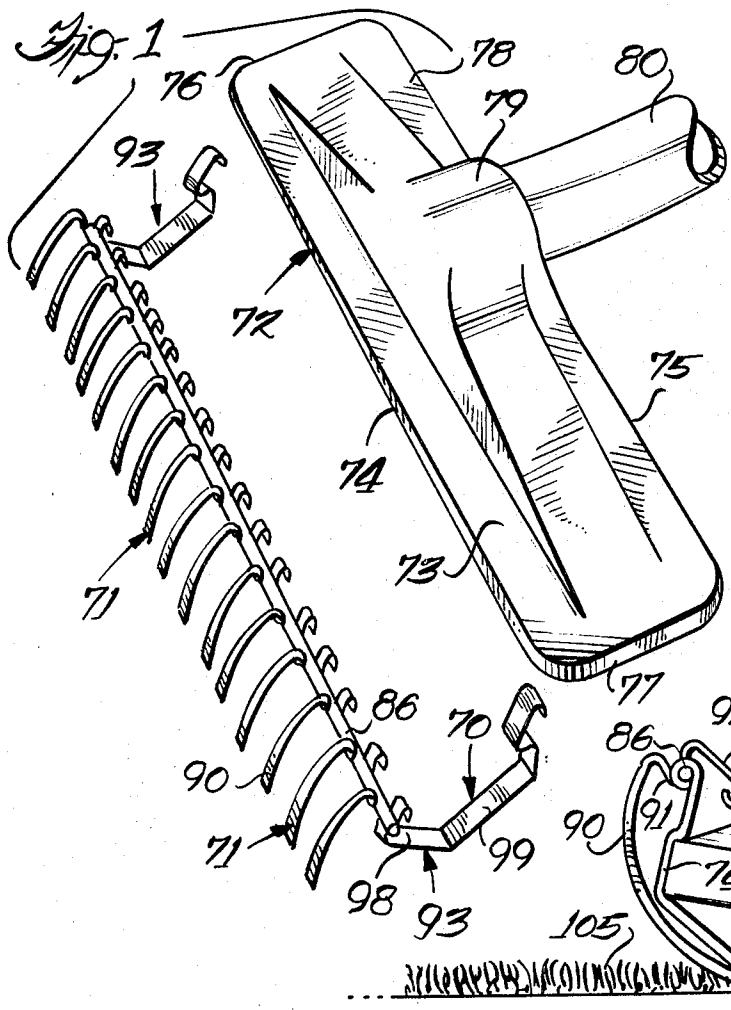


Fig. 2

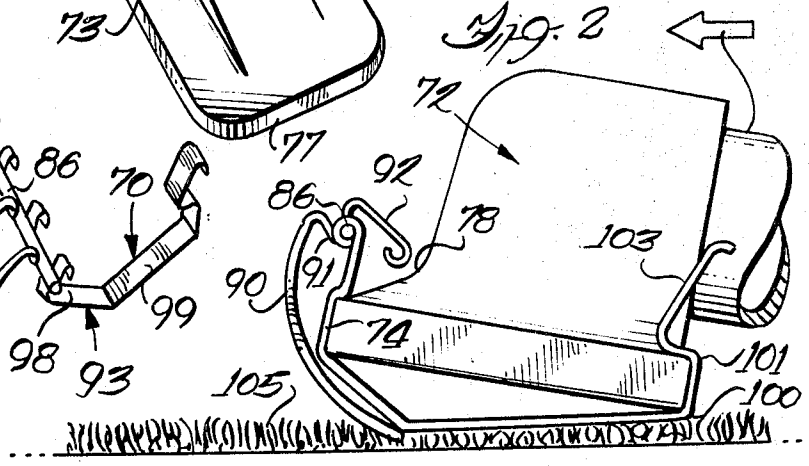


Fig. 3

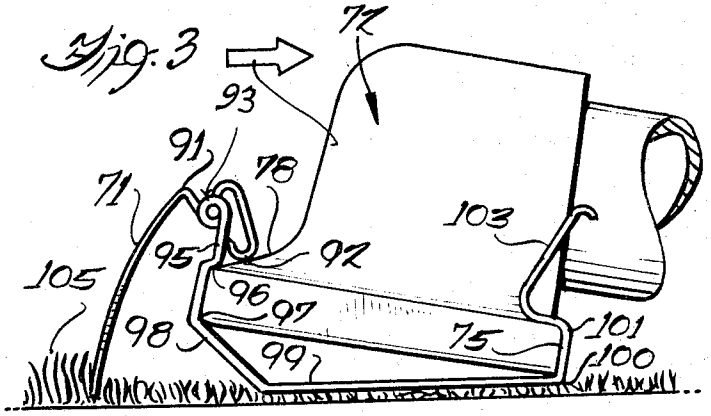
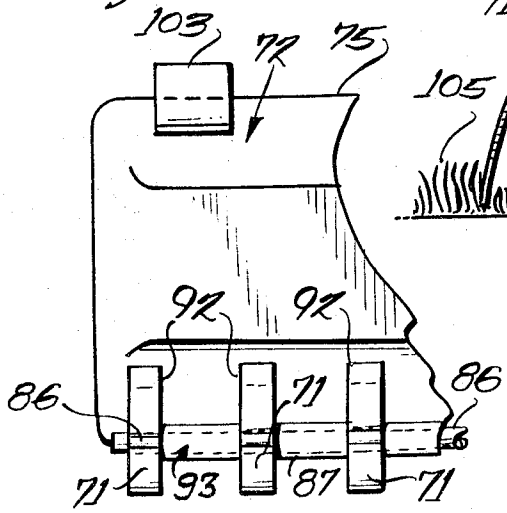


Fig. 4



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SHAG RUG TOOL

The present invention relates generally to apparatus for use with a vacuum cleaner structure and more particularly to an improved assembly for use in vacuuming rugs with elongated nap, particularly shag-type rugs having nap formed of elongated strands.

When a shag-type rug is walked on, the long stringy pile formed of elongated strands are matted down and the strands become twisted, giving the carpet an undesirable appearance. Also, dirt becomes imbedded in the long pile and is not pulled out by the vacuum cleaner suction nozzle alone, because the dirt is matted under the strands of the rug.

It is therefore an object of the present invention to provide an assembly for use with a vacuum cleaner nozzle which improves the appearance of a rug having elongated nap.

It is also an object of the present invention to provide an improved assembly for use with a vacuum cleaner suction nozzle which straightens and fluffs the long nap of a shag-type rug.

It is also an object of the present invention to provide an improved assembly for use with a vacuum cleaner nozzle which improves the cleaning action of a vacuum cleaner nozzle on shag-type rugs.

Other objects of the present invention will be apparent to those skilled in the art from the following detailed description and claims when read in conjunction with the accompanying drawing wherein:

FIG. **1** is a perspective view of one embodiment of the present invention;

FIG. **2** is a side elevational view of the assembly of FIG. **1** in one operating position;

FIG. **3** is a side elevational view of the assembly of FIG. **1** in another operating position; and

FIG. **4** is a fragmentary top plan view of the assembly of FIG. **1**.

In the form of the invention shown in FIGS. **1–4** of the drawing, an assembly **70** of the fingers **71** on the nozzle **72** is adapted to engage and clean elongated nap of a rug, such as the elongated strands of a shag-type rug. The nozzle **72** can be of any suitable design, including that of an upright vacuum cleaner, but which in the form illustrated in FIGS. **1–4** comprises a nozzle of a tank-type vacuum cleaner having a relatively flat rectangular elongated housing section **73**, defined by generally parallel spaced front and rear walls **74**, **75** lying in a plane generally perpendicular to the plane of the lower surface of the suction nozzle **72**, with the walls **74**, **75** being connected by oppositely disposed end walls **76**, **77** and a generally flat upper wall **78**. The lower surface of the nozzle **72** lies substantially in a single horizontal plane and provides a substantially unobstructed air inlet passage. At about the midpoint of the rear wall **75** an enlarged section is provided to form a tubular coupling section **79** which is adapted to form a detachable engagement with a tubular handle section **80** operatively connecting with the air inlet passage of the nozzle **72** with a source of vacuum (not shown).

Each of the resilient fingers **71** can be formed or molded of resilient plastic material or shaped from a strip of spring steel or the like resilient material. In the form illustrated in FIGS. **1–4**, the fingers **71** are formed of a strip of spring steel having a forwardly and downwardly extending convex portion **90** and a concave portion **91** extending from the upper end of the depending portion **90** which is adapted to form a resilient pivotal engagement about a support pin or rod **86**. Tubular sections or spacers **87** are mounted on rod **86** between adjacent fingers **71**. The upper end of the concave portion **91** has a rearwardly and downwardly depending section **92**, the lower end of which is adapted to engage an upper surface portion **78** of the suction nozzle **72** when the rake-like member is pivotally moved on the rod **86** to limit the pivotal movement of the fingers **71**, as is best shown in FIG. **11** of the drawing.

The assembly **70** of resilient fingers **71** is adapted for quick detachable mounting on the nozzle **72** by providing resilient spring clip means **93** which extend generally rearwardly from adjacent the opposite end portions of the support rod **86** having a length substantially the length of the front wall of the nozzle **72**. The spring clip means **93** have the forward ends thereof secured to the support rod **86** with a short vertical section **95** extending downwardly from the upper end thereof with spaced vertically disposed shoulders **96**, **97** formed directly below section **95** which are adapted to engage the upper and lower edges, respectively, of the front wall **74** of the nozzle **72**. A short downwardly and rearwardly extending section **98** is formed in the resilient clips below the shoulder **97** with an elongated support section **99** extending rearwardly and slightly upwardly from the lower end of section **98** and which terminates in an inwardly bent U-shaped section forming spaced shoulder portions **100**, **101** adapted to resiliently engage the lower and upper edges, respectively, of the rear wall **75** of the nozzle **72**. An upwardly and rearwardly extending finger engageable portion **103** is formed at the end of the said U-shaped section which facilitates mounting and removing the spring clip means **93** on the nozzle **72**.

In mounting the assembly **70** on the nozzle **72**, the shoulder portions **96**, **97** of the spring clip means **93** are preferably first placed in contact with the upper and lower transversely extending edges of the front wall **74**, and the assembly **70** is rotated about the front wall **74** while applying a generally downwardly and outwardly pressure on the finger engageable portion **103** to separate the rear shoulder portions **100**, **101** a greater distance from the front shoulder portions **96**, **97** than exists in their normal position so that the shoulders **100**, **101** can be readily moved over the upper and lower transversely extending edges of the rear wall **75**. When pressure on the end section **103** of the spring clip means **93** is released, the shoulder portions **100**, **101** resiliently engage the rear wall **75** and retains the assembly **70** in quick detachable engagement with the nozzle **72**. The assembly **70** is also preferably maintained by the spring clip means **93** in a predetermined position relative to a shag rug **105**, as the support sections **99** serve as runners for the nozzle **72**, raising the foreward edge of the nozzle **72** slightly higher than the trailing edge thereof.

In operating the embodiment shown in FIGS. **1–4** with the assembly **70** mounted on the nozzle **72** and with the nozzle **72** positioned relative to a shag rug **105** as shown in FIGS. **10–11**, the fingers **71** are each independently pivotally moved counterclockwise as the nozzle **72** is moved forwardly (FIG. **2**), until the lower

end portion of the fingers **71** point in a generally rearwardly direction with the outer lower ends thereof contacting the upper surface of the rug **105** permitting easy forward movement of the nozzle **72** over the surface of the rug **105**, as best shown in FIG. **2**. When the nozzle **72** is moved rearwardly (FIG. **3**), the fingers **71** are each independently pivotally moved clockwise on the support rod **86** until the lower end of the depending section **92** of the fingers **71** engages the upper surface portion **78** of the nozzle **72**, preventing further clockwise pivotal movement relative to the support rod **86**. On further rearward movement of the nozzle **72** the lower end of each of the resilient fingers **71** yieldably engage the elongated nap of the shag rug **105**, pulling the strands upwardly in the general direction of the movement of the nozzle **72** until the resilient fingers **71** are moved upwardly by the tension exerted between the strands and the fingers **71**, releasing the strands so that the strands are fluffed and raised to a generally upwardly extending position, as best shown in FIG. **3** of the drawing. The assembly **70** of fingers **71** mounted on the nozzle **72** thus engages the elongated nap of a shag rug, causing the strands thereof to be fluffed and arranged generally uniformly, while permitting air being drawn in between the strands to remove dirt imbedded therein more readily.

It will be evident to those skilled in the art that the assembly of rake-like fingers and the individual rake fingers can be mounted in an operative relationship with a nozzle of any type of cleaner device, including the tank-type vacuum cleaner nozzle shown or an upright vacuum cleaner which employs a rotating brush as well as air to clean, and by means other than those shown herein, such as carpet cleaners utilizing only a rotating brush. It should be understood that the present invention covers all such modifications falling within the scope of the following claims.

I claim:

1. A tool for a rug having elongated nap comprising; an assembly of spaced elongated resilient finger members adapted to be operatively associated with a cleaner nozzle, said resilient finger members normally extending outwardly and downwardly relative to the lower surface of said nozzle along substantially the length of said nozzle, each of said resilient finger members being pivotally movable in a plane generally perpendicular to the plane of the lower surface of said nozzle about an axis lying in a plane substantially parallel to said plane with the upwardly pivotal movement of each said finger member being limited, the outer end portions of said finger members, being flexed outwardly away from said nozzle a distance greater than normal with the end of each said finger member being maintained in resilient engagement with said rug to effect straightening of said elongated nap when said nozzle is moved in one longitudinal direction along said rug, and said finger members being pivotally movable downwardly and inwardly toward said nozzle until said outer end portions thereof extend in a plane generally parallel to the plane of the lower surface of said nozzle with the said ends of said finger members being maintained out of resilient engagement with the surface of said rug when said nozzle is moved in the opposite longitudinal direction along said rug; whereby the elongated nap of said rug is arranged in substantially one longitudinal direction when said nozzle is moved reciprocably longitudinally over the surface of said rug.

2. A tool as in claim **1**, wherein each said finger member is mounted for independent pivotal movement.

3. A tool as in claim **1**, wherein each of said finger member has an abutment surface for engaging a surface of said nozzle which limits upwardly pivotal movement of said finger members and maintains said finger members in resilient engagement with said rug.

4. A tool as in claim **1**, wherein a plurality of said finger members are pivotally mounted on an axle member detachably supported on said nozzle.

5. A tool as in claim **4**, wherein said axle member is supported by spaced spring means which resiliently detachably engage said nozzle.

6. A tool as in claim **5**, wherein said spring means comprises a support section adjacent the opposite ends of said axle member which extends below the plane of said lower surface of said nozzle when said spring means is operatively mounted on said nozzle with said support section slidably supporting said nozzle on said rug with a transverse edge of said nozzle which is proximate to said finger members being elevated above the surface of said rug a greater distance than the transverse edge of said nozzle which is spaced from said finger members.

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