June 9, 1964 C. R. HULST 3,135,985

ATTACHMENT FOR VACUUM CLEANER

Filed May 22, 1962

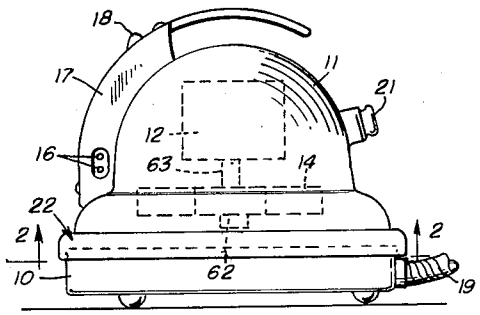


FIG. 1

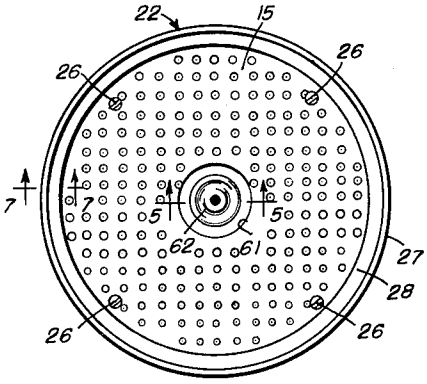
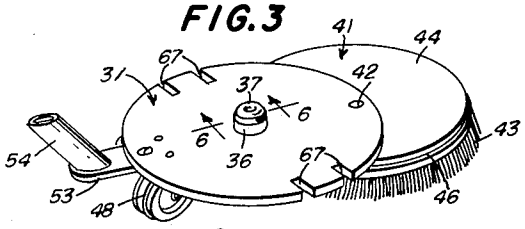


FIG. 2

FIG. 3



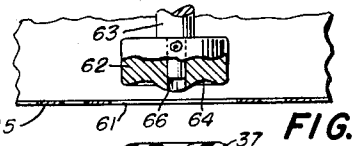


FIG. 5

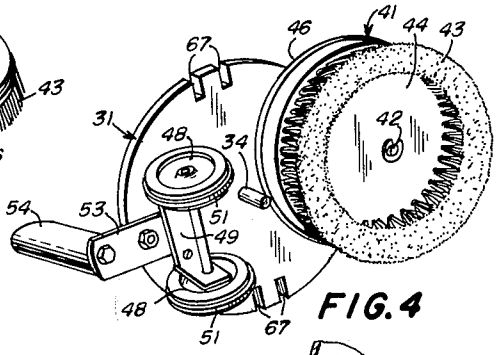
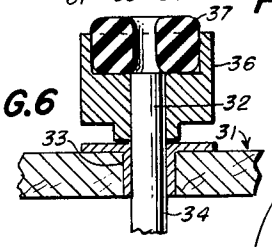


FIG. 4

FIG. 6



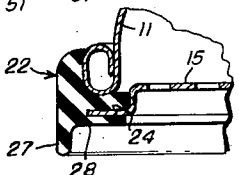


FIG. 7

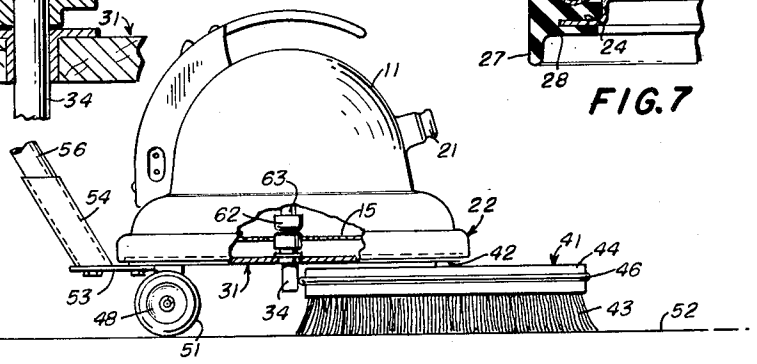


FIG. 8

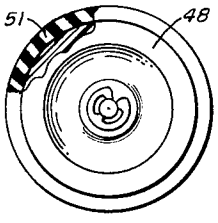


FIG. 9

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ATTACHMENT FOR VACUUM CLEANER

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The present invention pertains generally to vacuum cleaners and more specifically relates to an attachment for cooperation with the motor and the housing component of a canister type vacuum cleaner providing a power driven buffing element for treating floors or the like.

A canister type vacuum cleaner possesses a number of advantages over other types of domestic suction cleaning device and such a vacuum cleaner is disclosed in the McAllister Patent 2,441,365. It includes a dust pan, a filter unit, a suction fan, a drive motor and a housing for the fan and motor. The fan unit draws dust laden air into the presence of the filter unit. The heavier than air materials are separated by the filter unit and deposited in the dust pan. Such canister type vacuum cleaners function well to remove dirt and other particles heavier than air from carpets, rugs, floors and the like.

It is an object of the present invention to provide an attachment for such a suction type cleaning mechanism which includes a buffing element which is driven by the motor of the vacuum cleaner by the expedient of removing the dust pan from the housing and arranging the housing over a disc-shaped element of the attachment which is equipped with means providing a driving connection from the output shaft of the motor to the buffing element.

Another object of the invention is to provide a buffing mechanism which is supported for rotation by a disc-shaped element which serves to close the lower end of the motor housing component of the canister type vacuum cleaner including a novel mechanism providing a readily detachable driving connection between the buffing element and the vacuum cleaner motor.

Other objects and features of the invention will become apparent as the disclosure proceeds and other objects and features will be appreciated as the present disclosure proceeds and upon consideration of the following detailed description taken in conjunction with the accompanying drawing wherein an embodiment of the invention is disclosed.

In the drawing:

FIG. 1 is a side elevational view of a canister type vacuum cleaner.

FIG. 2 is an enlarged inverted plan view of the housing enclosing the fan unit and the motor and taken approximately on the line 2—2 of FIG. 1 with the filter unit omitted.

FIG. 3 is a perspective view of the buffing attachment.

FIG. 4 is a perspective view showing the buffing attachment from below.

FIG. 5 is an enlarged fragmentary section taken on the line 5—5 of FIG. 2.

FIG. 6 is an enlarged fragmentary sectional view taken on the line 6—6 of FIG. 3.

FIG. 7 is an enlarged fragmentary section taken on the line 7—7 of FIG. 2.

FIG. 8 is a side elevational view with portions shown in section and illustrating the buffing attachment in operative association with the vacuum cleaner motor and the housing.

FIG. 9 is an enlarged side elevation of one of the wheels for the attachment with a portion illustrated in section to show the resilient tread thereon.

The invention is directed to apparatus providing a household type vacuum cleaning device with a buffing attachment which is so designed to cooperate with the motor housing whereby the driving motor for the cleaner serves as a prime mover for the buffing attachment. Referring to the drawing there is shown in FIG. 1 a vacuum cleaner of the canister type which comprises a pan-shaped dust receptacle 10 and a dome-shaped housing 11 which encases the driving motor 12 and the fan unit 14. A filter unit (not shown) is accommodated in the lower portion of the housing 11 under a perforated plate 15. An extension cord may be detachably connected to the terminals 16 in the handle 17 of the vacuum cleaner so that when a switch actuated by a control element 18 is closed the motor is rotated to drive the fan unit 14 and develop a low pressure condition within the suction hose 19. The air borne dirt or particles are delivered into the pan 10 under the filter unit and the air cleansed of particles escapes through an outlet opening 21. Such a cleaning mechanism is of a conventional construction and is more fully disclosed in the McAllister Patent 2,441,365.

An annular gasket 22 provides for sealing the perimeter of the pan 10 with respect to the periphery of the skirt edge of the housing 11. This resilient gasket desirably remains attached to the housing and cooperates therewith in a manner as shown in FIG. 7. The annular gasket 22 is detachably held in place by means of the apertured disc-shaped plate 15. The periphery of the plate 15 includes a flange 24 which extends into an annular groove in the gasket 22. A plurality of screws 26 (FIG. 2) serve to hold the apertured disc-shaped plate 15 to a fixed portion of the motor housing 11 and thereby releasably maintains the gasket in cooperative relationship with the housing 11. The gasket 22 has a depending annular rim 27 (FIG. 7) and a substantially horizontal surface 28. The flange 27 and the surface 28 cooperate with the pan 10 and a disc member of the buffing attachment as hereinafter described.

The buffing attachment is best shown in FIGS. 3 and 4 and includes a disc-shaped member 31 which has a diameter substantially equal to the pan 10 so that the perimeter of the member 31 may be accommodated within the flange 27 of the gasket 22. A short shaft 32 is mounted in a bearing 33 carried by the disc-shaped member 31. The lower end of the shaft 32 projects through the disc-shaped member 31 and the lower end portion provides a pinion 34 for driving the buffing element as hereinafter described. A collar 36 is secured to the upper end of the shaft 32 in any suitable manner and accommodates a resilient ring 37.

A buffing element indicated generally at 41 is journalled for rotation about a stub shaft 42 carried by the disc-shaped member 31. The shaft 42 may be anchored to the disc-shaped member 31 in any suitable manner and desirably near the perimeter thereof as shown in FIG. 3. The buffing element may be in the form of a brush which includes bristles 43 anchored in a disc-shaped element 44. A resilient ring 46 is carried by the periphery of the disc-shaped element 44 which is of such diameter that the resilient ring 46 engages the pinion portion 34 of the shaft 32 so as to drive the buffing element and turn it about its shaft 42.

A pair of wheels 48 are attached to the undersurface of the disc-shaped element 31 by means of a bracket 49. The wheels 48 are desirably located in a position diammetrically opposite the buffing element shaft 42. The wheels 48 are each provided with a resilient tire or tread 51 for supporting the attachment and the housing 11 for rolling movement over a surface or floor such as indicated at 52 in FIG. 8. An arm 53 extends from the bracket 49 and is provided with a socket 54 for receiving a handle 56 which may be formed of the metal tubes which are attached to the end of the hose 19 and serve

to support and manipulate the nozzle of the vacuum cleaner.

The filter unit (not shown) for a suction cleaning operation is arranged under the apertured plate **15**. An opening **61** is provided in the center of the apertured disc-shaped plate **15**. An annular member **62** is secured to the lower end of the motor shaft **63** so as to be driven thereby when the motor is energized. The annular member **62** may be secured to the motor shaft in any suitable manner and its lower end portion is positioned above the apertured plate **15** as shown in FIG. 5.

In carrying out a buffing operation the housing **11** is removed from the pan or receptacle **10**. The housing **11** is then positioned over the disc-shaped member **31** with the perimeter thereof fitting within the resilient gasket **22**. When the upper surface of the perimeter portion of the disc-shaped member **31** engages the surface **28** of the gasket the resilient ring **37** engages the annular member **62**. These parts are so dimensioned that the weight of the housing **11** and the motor and the fan unit distort the ring **37** sufficiently to provide an effective driving connection between the motor shaft **63** and the shaft **32**. The annular member **62** has an annular groove **64** in the lower portion so that the center projection **66** serves to distort the resilient ring **37** into the groove **64**. This provides for an increase in the frictional engagement of the member **62** with the ring **37**. The collar **36** prevents outward distortion of the ring **37**. When the motor **12** is energized the fan unit serves to create a low pressure condition in the lower part of the housing **11** which causes the disc-shaped member **31** to engage the gasket **22**. A limited number of slots **67** in the perimeter of the disc-shaped member **31** permit small quantities of cooling air to move over the motor for discharge through the opening **21**. The shaft **32** is thereby rotated and the lower end portion **34** serves as a pinion which engages the resilient ring **46** to rotate the buffing element **41** about its shaft **42** so that the bristles **43** may buff the surface **52**. The wheels **48** are of such diameter that the attachment is supported with the buffing element substantially parallel to the surface **52**. The wheels **48** provide means for manipulating the device and the buffing element over the floor to be treated.

While the invention has been described with reference to particular structural arrangement and with regard to the details of various elements it will be appreciated that changes may be made in the overall assembly along with alterations in the various components. Such modifications and others may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim and desire to secure by Letters Patent is:

1. A canister type vacuum cleaner component and a buffing attachment therefor adapted to be driven by the motor of the vacuum cleaner component comprising, a housing having a depending annular skirt opening throughout the area within said skirt, a motor and a suction fan mounted within said housing, a motor shaft driving said fan and extending therebelow at the approximate center of the housing, an annular resilient gasket carried by said skirt, a disc-shaped member with its periphery engaging said gasket and substantially closing said housing whereby operation of the fan develops a pressure therein less than atmospheric to maintain the disc-shaped member in operative association with said housing, a stub shaft journalled for rotation on said disc-shaped member and extending thereabove substantially in alignment with said motor shaft, means providing a detachable driving connection between said stub shaft and said motor shaft, a buffing element supported by the disc member for rotation in a plane parallel to the disc-shaped member, and means providing a driving connection between said stub shaft and said buffing element.

2. A canister type vacuum cleaner component and a buffing attachment therefor adapted to be driven by the motor of the vacuum cleaner component according to claim 1, wherein the disc-shaped member has openings therethrough for admitting limited quantities of air into the housing for movement over said motor.

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