Feb. 12, 1957 F. A. GALL 2,780,819

POLISHING ATTACHMENTS FOR VACUUM CLEANER

Filed March 8, 1954 2 Sheets-Sheet 1

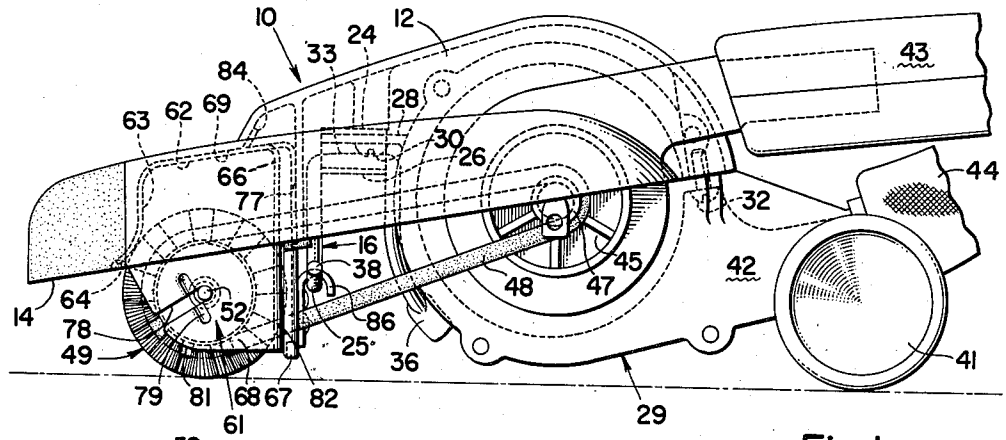


Fig. 1.

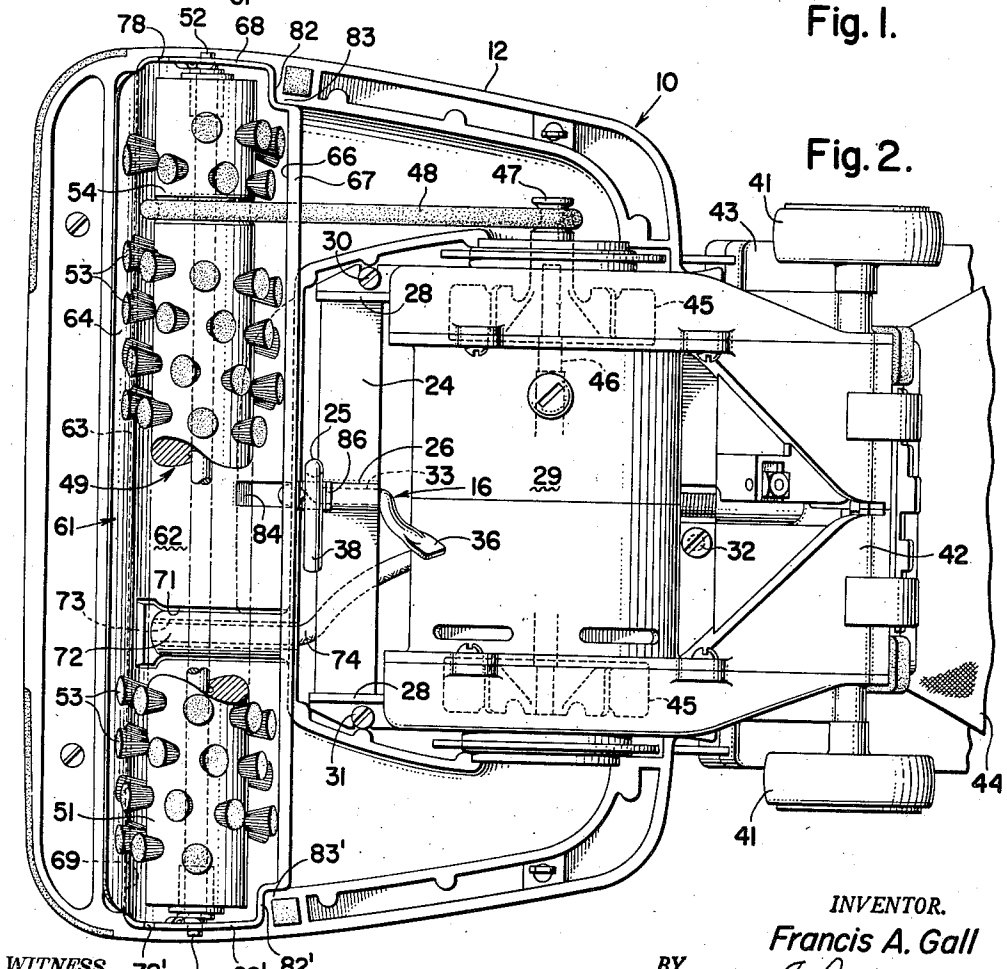


Fig. 2.

WITNESS

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2 Sheets-Sheet 2

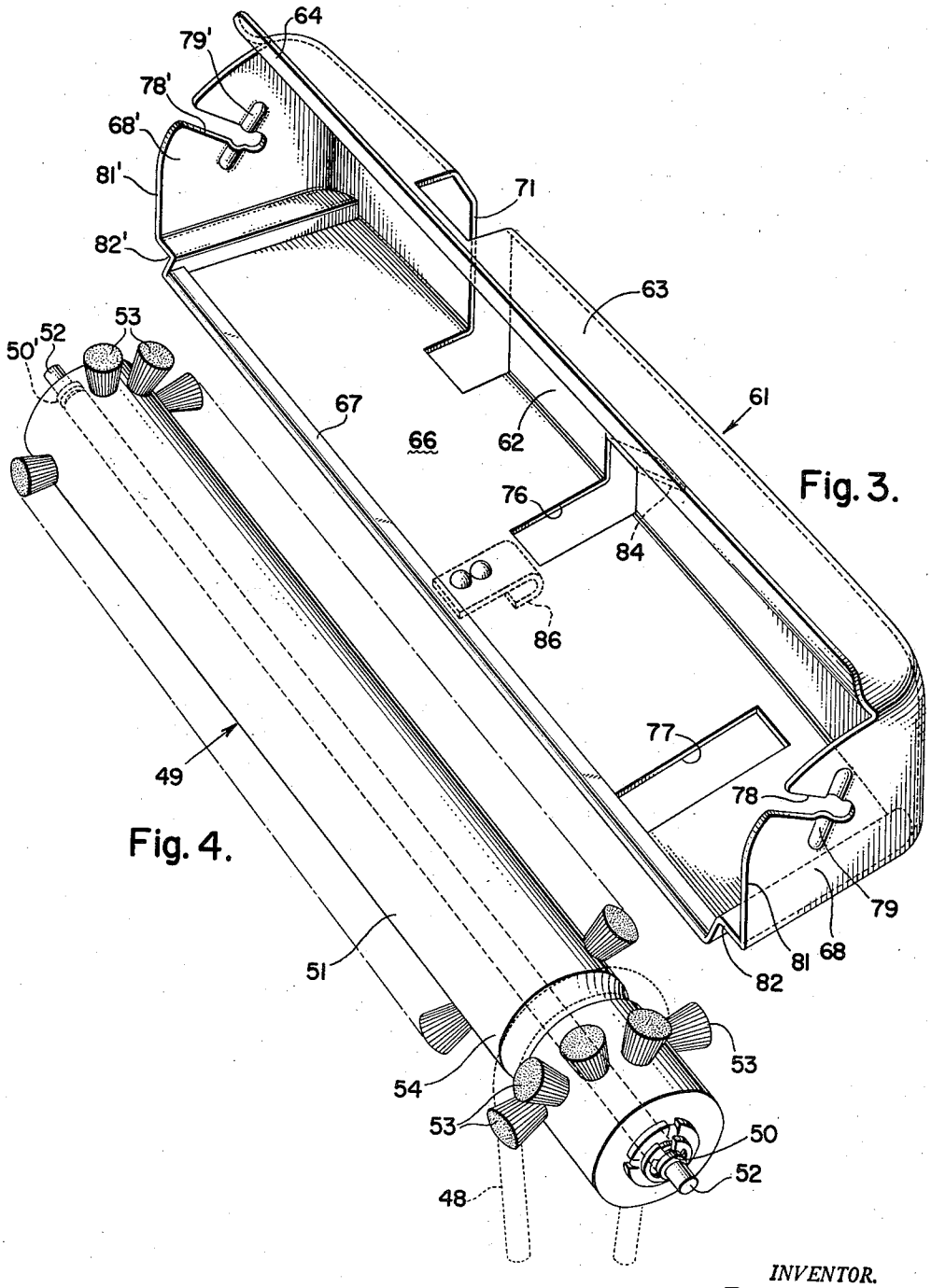


Fig. 3.

Fig. 4.

WITNESS

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POLISHING ATTACHMENTS FOR VACUUM CLEANER

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3 Claims. (Cl. 15—49)

This invention relates to floor type vacuum cleaners, and more particularly, to polishing attachments adapted to be connected to and driven by the motor of this type vacuum cleaner.

One of the primary objects of the present invention is to provide an improved polishing attachment adapted for use with floor type vacuum cleaners.

Another object of the invention is to provide an improved and simplified means for securing a polishing attachment to a floor type vacuum cleaner.

A still further object of the invention is to provide an improved means for positioning a polishing attachment within the mouth of a vacuum cleaner.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations, and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the accompanying drawings:

Fig. 1 is a side elevational view of a vacuum cleaner from which the lower casing shell has been removed and to which the polishing attachment of the present invention has been secured.

Fig. 2 is a bottom plan view of the vacuum cleaner and polishing attachment shown in Fig. 1,

Fig. 3 is a perspective view of the combination shield and brush support which forms a part of the polishing attachment shown in Figs. 1 and 2, and

Fig. 4 is a perspective view of the polishing brush shown in Figs. 1 and 2.

The vacuum cleaner, to which the polishing attachment of the present invention is shown attached, is clearly illustrated in U. S. Patents Nos. 2,532,432, 2,540,178 and 2,649,609. Therefore, suffice it to say that the vacuum cleaner **10** comprises an ambulatory chassis or casing formed from an upper casing shell **12** and a lower casing shell (not shown). The lower casing shell when attached to the upper casing shell joins the upper casing shell along an inclined plane designated by the numeral **14**, and the lower casing shell, when installed, is securely held to the upper casing shell by a latch **16**. The latch **16**, which is fully described in Patent No. 2,532,432, includes among other elements a long flat spring **24** and a bent wire hook **25**, the center of the spring **24** being provided with a downwardly projecting U-shaped bend **26**. The ends of the spring **24** are clamped to the upper casing **12** by means of ribs **28—28** which project from a combination motor-fan unit **29**, the motor-fan unit **29** and the ribs **28** being held to the upper casing shell **12** by means of screws **30, 31, 32**. The hook **25** is formed integral with and at one end of a straight wire portion **33** which enters and is supported by the U-shaped bend **26** of the spring **24**. The other end of the straight wire portion **33** is formed integral with a handle portion **36**. The free end of the hook **25** is provided with an upturned end **38**.

When the vacuum cleaner **10** is operated to clean floors, it rides on rear wheels **41—41** rotatably carried by an exhaust duct **42** forming a part of the motor-fan unit **29** and a pair of front wheels (not shown) carried by the lower casing shell (not shown).

The vacuum cleaner is also provided with the usual propelling handle **43**, dust collecting bag **44**, and fans **45—45**. One end of a shaft **46** of the motor-fan unit **29** is provided with a pulley **47** which drives a belt (not shown) normally adapted to drive the rotary dusting brush (not shown) of the vacuum cleaner **10**. When, however, the vacuum cleaner is converted into a floor polisher by use of the device of the present invention, an elastic belt **48** especially adapted to drive a special polishing brush roll **49** is driven by the pulley **47**. The polishing brush **49** is made from a wooden or plastic roller **51** rotatably carried by bearings **50—50'** on a shaft **52**, the roller **51** being provided with a large number of radially extending tufts **53** of conventional form, the tufts being omitted over a circumferential area **54** which is properly grooved for contact by the driving belt **48**.

In order to provide a means for supporting the polishing brush **51** and at the same time to provide a means for preventing wax used in the polishing operation from being drawn into the fans **45—45** and other parts of the vacuum cleaner, there is furnished a shield or mask **61** comprising a substantially plane top wall **62**, a front wall **63** having a lower outwardly curved brim **64**, a rear wall **66** having a lower strengthening bar **67**, and two end members **68** and **68'**. Various portions of the shield or mask **61** are apertured, thereby permitting the shield to be readily inserted into a downfacing cavity **69** formed in the upper shell **12**. Also the shield **61** may be connected to the upper casing shell **12** of the vacuum cleaner. For example, the top wall **62**, front wall **63** and rear wall **66** are provided with a U-shaped aperture **71** which permits the shield to fit over a downwardly extending protuberance **72** formed on the inner surface of the upper casing shell **12**. The protuberance **72** has a hole **73** that accommodates an electric cord **74** which feeds an electric lamp (not shown) but fully described in Patent No. 2,575,554. The top wall **62** and the rear wall **66** are provided with an L-shaped aperture **76**. The rear wall **66** is provided with a straight aperture **77** for accommodating the belt **48**, which drives the brush roll **49** from the pulley **47**. The walls **68** and **68'** are provided with recesses **78—78'** each having an open end for receiving the two ends of the shaft **52** of the brush roll **49**. The end walls **68** and **68'** are also provided with discontinuous ribs **79—79'**, which lie perpendicular to the recesses **78—78** and the ribs are indented so as to extend into the shield **61**. These ribs **79—79'** help to strengthen the end walls **68—68'** and at the same time provide a means for holding the brush roll **51** in the shield **61**. This is accomplished because the distance between the bearings **50—50'** on the shaft **52** is slightly greater than the distance between the inner convex surfaces of the ribs **79—79'**. Thus the shaft **52** must be snapped past the ribs **79—79'** in order to reach the inner end of the recesses **78—78'**. It will be noted that the free portion of the end walls **68** and **68'** are cut away in a curved formation as indicated at **81—81'**, thereby allowing the tufts **53** of the brush roll **49** to protrude beyond the shields **68—68'**. It will also be noted that the shields **68—68'** adjacent to the intersection of the rear wall **66** with the end walls **68** and **68'** are provided with offset angled formations **82—82'**. These offset formations are provided in order that the shield **61** may fit adjacent to a pair of protruding corners **83** and **83'** formed on the inner face of the vacuum cleaner cavity **69**. A portion of the body of the shield **61** which is cut out to form the L-shaped aperture **76** is formed outwardly from the top wall **62**, thereby furnishing a lug

84 which contacts the inner surface of the vacuum cleaner when the shield 61 is properly positioned in the cleaner. Also a J-shaped hook member 86 is riveted to the outer surface of the rear wall 66. This hook 86 is engaged and held by the previously described latch 16 when the latch is moved to the proper position by the handle 36.

When it becomes desirable to convert the vacuum cleaner herein described from a standard vacuum cleaner to a floor polishing machine, the lower casing shell, not shown, but fully disclosed in Patent No. 2,649,609 is removed and the floor polishing adaptor of the present invention is secured to the downwardly open mouth portion of the upper casing shell 12. This is accomplished first, by placing the belt 48 around the untufted portion 54 of the brush roll 51. Then the belt 48 is threaded through the aperture 77 in the rear wall 66 of the shield 61, the shaft 52 is placed in recesses 78 and 78', and the shaft 52 is snapped past the ribs 79 and 79'.

Thereafter the shield 61 is inserted into the downwardly open cavity 69 of the upper casing shell 12 in such a manner that, (1) the top wall 62 of the shield (Fig. 1) lies just below the upper wall of the upper casing shell 12, (2) the lug 84 lies adjacent to an inclined portion of the upper casing shell 12, (3) the brim 64 lies along an inside curved surface of the upper shell 12, and (4) the aperture 71 fits over the protuberance 72. In order to securely fasten the shield 61 to the upper casing shell 12, the handle 36 of the latch 16 is operated in such a manner that the end 38 of the latch 16 engages the J-shaped hook 86. As the handle 36 is moved the latch 16 tensions the flat spring 24 in the same manner as described in Patent No. 2,532,432. This assures that the shield 61 will be firmly held to the upper casing shell 12. Then the elastic belt 48 is stretched over the pulley 47, thereby causing the brush roll 51 to press the two ends of the shaft 52 into the ends of the recesses 78—78'.

The polishing attachment may be removed from the vacuum cleaner by removing the belt 48 from the pulley 47 and by disconnecting the latch 16 from the lug 86. Thereafter the shield 61 and the brush roll 51 may be removed and a cleaning brush (not shown) reinstalled in the cleaner.

Having thus set forth the nature of the invention, what I claim herein is:

1. In a vacuum cleaner having an upper casing shell provided with a downfacing cavity, an electric motor, a drive shaft for said motor, a pulley on one end of said shaft, and a latch carried by said upper casing shell; a polishing attachment located in said cavity and secured to said upper casing shell, said polishing attachment comprising a shield having a top wall, a front wall, a rear wall and two end walls, each of said end walls being provided with a recess having an open end and a discontinuous indented rib, said ribs extending perpendicular to said recesses and intersecting said recesses between the open and closed ends thereof; a shaft passing through said recesses and held therein by said ribs; a J-shaped hook member held to the outer surface of said rear wall and engaged by said latch; a brush roll rotatably carried on said shaft; and a belt driving said brush roll from said pulley.

2. In a vacuum cleaner having an upper casing shell provided with a protuberance and a downfacing cavity, an electric motor, a drive shaft for said motor, a pulley on one end of said shaft, and a latch carried by said upper casing shell; a polishing attachment located in said cavity and secured to said upper casing shell, said polishing attachment comprising a shield having a plane top wall, a front wall of which one edge has an outwardly turned curved brim for engaging the inner surface of said cavity, a rear wall having one edge reinforced by a strengthening bar, and two end walls each of which has a curved edge, said top, front and rear walls being provided with a common aperture which is U-shaped in form to accommodate the protuberance on said casing shell in said cavity, said rear wall being provided with a straight aperture, and each of said end walls being provided with a recess having an open end and a strengthening rib; a J-shaped hook member riveted to the outer surface of said rear wall and engaged by said latch; an axle, the two ends of which are carried in said recesses in said end walls; a brush roll rotatably carried on said axle; and a belt driving said brush roll from said pulley on said motor shaft, said belt extending through said straight aperture in said rear wall and casing said brush roll to assist in holding said axle in said recesses.

3. In a vacuum cleaner having an upper casing shell provided with a protuberance and a downfacing cavity, an electric motor, a drive shaft for said motor, a pulley on one end of said shaft, and a pivoted latch carried by said upper casing shell; a polishing attachment located in said cavity and secured to said upper casing shell, said polishing attachment comprising a shield having a substantially plane top wall, a front wall of which one edge has an outwardly turned curved brim for engaging the inner surface of said cavity, a rear wall having one edge reinforced by a strengthening bar, and two end walls each of which has a curved edge, said top, front and rear walls being provided with a common aperture which is U-shaped in form and adapted to accommodate the protuberance in said cavity on said casing shell, said top and rear walls being provided with a common aperture which is L-shaped in form, said rear wall being provided with a straight aperture, and each of said end walls being provided with a recess having an open end and strengthening rib; an offset angled formation located at the junction of said rear wall and the two end walls; an outwardly extending lug formed from a portion of the shield material bent outwardly from said L-shaped aperture, and said lug engaging the inner surface of said cavity; a J-shaped hook member riveted to the outer surface of said rear wall and engaged by said latch; an axle, the two ends of which are carried in said recesses in said end walls; a brush roll rotatably carried on said axle; and a belt driving said brush roll from said pulley on said motor shaft, said belt extending through said straight aperture in said rear wall and causing said brush roll to assist in holding said axle in said recesses.

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