July 26, 1955 J. A. GORHAM 2,713,696

TOOL HOLDER FOR VACUUM CLEANERS

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FIG. 1.

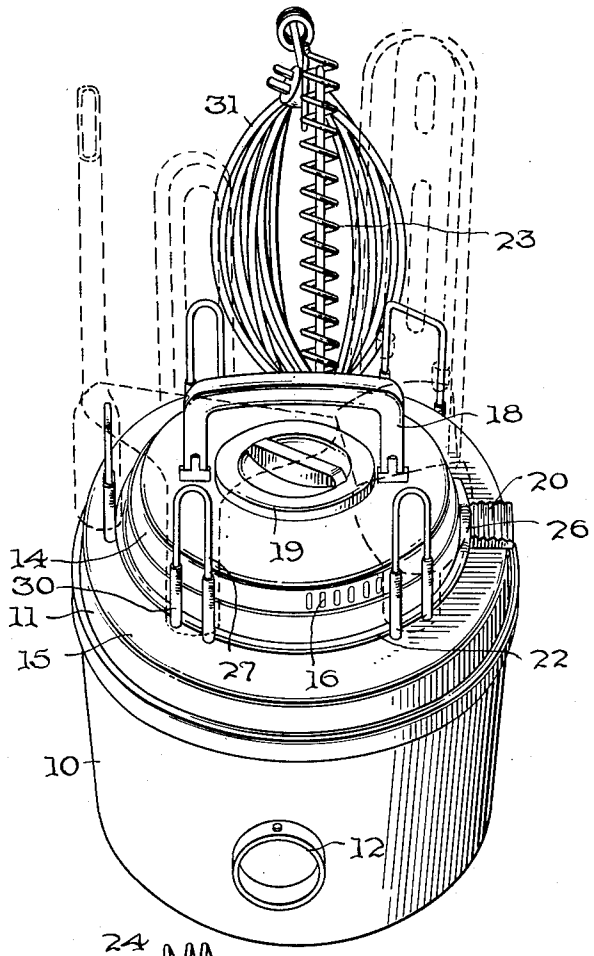
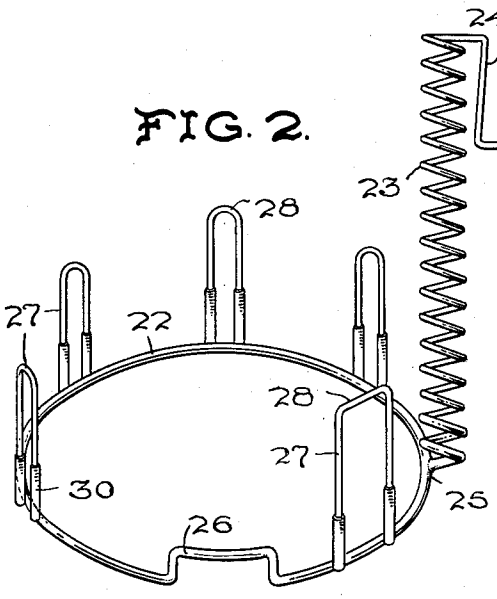


FIG. 2.



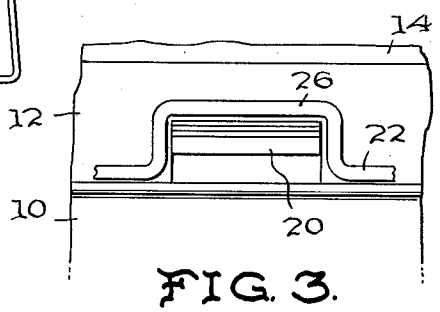


FIG. 3.

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FIG. 4.

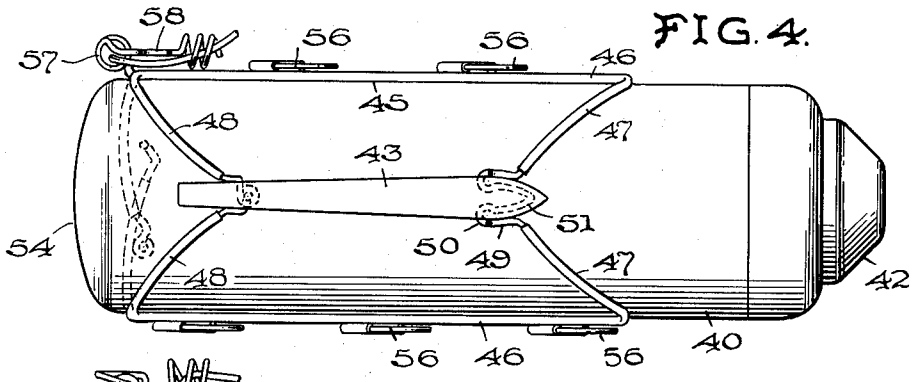
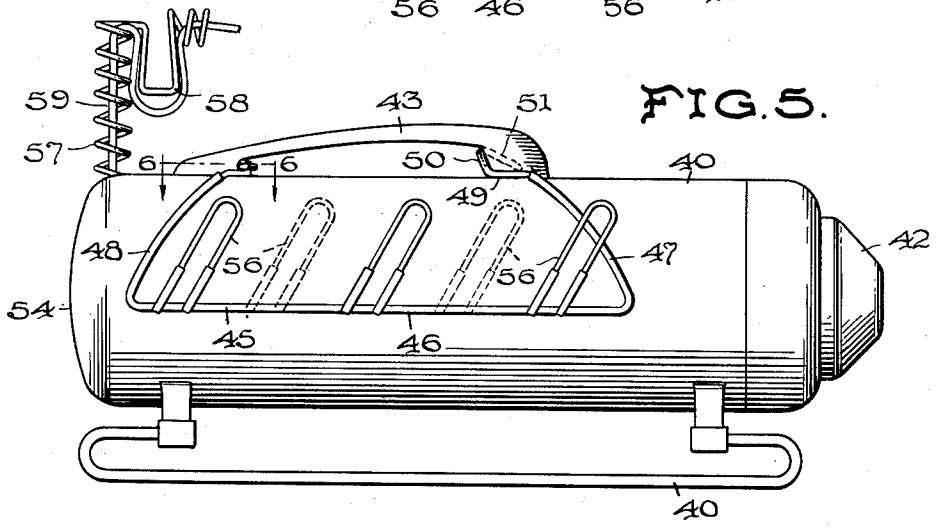


FIG. 5.



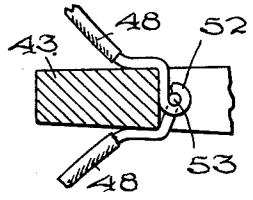


FIG. 6.

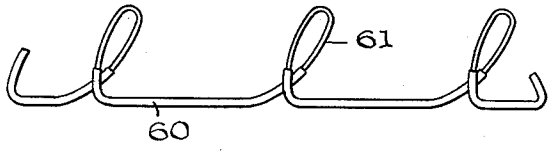


FIG. 7.

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TOOL HOLDER FOR VACUUM CLEANERS

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3 Claims. (Cl. 15—257)

The present invention relates broadly to vacuum cleaners of the tank type and more specifically to an attachment or tool holder therefor.

Vacuum cleaners of the tank type generally consist of a rigid and substantially cylindrical casing enclosing a motor and dust bag or receptacle. Vacuum cleaners of this type are usually of one of two designs, namely, the horizontal tank type and the vertical tank type.

In tank type vacuum cleaners, as well as the conventional upright vacuum cleaner, there is usually provided a large number of interchangeable attachments or tools for use with the cleaner to enable an efficient cleaning operation to be performed. The relatively large number of tools and their varied size and configuration has constantly presented a problem as regards their storage and also their accessibility for use with the cleaner during a cleaning operation.

Numerous attempts have been made heretofore to devise an attachment or tool holder for tank type vacuum cleaners. In the majority of instances such designs have been either extremely large and cumbersome or of such a configuration that the vacuum cleaner could not be emptied without removing all of the tools from the holder.

One of the objects of the present invention is to provide a tank type vacuum cleaner having an attachment or tool holder for holding the tools thereon while the cleaner is in operation as well as in storage.

Another object is to provide a tank type vacuum cleaner having an attachment holder embodying a cord guide for maintaining the portion of the electrical cord adjacent the cleaner in a flexible upright position and which cord guide terminates in a hook member for the storage of the electrical cord.

Another object is to provide a tank type vacuum cleaner having a tool holder formed with a plurality of spaced projections over which the tools or attachments are fitted for securely retaining the tools on the vacuum cleaner.

A further object is to provide a tank type vacuum cleaner having a tool holder removably attached thereto and configured for securely retaining the tools thereon during operation of the cleaner or during storage or while the cleaner is being emptied.

Still further objects are to provide a tank type vacuum cleaner having an attachment or tool holder removably attached thereto which is readily accessible to the operator at all times, compact in design and economical of manufacture.

Other objects and advantages more or less ancillary to the foregoing and the manner in which all of the various objects are realized will appear in the following description, which considered in connection with the accompanying drawings, sets forth the preferred embodiment of the invention.

Referring to the drawings wherein the preferred embodiment of the invention is illustrated:

Figure 1 is a perspective view of a vertical tank type vacuum cleaner with the tool holder of the present invention mounted thereon and showing in dotted lines some of the tools or attachments;

Figure 2 is a perspective view of the attachment or tool holder removed from the vacuum cleaner;

Figure 3 is a detail view showing a portion of the base of the tool holder and its mounting on the vacuum cleaner;

Figure 4 is a top plan view of a modified tool holder showing it mounted on a horizontal tank type vacuum cleaner;

Figure 5 is a side elevational view of the tool holder and vacuum cleaner illustrated in Figure 4;

Figure 6 is a detailed sectional view showing the manner in which one end of the tool holder is locked on the vacuum cleaner, the section being taken on the line 6—6 of Figure 5, and

Figure 7 is a side elevational view of a portion of a tool holder wherein the base and projections of the tool holder are made from a single piece of material.

Referring to the drawings where in Figure 1 there is shown a vacuum cleaner of the vertical tank type comprising a cylindrical outer casing consisting of a lower or bottom portion **10** and an upper or cover portion **11**. The lower or bottom portion of the casing is provided with a suction inlet **12** to which a hose, not shown, is adapted to be detachably connected in any suitable manner. The upper or cover portion **11** of the casing is supported or mounted upon the upper edge of the lower portion **10** of the casing and is retained thereon by suitable clamps, not shown. The upper or cover portion **11** of the casing is formed with an annular offset upwardly projecting portion **14** of a diameter less than the diameter of the cover **11** and defines with the cover **11** an annular ledge **15**. The projecting portion **14**, ledge **15** and cover portion **11** are formed as a unit which is clamped to the lower portion **10** to form the outer cylindrical casing of the vacuum cleaner. The outer casing of the vacuum cleaner encloses a customary electric motor and suction fan and may also contain a dirt retaining bag. In lieu of a dirt retaining bag the lower portion **10** of the casing may serve as a receptacle for collecting and retaining the dirt.

The outer edge of the upwardly projecting portion **14** of the outer casing is provided with a plurality of spaced apertures **16** for the discharge of air after it passes through the filter bag. A suitable handle **18** is pivotally mounted upon the projecting portion **14** for lifting and carrying the vacuum cleaner and also for removing the upper portion **11** of the casing from the lower portion **10**. The top surface of the upwardly projecting portion **14** is formed with a suitable opening having a cover plate **19** which is readily detached therefrom to permit a hose, not shown, to be mounted in the opening so that the machine may operate as a blower. A switch **20** of any suitable type for controlling the electric motor is mounted on the ledge **15** of the upper portion **11** of the casing. The lower or bottom portion **10** of the casing may be provided with suitable casters or runners, not shown, for supporting the cleaner as it is drawn over the floor.

The attachment or tool holder of the present invention, Figure 2, comprises a base portion or member **22** in the form of an endless band which is preferably formed from a single piece of material, such as wire. One end portion of the base member **22** is twisted into an upwardly projecting spiral member **23** which terminates in an outwardly extending hook portion **24**. The base member **22** at the bottom of the upwardly extending spiral member **23** is bent into a circular configuration at right angles to the spiral member **23** with the free end **25** of the base member **22** secured to the bottom of the spiral member in any suitable manner, such as by welding. Thus the base member **22** formed from a single piece of material is pref-

erably of circular configuration having a spirally twisted portion formed integrally therewith and projecting therefrom in a plane at right angles thereto.

The base member or portion **22** is formed with an upwardly projecting portion **26**, Figure 3, which is adapted to straddle the switch **20** when the base member **22** is placed upon the ledge **15** of the upper cover portion **11** of the casing. The projecting portion **26** in cooperation with the switch **20** anchors or secures the base member **22** against rotative movement with respect to the casing of the vacuum cleaner. A plurality of supports or members **27** for holding the vacuum cleaner attachments or tools are secured to the base member **22** in spaced relation with one another. While the tool supports or members **27** may be formed of various shapes or configurations and from different types of material it has been found from experience that tool supports formed from a single piece of material, such as wire, provide a support which is light in weight yet sufficiently strong and rigid to adequately support and retain the vacuum cleaner tools. As shown in Figure 2 the supports **27** are formed from a single piece of wire with the ends of the piece of wire being secured to the base member **22** in spaced parallel relation to one another. The ends of the wire of the supports **27** may be secured to the base member **22** in any suitable manner, such as by welding, and are positioned in a plane at right angles to the base member **22** so as to extend in an upward direction therefrom. The upper ends **28** of the supports **27** may be formed or bent into any desired shape, such as flat or arcuate, depending upon the particular type of tool that is to be mounted thereupon.

Thus the projecting portion **26** of the base member **22**, the spiral member **23** and supports **27** all project or extend from the same surface of the base member **22** and are positioned in planes at right angles to the base member. The entire base member **22** and projecting portion **26** together with the portions of the spiral member **23** and supports **27** adjacent the base member are encased in a rubber sheathing **30**. The rubber coating or sheathing **30** may be applied in any suitable manner, such as by a dipping operation.

In mounting the tool or attachment holder shown in Figure 2 upon the vacuum cleaner shown in Figure 1 the base member **22** is placed upon the ledge **15** of the upper portion **11** of the casing adjacent and surrounding the portion **14** with the projecting portion **26** of the base member straddling the switch **20**. Thus the base member is positioned on the outer casing of the vacuum cleaner in a plane substantially parallel to a plane through the horizontal medial axis of the vacuum cleaner. When the base member **22** is positioned upon the ledge **15** the tool supporting members **27** will project upwardly from the base member along and about the outer casing of the vacuum cleaner. Thus the tool supporting members **27** tend to lie alongside of but in a slightly spaced relation to the outer casing of the vacuum cleaner.

The base member **22** is of approximately the same diameter as the diameter of the projection **14** and due to the inherent resiliency of the material constituting the base member said base member is retained in engagement with the portion **14**. The rubber sheathing **30** on the base member **22** also aids in insuring the retention of the tool holder on the cover portion **11** so that when the upper casing portion **11** is removed from the lower casing portion **10**, through the medium of the handle **18**, the tool holder in its entirety, with the tools mounted thereon, will be removed along with the upper cover portion of the casing. The configuration of the tool holder and its manner of mounting upon the casing portion **11** insures that the tool holder, with the various tools thereon, will remain thereon even when the casing portion **11** is lifted from the casing portion **10** and placed upon a support such as a floor.

The supports **27** are preferably formed of such size and shape as to support the various attachments or tools and the inherent resiliency of the material from which the supports **27** are formed tends to provide a snug fit between the tools and supports. The rubber sheathing **30** on the lower portion of the supports **27** also tends to aid in the retention of the tools upon the supports even when the upper casing portion **11** and tool holder are placed upon the floor at an angle of approximately 45 degrees. At the time that the base member **22** of the tool holder is being placed upon the upper casing portion **11** the cord **31**, Figure 1, for the vacuum cleaner motor is fed through the spiral member **23** and when the vacuum cleaner is stored the cord is looped about the hook **24**. The spiral member **23** tends to retain the portion of the electric cord **31** adjacent the vacuum cleaner in an upright but flexible position so as to diminish the possibility of the cord becoming entangled in the cleaner when it is being emptied.

Referring to Figures 4 and 5 there is shown a modified form of the attachment or tool holder of the present invention as applied to a horizontal tank type vacuum cleaner. The vacuum cleaner shown in Figures 4 and 5 comprises a generally cylindrical casing **40** mounted upon suitable runners **41** to facilitate moving the cleaner during a cleaning operation. The casing **40** encloses a conventional dust bag, electric motor and suction fan, not shown, and at one end is provided with a suction inlet **42** to which the customary hose is attached. An elongated rigid handle **43** is secured to the top surface of the casing **10**.

The attachment or tool holder, shown in Figures 4 and 5, comprises a base portion or member **45** in the form of an endless band which is preferably formed from a single piece of inherently resilient material, such as wire. The base member **45** is substantially rectangular in configuration and is so formed as to provide two side segments or legs **46**, a front segment or leg **47** and a pair of rear segments or legs **48** which are the ends of the piece of material from which the base member is formed. The side legs **46** of the base member **45** are disposed on opposite sides of the casing **40** in a plane substantially parallel to a plane through the horizontal medial axis of the casing. The side legs **46** are joined together at their forward ends by the front leg **47** which is bent slightly toward the rear legs **48**. The front leg **47** throughout the greater portion of its length is of an arcuate configuration to conform to the contour of the casing **40**. The middle or central portion is formed with a pair of flat segments **49** which rest upon the top surface of the casing **40** along side of the forward end of the handle **43**. The flat segments **49** of the forward leg **47** terminate in upwardly extending portions **50** which project inwardly towards one another under the handle **43** and are then bent forwardly into a common apex **51** which extends under and toward the forward end of the handle **43**, as shown in Figure 4. The rear ends of the side legs **46** are joined together by the rear legs **48** wherein one of the rear legs terminates in an eyelet **52** for receiving the end **53** of the other rear leg, Figure 6. The rear legs **48** are of arcuate configuration to conform to the contour of the casing **40** and the ends **52** and **53** are connected together under the rear end of the handle **43**. The rear legs **48** when connected together are maintained under tension and by positioning the central portion of the forward leg **47** under the front end of the handle **43** and the ends of the rear legs under the rear end of the handle the tool holder is maintained in position on the casing **40** when the vacuum cleaner is in use or when it is in storage and standing in a vertical position on the rear end **54** of the casing **40**. The configuration of the front leg **47** and the rear legs **48** conforming to the contour of the casing **40** and the manner in which the projections **49**, **50** and **51** of the front leg **47** are positioned under the handle **43** insure that the base member **45** will be so supported on the casing **40** as not to have any rotative movement with respect to the casing.

The base member or portion **45** is provided with a

plurality of spaced supports or members 56 for holding the vacuum cleaner attachments or tools. The tool holding members 56 are of substantially the same shape and size as the tool holding supports 27 shown in Figure 2 and the tool holding members 56 are secured to the base member 45 in the same manner and relation as the members 27 are secured to the base member 22 of Figure 2. The tool holding supports 56 when secured to the base member 45 are slanted slightly, Figure 4, towards the front leg 47 so that when the vacuum cleaner casing 40 is placed in an upright position on the end 54 for storing or emptying the dust bag the tools or attachments will be retained on the members 56. When the base member 45 is positioned upon the casing 40 the tool supporting members 56 will project upwardly from the base member and along and about the casing 40 but in a slightly spaced relation thereto.

The base member 45 has secured thereto adjacent the junction of one of the side legs 46 and one of the rear legs 43 a spiral cord guide member 57 which terminates in an outwardly extending hook portion 58 for supporting an electric cord 59 in the same manner as the hook portion 24 of Figure 2. The spiral member 57 is secured to the base member 45 in the same manner as the supports 56 and is disposed in a plane at right angles to the base member 45 in the same manner as the supports 56. The base member 45, spiral member 57 and tool holding members 56 are encased in a rubber sheathing in the same manner as disclosed with the tool holder shown in Figures 1 and 2. It is to be understood that instead of applying a rubber coating to only the portion of the tool holding attachment as described in connection with Figures 2, 4, and 5, that the entire tool holding attachment may be encased within a rubber sheathing.

In the modified form of the invention shown in Figure 7 the base member 60 and tool holding members 61 are formed from a single piece of material, such as wire. In this form of the present invention the base member 60 is formed with a plurality of vertically spaced loops which are integral with the base member and adapted to support tools.

The tool holding attachment of the present invention is so designed as to place the tools or attachments upon a vacuum cleaner within easy reach of the operator and yet the tools are so mounted on the holder that they will remain in place during a cleaning operation or when the cleaner is being emptied or is stored.

What I claim is:

1. A tool holding attachment for a vertical tank type vacuum cleaner having an outer casing formed with a reduced upper end portion defining an annular ledge, comprising a removable base member, a plurality of tool supporting members affixed to said base member in spaced relation with one another and arranged to extend in one direction from said base member, means on said tool supporting members for gripping and retaining the tools thereon, said base member supported on said annular ledge of the casing with said tool supporting members disposed in spaced relation with the reduced upper portion of said casing and means on said base member engageable with the reduced upper portion of the casing for retaining said base member under resilient tension on said annular ledge.

2. A tool holding attachment for tank type vacuum cleaners having an outer casing comprising a unitary removable base member in the form of an endless band adapted to be positioned on said casing, a plurality of tool supporting members affixed to said base member in spaced relation with one another and arranged to extend in one direction from said base member, said tool supporting members being of varying size and configuration for receiving various types of tools, said tool supporting members having a resilient covering thereon for individually gripping and retaining under resilient tension various types of tools, and means on said base member for retaining said base member on said casing under resilient tension.

3. A tool holding attachment for a vertical tank type vacuum cleaner having an outer casing formed with a reduced upper end portion defining an annular ledge, comprising a removable base member, a plurality of tool supporting members affixed to said base member in spaced relation with one another and arranged to extend in one direction from said base member, means on said tool supporting members for gripping and retaining the tools thereon, said base member supported on said annular ledge of the casing with said tool supporting members disposed in spaced relation with the reduced upper portion of said casing, means on said base member engageable with the reduced upper portion of the casing for retaining said base member under resilient tension on said annular ledge, an upwardly projecting member provided on the ledge of said casing and a recessed portion formed in said base member for engaging said upwardly projecting member to restrain said base member from rotative movement with respect to said casing.

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