Jan. 2, 1962 R. E. COOK 3,015,122

MOBILE ELECTRIC VACUUM CLEANER

Filed Jan. 4, 1961 2 Sheets-Sheet 1

Fig. 1

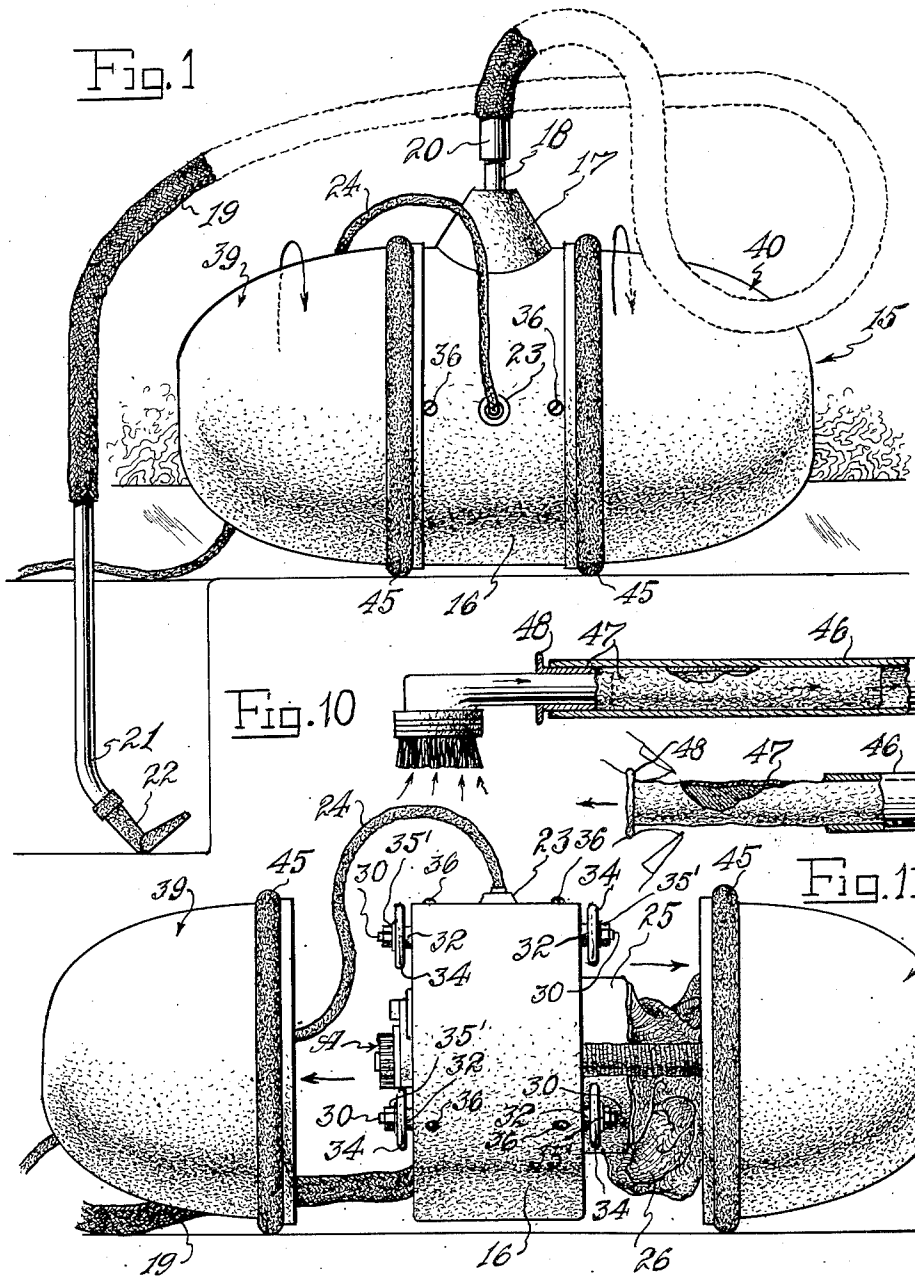


Fig. 10

Fig. 11

Fig. 2

INVENTOR.
Robert E. Cook

BY Frank C. Maley
AGENT.

Jan. 2, 1962 R. E. COOK 3,015,122

MOBILE ELECTRIC VACUUM CLEANER

Filed Jan. 4, 1961 2 Sheets-Sheet 2

Fig. 4

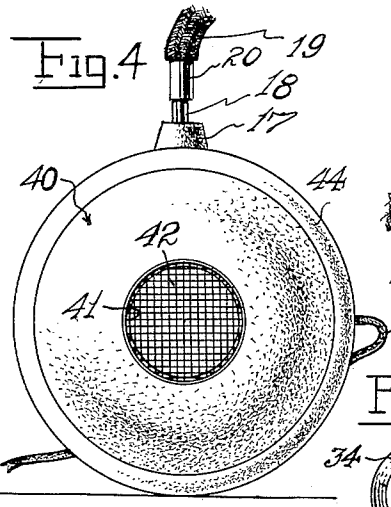


Fig. 3

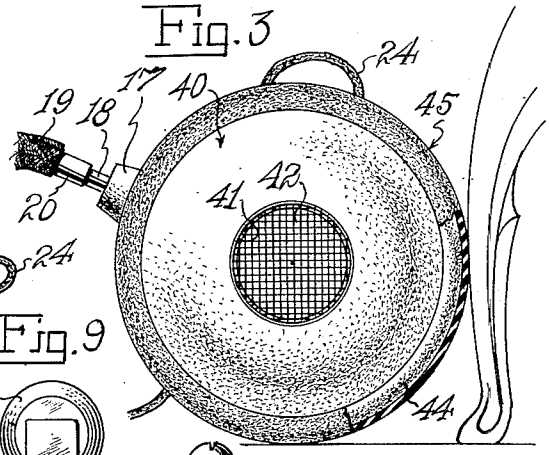


Fig. 9

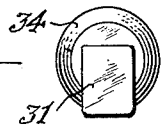


Fig. 8

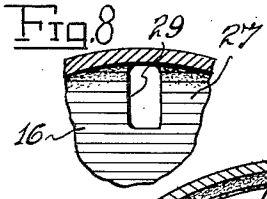


Fig. 7

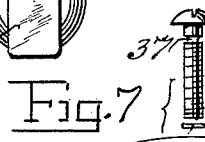


Fig. 5

Fig. 6

INVENTOR.
Robert E. Cook
BY
Francis C Smiley
AGENT.

United States Patent Office

3,015,122

Patented Jan. 2, 1962

3,015,122

MOBILE ELECTRIC VACUUM CLEANER

Robert E. Cook, Los Angeles, Calif.
(1050 Frederick St., Venice, Calif.)

Filed Jan. 4, 1961, Ser. No. 80,648
2 Claims. (Cl. 15—327)

This invention relates to improvements in vacuum cleaners and more particularly to a vacuum cleaner that is provided with a drum or cylindrical shaped outer casing that is supported at its opposite ends by substantially semi-elliptical shaped end portions that are so mounted in relation to the casing so that they are rotatable about the longitudinal axis of the casing to permit easy movement of the vacuum cleaner over any given surface.

An important object of this invention is, therefore, to provide a device of this type that is easily maneuverable over a given surface by reason of the fact that the outer casing thereof is provided with end portions that are freely rotatable either clockwise or counter-clockwise about the longitudinal axis of the casing.

Another object of the invention is to provide means for mounting rotatable end portions on a central outer casing so that the end portions may be easily removed from the central outer casing and then replaced as desired.

A further object of the invention is to provide the wand end of the flexible hose of the vacuum cleaner with a removable dust bag so that the dust bag may be removed and cleaned and replaced or renewed.

With the above and other objects and advantages in view, the invention consists of the novel details of construction, arrangement and combination of parts more fully hereinafter described, claimed and illustrated in the accompanying drawings in which:

FIG. 1 is an elevational view of a vacuum cleaner embodying the invention with the electrical supply cord and flexible suction hose and wand therefor connected to the vacuum cleaner;

FIG. 2 is an elevational view, showing the manner in which the ends of the vacuum cleaner may be disconnected from the central housing of the vacuum cleaner;

FIG. 3 is an end view of the vacuum cleaner with the removable rubber tire thereon partly in section;

FIG. 4 is an end view with the rubber tire of FIG. 3 removed;

FIG. 5 is a rear view of the end of the central portion of the outer housing in elevation with parts broken away and removed and with the end portion of the housing in section to more clearly show the rollers for retaining the end portions on the central portion of the vacuum cleaner;

FIG. 6 is a vertical sectional view taken substantially through the vertical axis of FIG. 5, showing the rollers in elevation and a tool partly broken away, in position to adjust the rollers;

FIG. 7 is an elevational view of one of the adjusting screws and O-ring assemblies and showing a fragmentary portion of the outer housing surrounding the opening through which a mounting bearing for a roller is positioned;

FIG. 8 is a rear view of the fragmentary portion shown in FIG. 7;

FIG. 9 is an elevational rear view of one of the mounting bearings for the rollers;

FIG. 10 is an elevational view, partly in section and partly broken away to show the wand connected to the flexible hose of the vacuum cleaner with a removable dust bag therein; and

FIG. 11 is a fragmentary view, partly in section, showing the manner in which the dust bag shown in FIG. 10 is removed from the wand.

Referring more in detail to the drawings, wherein like parts are designated by like reference numerals, the reference numeral **15** is used to generally designate a vacuum cleaner embodying the invention.

The vacuum cleaner **15** comprises a central outer casing **16** which is the form of a drum or cylinder which is oriented so that the longitudinal central axis thereof is positioned in a horizontal plane. Mounted in the casing **16** is the usual motor driven suction fan assembly A that is in communication with a truncated conical suction inlet **17** that extends outwardly of the casing **16**. However, since the motor driven suction fan assembly form no part of the present invention, it is believed that an illustration thereof is not deemed necessary or required.

The suction inlet **17** is provided with a nipple **18** whereby one end of a flexible exploring hose **19** is connected by means of a swivel connection **20** to suction inlet **17**. Attached to the other end of the hose **19** is a rigid wand or tube section **21** to which suitable vacuum cleaner tools **22** may be detachably connected in the conventional manner. The casing **16** is also provided with a truncated conical shaped enlargement **23**, through which a suitable electric cord **24** extends, whereby current is supplied to the assembly A. The central outer casing **16** has a circular end wall, not shown, that is provided with an outlet ring mount **25** thereon, whereby a dust bag **26**, for receiving the dirt collected by the vacuum cleaner **15**, is mounted in position, as shown in FIG. 2.

The outer casing **16** is also provided with a circular side or end wall **27** which has a centrally disposed opening **28** therein through which the assembly A extends, as also shown in FIG. 2. The side or end wall **27** and the side or end wall not shown, are each provided with three elongated slots **29** that receive a shaft **30** of a bearing block mount **31**, there being three mounts **31** for each side or end wall, as shown in FIG. 2, one for each of the slots **29**.

A pair of spacing washers **32** and **33** are mounted on each of the shafts **30** and the washers **32** and **33** space a wheel **34** on each of the shafts **30** outwardly of each of the side or end walls of the outer casing **16**. The outer end of each of the shafts **30** is provided with threads, as shown in FIGS. 5 and 6, and a nut and washer assembly **35'** threaded onto the outer end of each of the shafts **30** retain each of the wheels **34** on their respective shaft. Each of the mounts **31** is provided with a threaded bore **35** into which a screw bolt **36** extends, a screw bolt **36**, therefore, will extend through an opening **14** that is positioned in the wall of the outer casing **16** adjacent each of the slots **29** to engage the threaded bores **35** in the bearing block mounts **31**. Thus, when a screw driver B is utilized, as shown in FIGS. 5 and 6, the bearing block mounts **31** will be adjusted within the limits of the slots **29**. Each of the screw bolts **36** has an annular groove **37** adjacent the head thereof and an O-ring **38** is received on the screw bolt **36** and mounted in the groove **37**. The O-ring **38** prevents the screw bolt **36** from moving outwardly of the wall of the outer casing **16** without moving the bearing block mount **31** to which it is connected.

Semi-elliptical shaped end portions **39** and **40** are rotatably mounted on the opposite side or end walls of the central casing **16** and each of the end portions **39** and **40** are of similar shape, each having a centrally located outlet opening **41** that is covered by a wire mesh disc **42**.

The inner peripheral edge of each of the end portions **39** and **40** are positioned over the wall of the outer casing **16** and the edges of the end portions **39** and **40** have rotatable engagement with a gasket **43**, mounted on the outer casing **16** adjacent to the peripheral edge of each end or side wall thereof.

An annular groove 44 is provided in each of the end portions 39 and 40 and the grooves 44 receive the wheels 34 so that the end portions 39 and 40 are rotatably mounted on the central outer casing 16. When the end portions 39 and 40 are mounted on the central outer casing 16, the bearing block mounts 31 have been adjusted inwardly of the wall of the outer casing 16 so that the end portions 39 and 40 may be readily placed in position. After the positioning of the end portions 39 and 40, the bearing block mounts 31 are adjusted outwardly through the medium of the screw driver B rotating the screw bolts 36 and when an equal pressure of the wheels 34 with the interior of the grooves 44 has been obtained the vacuum cleaner 15 is ready for use.

The vacuum cleaner 15 can be easily maneuvered over any flat surface by the operator pulling the vacuum cleaner 15 by means of the flexible hose 19 and in making any turns with the vacuum cleaner 15, one of the end portions 39 or 40 will rotate in the opposite direction from the other, as indicated by the arrows in FIG. 1, depending upon whether or not the operator moves to the right or the left of the vacuum cleaner 15.

To prevent damage to furniture, as indicated in FIG. 3, a tread member 45 of any suitable resilient material may be positioned on each of the exterior surfaces of the grooves 44 and to permit such action, the tread members 45 are of substantially U-shaped formation in cross section.

In FIGS. 10 and 11 a short wand 46 is shown to be attached to a flexible hose 19' and into the open end of wand 46 there is adapted to be inserted, a disposable dust bag 47. The dust bag 47 has an annular flange 48 on the open end thereof that engages the open end of the wand 46 to prevent further inward movement of the dust bag 47 into the wand 46. The flange 48 also provides means for removing the dust bag 47 from the wand 46, as shown in FIG. 11. The dust bag 47 is used in addition to the dust bag 26 and provides easier disposal of the dirt collected by the vacuum cleaner 15 when only a small area is to be cleaned thereby.

There has thus been provided a vacuum cleaner that is provided with rotatable end portions whereby the vacuum cleaner may be easily maneuvered over a flat surface and it is believed that the structure and operation of the vacuum cleaner will be clear to those skilled in the art.

It is also to be understood that changes in the minor details of construction, arrangement and combination of parts may be resorted to provided they fall within the spirit of the invention and the scope of the appended claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a vacuum cleaner the combination comprising an elongated elliptical shaped casing, said casing including a central cylindrical drum shaped section and outer semi-elliptical shaped end sections, means for rotatably mounting said end sections on said central section, said central section having a suction inlet and a suction hose connected to said inlet, said end sections having outlet openings therein, said central section having an electric cable extending outwardly thereof, said end sections having annular grooves, said central section having a plurality of rotatable wheels mounted thereon and engageable with the grooves in said end sections whereby said end sections are rotatably mounted on said central section, said wheels being journalled on bearing blocks, said central section having slots therein for mounting said bearing blocks and means connected to said bearing blocks and accessible from the exterior of said central section for adjusting said bearing blocks to reciprocate said wheels with regard to the axis of rotation of said central section.

2. In a vacuum cleaner as in claim 1, wherein said bearing blocks are provided with outwardly extending shafts, said wheels are mounted on said shafts and spacer washers are mounted on said shafts to space said wheels outwardly of said central section.

References Cited in the file of this patent

UNITED STATES PATENTS

2,046,636	Kitto	July 7, 1936
2,074,481	MacMullen et al.	Mar. 23, 1937
2,621,756	Senne	Dec. 16, 1952
2,910,717	Raymond	Nov. 3, 1959

FOREIGN PATENTS

1,225,238	France	Feb. 15, 1960