

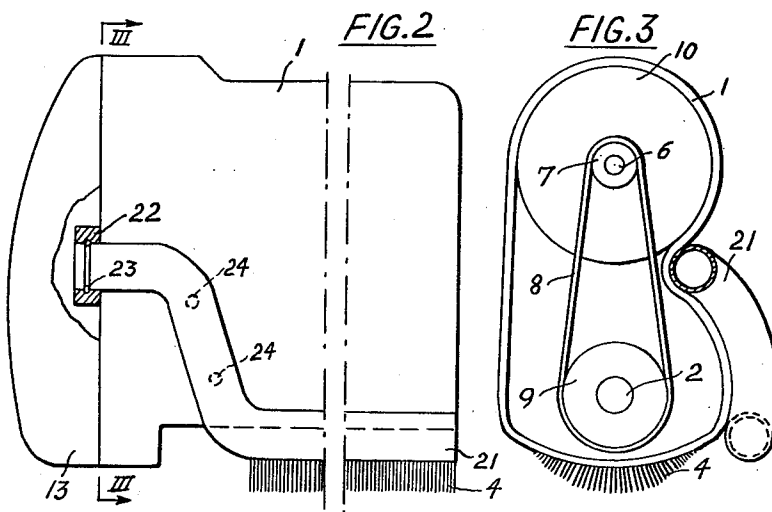
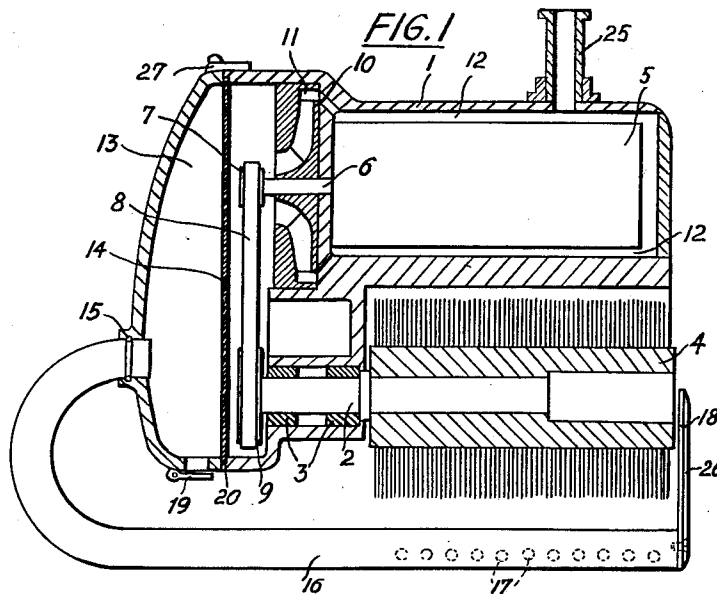
Oct. 30, 1962

O. BUTTER ETAL

3,060,485

CLEANING AND POLISHING APPLIANCE

Filed May 20, 1960



INVENTORS

Otto Butter & Hans Erndt

By

Lowy & Rinehart

ATTYS.

1

3,060,485

CLEANING AND POLISHING APPLIANCE

Otto Butter, Neckargemund, and Hans Erndt, Heidelberg, Germany, assignors to Gesellschaft für Industrielle Technik m.b.H., Heidelberg, Germany, a firm

Filed May 20, 1960, Ser. No. 30,532

Claims priority, application Germany Aug. 3, 1959

9 Claims. (Cl. 15—328)

This invention relates to a cleaning and polishing appliance comprising air suction means and one or more brushes as well as a motor enclosed in a housing.

It is the object of the invention to provide an appliance of the afore-described kind which is of simple construction and high efficiency. It is envisaged to use an impeller wheel which not only serves for cooling the motor, as is known in the art, but serves at the same time as an air suction means whilst ensuring that the air for cooling the motor is dust-free.

For achieving this object the invention provides a cleaning and polishing appliance with air-suction means, which comprises a housing, at least one unilaterally supported cleaning brush rotatable in said housing, an opening and a blower chamber formed in the housing, an impeller wheel rotatable in said blower chamber, a motor provided in the housing and arranged to rotate said brush and said impeller wheel, a detachable cap-shaped member closing the opening, and at least one suction pipe detachably connected to the cap-shaped member and extending substantially parallel to said cleaning brush, said suction pipe communicating through the cap-shaped member with the blower chamber and said impeller wheel being arranged to serve as air-suction means and at the same time as air-cooling means for the motor.

It is preferred to arrange the suction pipe in such a way that it is pivotally deflectable preferably on a peripheral arc around the brush so that it remains in the lowermost position when the appliance is tilted. The suction pipe may be secured to the housing by means of pegs.

A filter may be exchangeably inserted in the opening to form a dust-collecting chamber within the cap-shaped member, said filter separating said blower chamber from said dust-collecting chamber. The cap-like member is easily detachably affixed to the housing at one end thereof. After removal of the cap-like member the opening communicating with the blower chamber may be sealed by using a cover plate in the place of the filter.

Two embodiments of the invention will now be described by way of example and with reference to the accompanying drawing, in which:

FIG. 1 is a side elevational view, partly in section, of a cleaning and polishing appliance according to the invention, equipped with a swingably arranged suction pipe;

FIG. 2 is a side elevational view of another embodiment of the cleaning and polishing appliance, and

FIG. 3 is a vertical section taken on the line III—III of FIG. 2.

As shown in FIG. 1, a unilaterally supported shaft 2 is arranged to run in bearings 3 in a housing 1 and carries a rotary cleaning brush 4. Instead of one, also two or more brushes may be used. The housing 1 also contains a motor 5 having a shaft 6 with a pulley 7 which is connected to a pulley 9 on the shaft 2 by means of a belt 8. Likewise mounted on the shaft 6 of the motor 5 is an impeller wheel 10 which is arranged to run in a blower chamber 11. Cooling channels 12 through which the impeller wheel 10 blows cooling air are provided on the sides of the motor 5 and interconnected at one of their ends.

Affixed to one end of the housing 1 is a cap-shaped member 13 forming a dust-collecting chamber which is separated from the housing 1 by a filter 14 exchangeably

2

inserted in a correspondingly shaped opening 20 formed in one of the end walls of the housing 1. The cap-shaped member 13 has a connection piece 15 for attachment thereto of one of the ends of a suction pipe 16 which has openings 17 and extends substantially parallel with the shaft 2 in such a manner that the suction pipe 16 is detachable and can be deflectably raised and lowered on a peripheral arc around the brush 4.

When the motor 5 which in most cases will be an electric motor, is started up and rotates the brush 4, the impeller wheel 10 will at the same time draw in air through the openings 17 in the suction pipe 16, the dust entrained by the air being retained in the dust-collecting chamber by the filter 14. The air which passes through the filter 14 is then forced through the cooling channels 12 and escapes through openings (not shown) in the housing 1 into the open.

Conveniently, the cooling air is caused to escape into the atmosphere through a sleeve 25 which is formed on the housing 1 and which simultaneously serves for affixing a hollow long handle thereto for convenience when using the appliance for cleaning floors.

The free end of the suction pipe 16 carries a baffle plate 18 which masks the adjacent end of the brush 4 and is provided with a padding material 26 on its outer side. The baffle plate 18 with the padding 26 serves for preventing the cleaning appliance or the brush from damaging sensitive objects of furniture or the like when abutting against such objects. The baffle plate 18 with the padding is removed if the brush is intended to be guided with its exposed end face along an edge, for example, a skirting-board. Thereby the bottom is cleaned directly as far as the skirting-board extending perpendicular to it. If the baffle plate is not removed a strip as broad as the baffle plate with the padding, directly adjacent the skirting-board, is not cleaned by the brush.

The cap-shaped member 13, which forms the dust-collecting chamber, and the suction pipe 16 can be readily removed from the housing 1, known quick-release catches 27 being provided for securing the cap-shaped member 13 to the housing 1.

If a cleaning operation involves the use of water, the filter 14 may be replaced by a cover plate for closing the opening 20 in the housing 1. In such a case no suction takes place and it is only the brush which performs the work. The appliance can then be used without suction pipe 16. If the suction pipe 16 is removed, the connection piece 15 in the cap-shaped member 13 can be sealed and a brush may be used which is longer than that shown in FIG. 1 and projects from the housing.

For draining off water which has been unintentionally collected by suction, the bottom side of the cap-shaped member 13 is fitted with an outlet valve 19. The suction pipe 16 may also be connected to the cap-shaped member 13 through a flexible connection piece which permits the suction pipe always to engage the surface which is to be cleaned.

In the embodiment of the cleaning appliance shown in FIGS. 2 and 3, the housing 1 is constructed as in the embodiment according to FIG. 1. A suction pipe 21 extends substantially parallel with the shaft of the brush 4. The connection of the suction pipe 21 to the cap-shaped member 13 is effected by attaching this suction pipe to a lateral connection piece 22, the joint being sealed by a rubber packing 23. The suction pipe 21 may be held in position by pegs 24. On removal of the cap-shaped member 13, the suction pipe 21 can be easily detached. The cleaning appliance can naturally also be used without the air suction effect, when the suction pipe 21 has been removed.

The invention may be embodied in other specific forms without departing from the spirit or essential char-

acteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

We claim:

1. A cleaning and polishing appliance with air-suction means comprising a housing of elongated form, at least one unilaterally supported cleaning brush rotatable in said housing and projecting therefrom only at the bottom thereof and at one longer side of the housing, an opening and a blower chamber formed in the housing, an impeller wheel rotatable in said blower chamber, a motor provided in the housing above the brush and arranged to rotate said brush and said impeller wheel, a detachable cap-shaped member closing the opening, and at least one suction pipe detachably connected to the cap-shaped member and extending substantially parallel to said cleaning brush, said suction pipe communicating through the cap-shaped member with the blower chamber and said impeller wheel being arranged to serve as air-suction means and at the same time as air-cooling means for the motor.

2. An appliance as claimed in claim 1, wherein the suction pipe is mounted on the cap-shaped member for swinging movement on a peripheral arc around the brush.

3. An appliance as claimed in claim 1, wherein a connection piece and peg connections are provided for attaching the suction pipe to the cap-shaped member.

4. An appliance as claimed in claim 1, wherein a filter is exchangeably inserted in the opening to form a dust-

collecting chamber within the cap-shaped member, said filter separating said blower chamber from said dust-collecting chamber.

5. An appliance as claimed in claim 1, wherein said cap-shaped member together with the suction pipe is affixed to the housing in an easily detachable manner.

6. An appliance as claimed in claim 1, wherein the opening closed by the cap-shaped member is formed in one of the end walls of the housing.

7. An appliance as claimed in claim 1, wherein an imperforate cover plate is exchangeably inserted in the opening formed in the housing.

8. An appliance as claimed in claim 1, wherein interconnected cooling channels are provided on the sides of the motor and communicate through a sleeve formed on the housing, with the atmosphere, said sleeve being constructed for affixing a handle thereto.

9. An appliance as claimed in claim 6, wherein the brush is supported for rotation at one of its ends and has its free opposite end extending substantially flush with the opposite end wall of the housing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,426,765 Pesarillo ----- Aug. 22, 1922

FOREIGN PATENTS

104,059 Switzerland ----- July 1, 1924

280,118 Great Britain ----- Nov. 10, 1927

290,185 Switzerland ----- July 16, 1953

654,926 Germany ----- Jan. 4, 1938