

[54] **ELECTRICAL POLISHING APPARATUS**

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[56] **References Cited**

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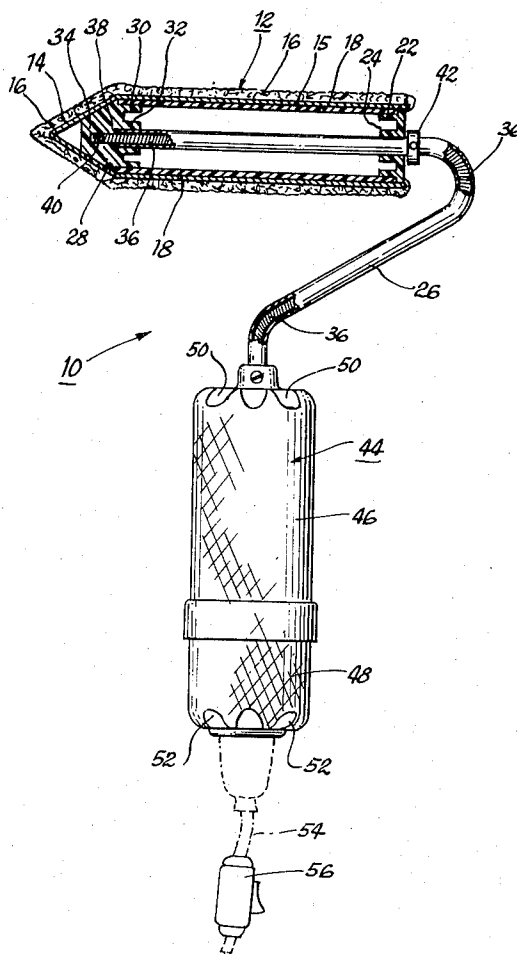
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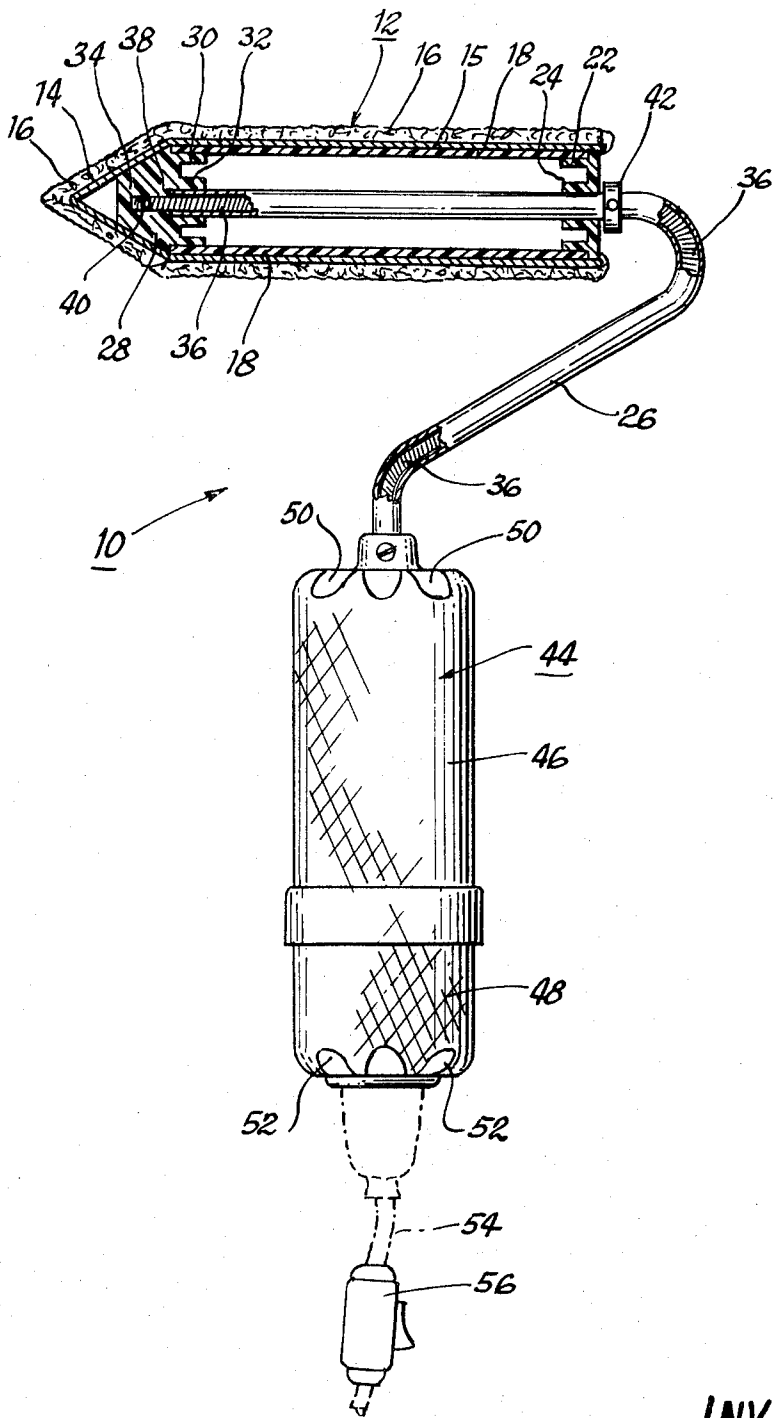
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ABSTRACT

A hand-held polishing device of the type that can be used for polishing automobiles, in which the polishing member is generally cylindrical in shape with the cylindrical axis being the axis of rotation. A handle encloses an electric motor the rotational axis of which is substantially perpendicular to the rotational axis of the polishing member, and a flexible shaft couples the polishing member to the shaft of the electric motor.

3 Claims, 1 Drawing Figure





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ELECTRICAL POLISHING APPARATUS

FIELD OF THE INVENTION

This invention relates to an improved hand-held portable apparatus for polishing waxed surfaces.

BACKGROUND OF THE INVENTION

conventional hand-held electric polishing apparatus comprises a polishing cloth or the like fastened to a disc which rotates about an axis that is perpendicular to the disc and centrally located with respect thereto. Such apparatus produces noticeable swirls, which are generally detrimental to the attractive, high-gloss finish desired.

It is an object of the present invention to provide an electrical polishing device that is simple in construction and has a polishing surface that extends parallel to the axis of a rotatable polishing cylinder, and which avoids producing the swirls which are produced by prior art polishing apparatus.

It is a further object of the present invention to provide an electrical polishing device which enables polishing access to areas that are typically hard to reach.

Another object of the present invention is to provide an electrical polishing device having a rotating cylindrical polishing surface with a small amount of oscillatory motion in the axial direction of the cylinder.

BRIEF DESCRIPTION OF THE INVENTION

In accordance with the present invention, there is provided a generally cylindrical roller member having a polishing surface that extends parallel to the roller axis. A manually graspable handle encloses an electric motor the rotatable shaft of which extends substantially perpendicular to the axis of the roller member. A flexible shaft located within a fixed, curved tube, is utilized to couple the motor shaft to the roller member, to impart rotation to the roller member and provide oscillatory motion in the axial direction of the roller.

In the illustrative embodiment of the present invention, a generally conical polishing portion is provided at the distal end of the cylindrical roller member with the conical portion being coaxial with the cylindrical roller member.

A more detailed explanation of the invention is provided in the following description and claims, and is illustrated in the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

The drawing is an elevational view, taken partially in section, of a hand-held polishing device constructed in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENT

Referring to the drawing, the polishing device 10 illustrated therein comprises a roller member 12, the distal end 14 of which is conical in shape with the cone being coaxial with a main cylindrical portion 15. Roller member 12 has a lambs wool polishing cloth 16 fastened thereto and the roller member forms a polishing sleeve that is removably slidable with respect to a cylindrical plastic support member 18.

Support member 18 is connected to a hub member 20 having an annular outer rim 22 and an annular central portion 24 which serves as a bearing about a rigid tube 26. Support member 18 is also connected to the annular outer rim 30 of a nylon drive member 28 having an annular central portion 32 serving as a bearing about rigid tube 26. The end portion 34 of drive member 28 is frusto-conical in shape to support conical portion 14.

A flexible shaft 36 is positioned within rigid tube 26 and extends past the distal end 38 of tube 26 to be keyed to drive member 28 by means of a set screw or other suitable fastener. Tube 26 carries a collar 42 to limit rearward movement of hub member 20. Collar 42 is normally spaced a small distance from hub member 20, to permit slight oscillatory movement of the roller member in its axial direction when the flexible shaft 36 is rotating.

One end of flexible shaft 36 is keyed to the shaft of a high torque motor and fan 44, the housing of which has a gripping pattern and serves as a handle for the polishing device. The motor housing is formed in two sections 46 and 48, with one end of section 46 having exhaust openings 50 and one end of section 48 having intake openings 52. Motor and fan 44 are connected to a suitable household current supply via conventional electrical cord means 54 having off-on switch 56 connected in series thereto.

In the operation of the device, when the motor and fan 44 are energized, the flexible shaft 36 will rotate with the motor shaft thereby turning driving member 28, hub member 20 and support member 18 in rotation therewith. It has been found that a slight oscillatory motion in the axial direction of the roller member will occur. This "lost motion" may enhance the polishing properties of the device.

By using a polishing cloth which extends in parallel to the axis of rotation, waxed surfaces can be easily polished without leaving the undesirable swirls which are associated with conventional polishing apparatus. Further, the conical end 14 can be used in hard-to-reach areas where portion 16 could not reach. During operation of the device, the exhaust air opening 50 will aid in blowing dust and other particles out of the way and the fan system will also serve to maintain the motor in a relatively clean state.

Although a motor for connection to the household current supply has been shown, a portable battery pack, having an outlet for plugging into the end 52 of the motor housing section 48, could be utilized if it is desired to avoid having an electrical line extending from the polishing device.

It is to be understood that various modifications and substitutions may be made by those skilled in the art without departing from the novel spirit and scope of the present invention.

What is claimed is:

1. A hand-held polishing device which comprises: a generally cylindrical roller member having a polishing surface that extends parallel to the roller axis; a manually graspable handle enclosing an electric motor having a rotatable shaft which extends substantially perpendicular to the axis of the roller member; means for connecting the electric motor to a current source; a tubular member extending from the handle and being curved to extend to the roller member and through at least a portion thereof in concentricity with the axis of the roller member; bearing means for rotatably coupling the roller member with respect to the tubular member; and a flexible shaft extending within the tubular member and past the distal end of the tubular member, the flexible shaft being fastened at one end to a rotating member of the electric motor and at the other end to the roller member for imparting rotation to the roller member when the motor is operating.

2. A hand-held polishing device as described in claim 1, including a generally conical polishing portion at the distal end of the cylindrical roller member with the conical portion being contiguous and coaxial with the cylindrical roller member.

3. A hand-held polishing device as described in claim 1, including blower means for directing air through the electric motor and in the direction of the roller member to aid in blowing away dust and cleaning the motor.

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