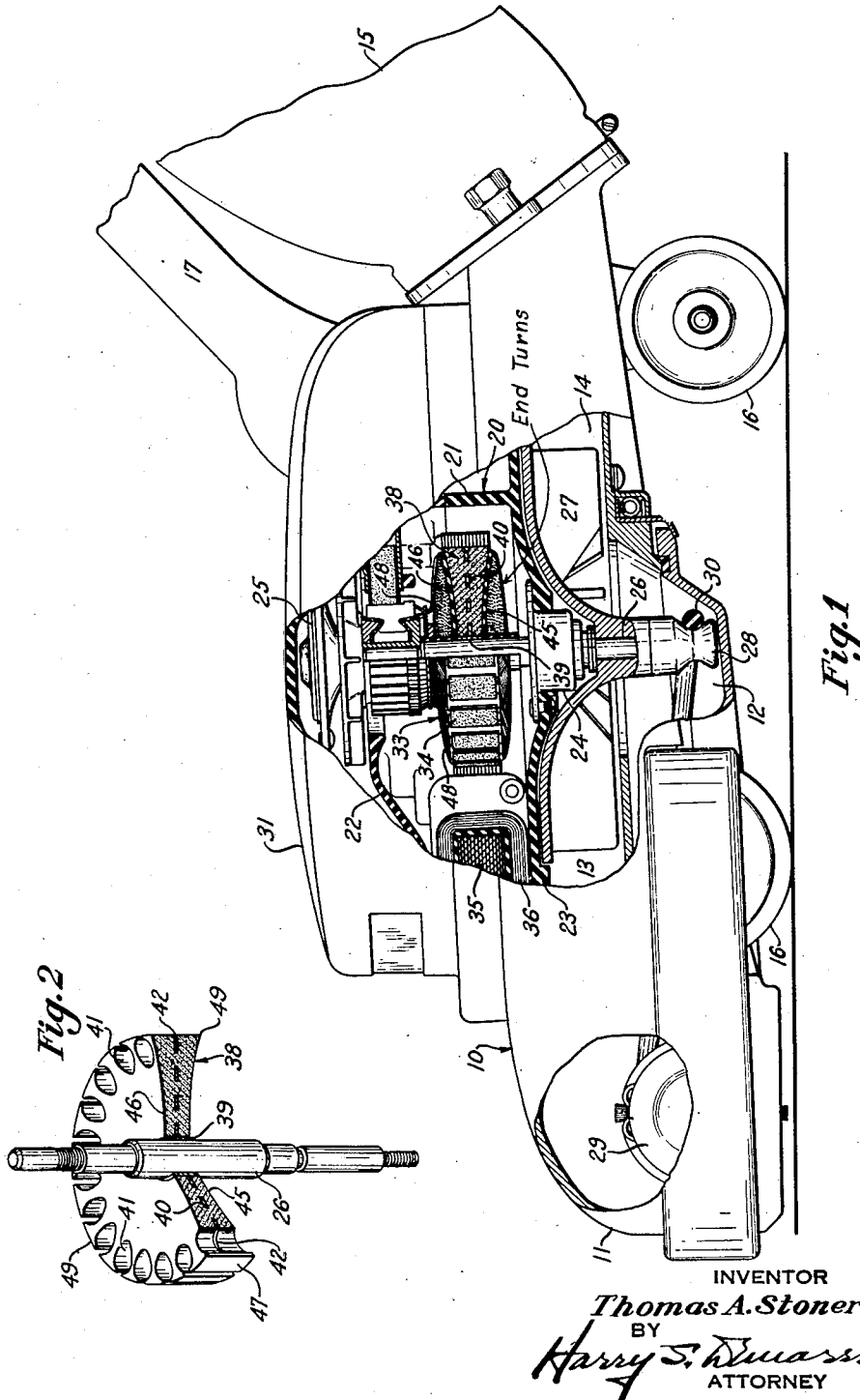


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SUCTION CLEANER
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SUCTION CLEANER

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4 Claims. (Cl. 172—36)

This invention relates to suction cleaners and more particularly to electric motors, therefor to reduce the overall height of the cleaner.

An object of the invention is to provide a new and improved suction cleaner. Another object is to provide a new and improved motor for suction cleaners. A further object is to provide a plastic armature core molded from a compound of particles of magnetic metals insulatably bonded together by a suitable resin. A further object is to provide a molded armature core having its axial end surfaces concaved to accommodate the armature winding. Other objects and advantages of the invention will be apparent from the following specification and drawing wherein:

Figure 1 is a side elevation, partly in section of a motor embodied in a suction cleaner, and

Figure 2 is a sectional perspective view of the armature core.

The embodiment of the invention herein disclosed comprises a suction cleaner having a casing 10 provided with a downwardly opened nozzle 11, connected to a suction air passageway 12 communicating with a fan chamber 13 connected to an exhaust passageway 14 for discharging dirt-laden air into a filter bag 15 removably attached to the casing 10. Wheels 16 support the casing 10 and the latter is propelled over the surface being cleaned by a handle 17 pivotally supported on the casing 10, the handle 17 supporting the upper end of the filter bag 15.

A motor housing 20 is mounted on the casing 10 and includes lower and upper housing sections 21 and 22, respectively, molded from an insulating plastic as Bakelite. The lower housing section 21 has a bottom wall 23 which forms the top wall of the fan chamber 13. Bearings 24 and 25 mounted on the motor housing 20 support a motor armature shaft 26 on which is rigidly attached a fan 27 and a pulley 28, the latter being connected to a rug vibrator 29 by means of a belt 30. A casing 31 encloses the motor housing 20 and is supported on the cleaner casing 10.

Disposed in the motor housing 20 is a motor 33 of the uncoil type and includes an armature 34 and a substantially U-shaped field core 35. The field core 35 may be of laminated structure and is provided with a field coil 36. The armature 34 includes a core 38 molded from a compound including small or pulverized particles of magnetic material which are insulatably bonded together by an insulating binder such as a synthetic resin. The molding compound is molded about a sleeve 39 and a radially extending perforated reinforcing disc 40 which is substantially at the mid-section of the core. The sleeve 39 provides a bearing surface for attaching the core 38 to the armature shaft 26, and the plate 40 reinforces the molded core 38 to provide a rigid molded plastic core structure. Winding slots 41 are formed during the molding of the core 38 and the plate 40 extends between adjacent winding slots as indicated at 42.

The opposite axial end surfaces 45 and 46 of the core 38 are concaved from the outer periphery 47 to the sleeve 39. An armature coil 48 is wound about the core 38 and thereafter the winding is forced into the concaved section so that the winding does not project substantially outwardly beyond the corners 49 of the peripheral core surface 47. It is believed the most effective portion of an armature core is in the region of the energized windings at the outer periphery 47 of the core, and accordingly the reduced thickness at the center of the core 38 will not affect the efficiency of the armature. If desired, the peripheral thickness of the core 38 may be increased or decreased and the degree of curvature of the depressed surfaces 45 and 46 altered to thereby increase or decrease the thickness of the core 38 in the region of its center.

In some types of motors it may be practical to provide metal or non-metallic covers for enclosing the windings to retain the latter in the concaved depressions 45 and 46. The covers may be attached to the core adjacent its outer periphery 47 and to the armature shaft 26. From the foregoing it will be perceived that the armature is of relatively small thickness and thus reduces the overall height of the cleaner motor.

I claim:

1. In a dynamo-electric machine, an armature core, said armature core being solid and having its opposite exterior ends formed in complete wall surfaces from the periphery toward the center thereof and concaved to form concaved areas to receive therein the armature winding, said solid armature core being between said windings in said opposite concaved wall areas.

2. In an electro-dynamo machine, an armature core composed of magnetic particles and an insulating binder molded together, a reinforcing disc embedded in said core and having openings therein through which said magnetic particles and insulating binder is molded to form a unitary core at opposite sides of said reinforcing disc, and a winding for said core.

3. In an electro-dynamic machine, an armature core composed of magnetic particles and an insulating binder molded together, the opposite ex-

terior ends of said core being molded to form opposite complete end wall surfaces concaved to form concaved areas to receive therein the armature winding, the latter being pressed into said concaved areas to reduce the overall length of said armature core and its windings at said opposite exterior ends of said core.

4. In an electro-dynamo machine, an armature core composed of magnetic particles and an insu-

lating binder molded together to form the core and the opposite end walls thereof concaved to form concaved areas which receive therein the armature winding, a reinforcing member embedded in said core and having openings therein through which said magnetic particles and insulating binder is molded to form a unitary core at opposite sides of said reinforcing member.

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