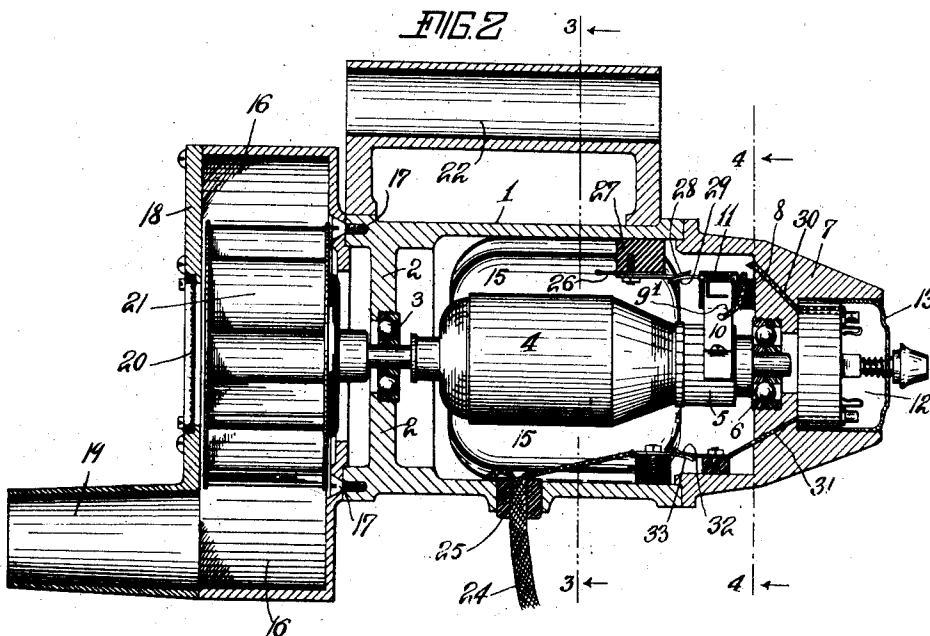
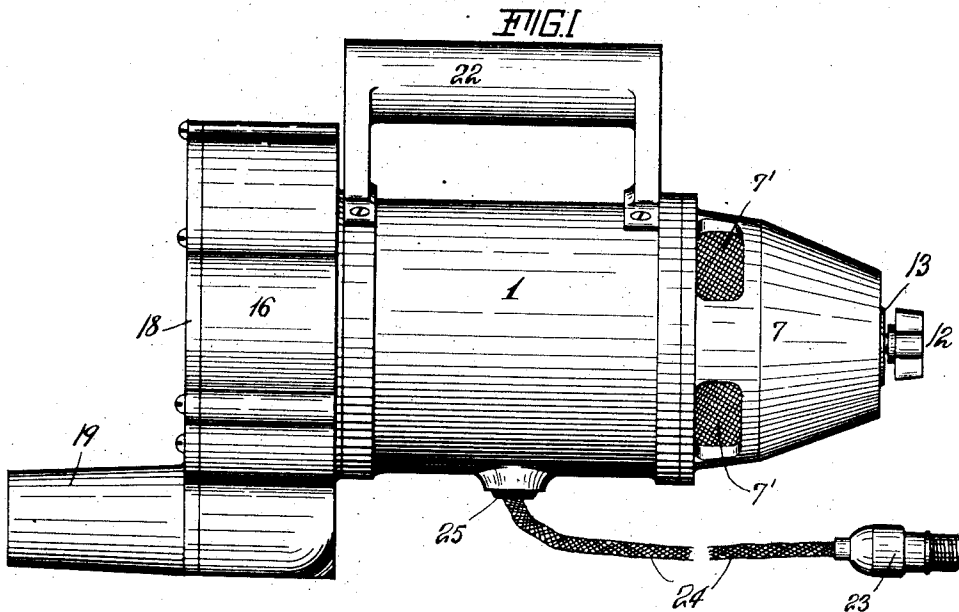


J. BURKE.
ELECTRIC MOTOR.
APPLICATION FILED MAR. 14, 1906.

1,026,904.

Patented May 21, 1912.

2 SHEETS-SHEET 1.



Witnesses
Geo. Hoffman
Geo. N. Kerr

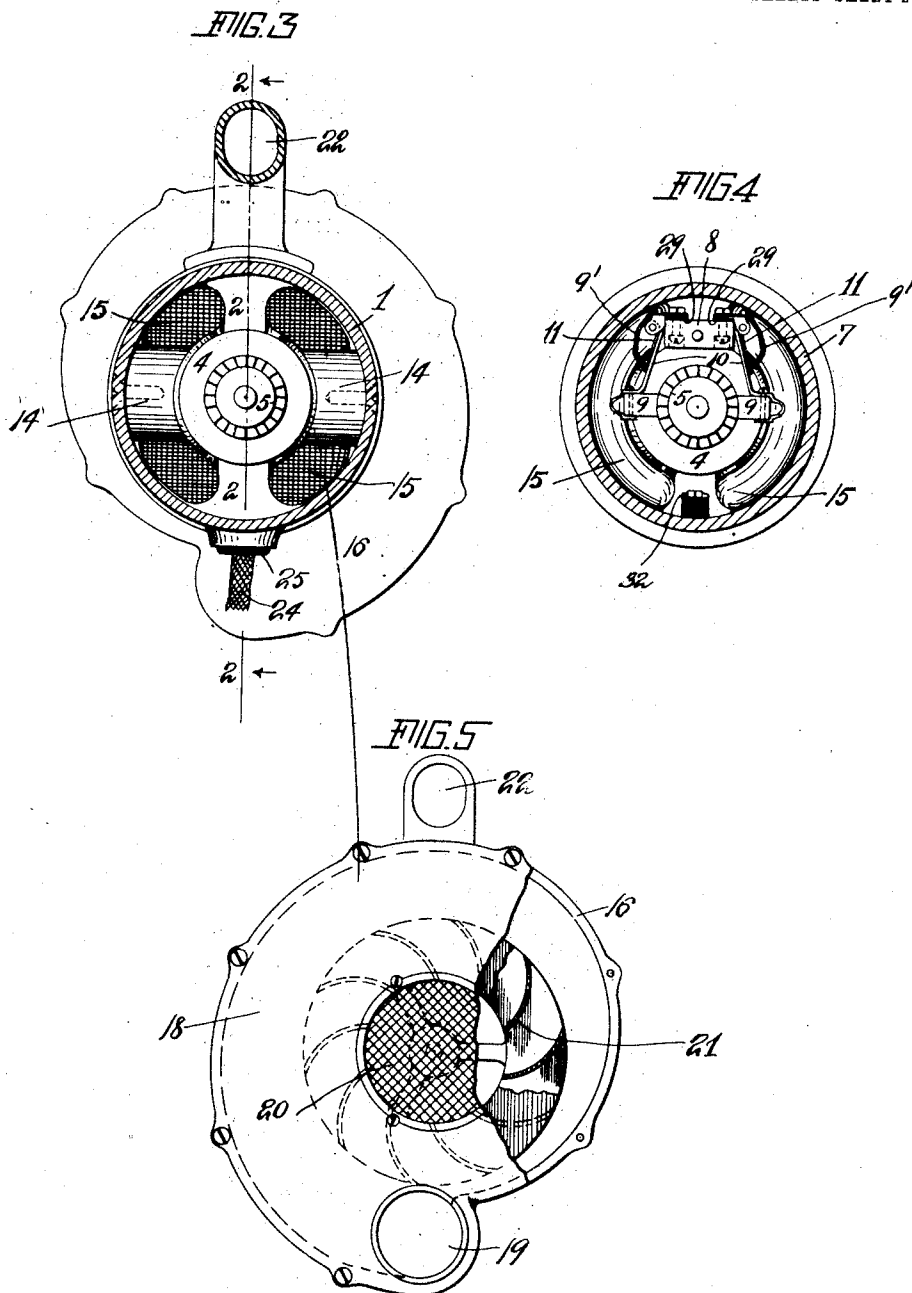
James Burke Inventor
By his Attorney C. W. Edwards

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UNITED STATES PATENT OFFICE.

JAMES BURKE, OF ERIE, PENNSYLVANIA, ASSIGNOR TO BURKE ELECTRIC COMPANY,
A CORPORATION OF PENNSYLVANIA.

ELECTRIC MOTOR.

1,026,904.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed March 14, 1906. Serial No. 305,973.

To all whom it may concern:

Be it known that I, JAMES BURKE, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Electric Motors, of which the following is a full, clear, and exact specification.

My invention relates to dynamo electric machines, and to various features of construction which in the present instance are shown and described in connection with an electric motor which is portable and adapted for use as a blower.

Among the objects of my invention is the provision of a motor which shall be simple in construction, compact, well protected, light, portable and efficient. My improved motor is also readily accessible to all parts.

It is common practice where sufficient air pressure is available to clean dust and loose particles from exposed surfaces by means of an air blast. An example of this use is found in manufacturing establishments where the product, such as a dynamo, must be thoroughly cleaned throughout before finishing and before shipment. In such cases the air supply for pneumatic tools is often used but this practice is objectionable owing to the comparatively few outlets available and to the objection of using long flexible piping subjected to the high pressure. In most instances, however, no air supply is available. By my invention an air blast of considerable force is obtained by electric means and the motor is well adapted for connection to any convenient point of the electric supply circuit and may even be used at a considerable distance from the main circuit by lengthening the lead wires.

My invention will be understood from the following description and drawings, and the novelty thereof will be more definitely indicated by the appended claims.

Figure 1 is a side view of a motor embodying my invention; Fig. 2 is a longitudinal section on the line 2-2 of Fig. 3 with the armature and some parts in elevation; Fig. 3 is a section on the line 3-3 of Fig. 2; Fig. 4 is a section of parts on line 4-4 of Fig. 2; and Fig. 5 is an end view with a part of the end cover plate broken away.

The motor comprises a cylindrical iron casing 1 made in one piece and has integral therewith at one end the arms 2, 2. The latter form a support for ball bearings 3,

in which the armature is journaled. The armature is shown at 4 and has formed therewith the commutator 5. Near the commutator is another set of ball bearings for the armature shaft, and these bearings are supported in a removable end bracket 7, which is fitted to the cylindrical frame and secured thereto in any convenient manner, such as by screws or bolts. This end casing 7 is provided with screened ventilating openings 7'. The brushes 9 are secured by a screw passing through them to their supports 10, the latter in the form of metal strips bent over the outer ends of the brushes as shown in Fig. 4. The brushes are spring pressed inwardly by springs 11 each wound around a pin and having one end fixed and the other pressing against the support 10, each support being pivoted on the pin. The flexible connection 9' is usually desirable for securing a good electrical path from the brush to the terminal and without the necessity of current passing through the spring. In the outer end of the bracket 7 is a quick acting controlling switch 12 which is indicated in general as a snap switch of common type and having a protecting cover 13. The turning of this switch is adapted to start and stop the motor. The motor is shown as bi-polar having removable pole pieces 14 and pole tips or extensions which are well adapted to retain the field coils 15 in position. The latter are curved so as to conform to the shape of the cylindrical frame.

At one end of the cylindrical frame is a casing 16 removably secured to the frame by the screws 17 and nicely fitted thereto. The outline of this casing is of spiral form as shown in Fig. 3. Over the outer end of the casing 16 is secured a cover plate 18 having at its lower end an outlet pipe 19. The central part of the plate 18 is provided with a circular opening in which is fitted a screen 20. On the extended shaft of the armature is screwed a support having a series of fan blades 21 curved as shown, and consequently when the motor is in motion, air will be drawn in through the central opening of plate 18 and discharged through the outlet 19 with great force. Referring to Fig. 5, it will be understood that the proper direction of rotation is opposite to the movement of the hands of a clock, and it will be seen that the blades 21 are curved or inclined in the direction of rotation from the center outwardly. This inclination of the blades

is important to obtain the most efficient results, and the air will have greater force with the blades inclined in the direction shown than when inclined in the opposite direction, or when radial. Fixed to the cylindrical frame 1 is a handle 22 shown hollowed and preferably made of aluminum for lightness. The end cover 7 and parts 16, 18 and 19 are also preferably made of aluminum.

The motor shown is of the series type, current passing from the source through the attachment plug 23 and leads 24 and through the field circuits and armature in series. The leads pass through the insulating bushing 25 in the bottom of frame 1. One lead connects to one terminal of a field coil 15, and from this coil the circuit is completed through the other field coil and thence to a terminal 26, mounted on an insulating block 27 fixed within the frame 1. A yieldable metal contact strip 28 extends outward and engages a similar contact strip 29 fixed to one of the brush terminals. The path of the current is completed through the armature to the other brush terminal, thence by a lead 30 through a hole in the end casing 7 to the switch 12 and thence by a connection 31 to an insulated contact strip 32 mounted on the casing 7, which strip engages a similar strip 33 mounted on frame 1 and from which connection is made to an outside lead wire. In removing the casing 7, the electrical connections of the parts are thus conveniently made and broken. To remove the armature and field poles, the casing 7 will be removed and also the plate 18; the fan blades may then be unscrewed from the armature shaft which leaves the armature free.

Having thus described my invention, I declare that what I claim as new and desire to secure by Letters Patent, is,—

1. In an electric motor, the combination of a field frame having internally projecting field poles with field exciting coils thereon, a removable blower casing at one end of the field frame, an armature having a shaft projecting through the field frame, the rotary blower element being mounted on said shaft, a removable casing at the other end of the field frame having a bearing for the armature shaft, commutator brushes carried by and removable with the latter casing, a control switch carried by the latter casing, and a separable connector for making electric connections with the motor terminals when the removable casing is applied.

2. In an electric motor, the combination of a field frame having internal poles and field coils thereon, a removable blower casing at one end of the field frame, an arma-

ture connected to the rotary element of the blower within said casing, a removable casing at the other end of the field frame, a control switch carried thereby, separable terminals carried respectively by said removable casing and the field frame, and current supply leads to the motor windings led through the field casing.

3. A combined portable blower and electric motor provided with a removable end cap carrying commutator brushes, an automatic circuit connecting device for establishing the field connections of the motor when the cap is applied, a centrifugal blower with a central air intake mounted on the field frame of the motor, current supply leads through said field frame, and a control switch on the end cap.

4. A combined portable blower and electric motor having connections with a source of current supply, a removable end cap carrying commutator brushes and a control switch, two fixed terminals secured to the motor casing, two cooperating terminals carried by the cap for automatically completing the motor connections when the cap is applied, a blower casing applied to the other end of the motor, and a rotary blower element within said casing secured to the armature shaft.

5. In an electric motor, the combination of a field frame having a bearing for the armature shaft at one end of said frame, a removable casing at the other end of said frame and having a bearing for the armature shaft, brushes carried by said casing and yieldable contact terminals mounted on said frame and also on said casing adapted to engage each other when said casing is in place for making the main circuit connections.

6. In an electric motor, the combination of a cylindrical field frame having a bearing for the armature shaft at one end, a blower casing removably secured to said frame at one end thereof, a fan within said casing and carried by the armature shaft, a second casing removably secured to the opposite end of said frame, brushes carried by said second casing, a switch for starting and stopping the motor also carried and inclosed by said second casing, and contact terminals carried by and inclosed by said frame and also by said second casing and adapted to engage each other when said casing is in place for making the main circuit connections.

In testimony whereof I affix my signature, in presence of two witnesses.

JAMES BURKE.

Witnesses:

GEO. N. KERR,
GEO. A. HOFFMAN.