April 14, 1925. 1,533,806

L. M. PARKER

VACUUM CLEANER

Filed Nov. 11, 1922 2 Sheets-Sheet 1

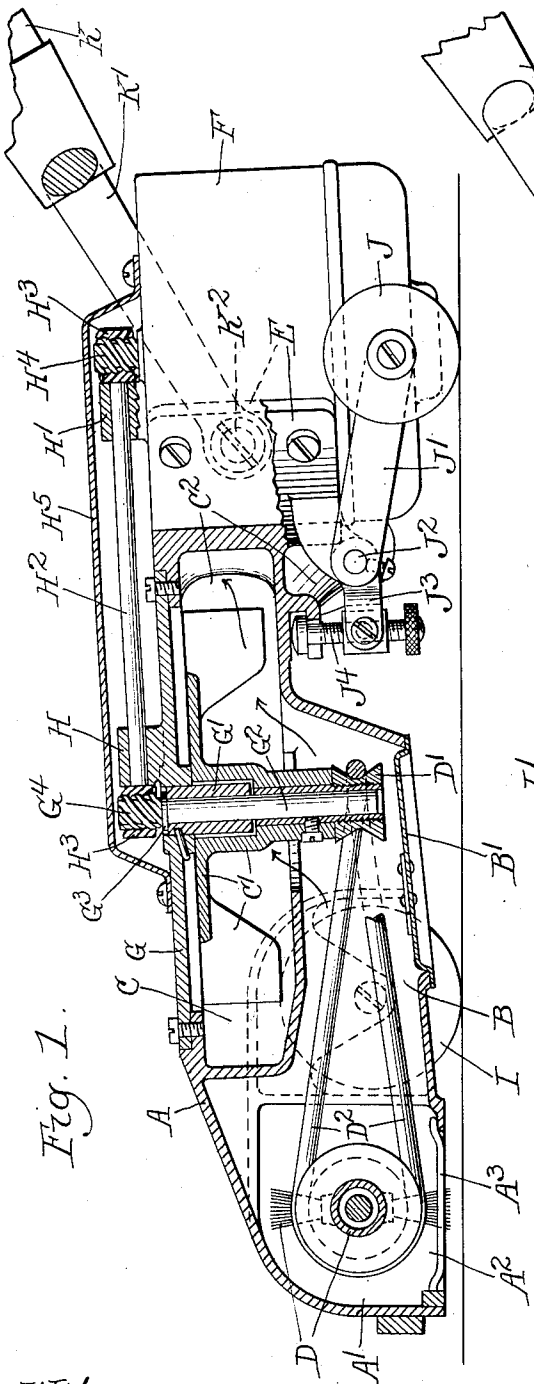


Fig. 1.

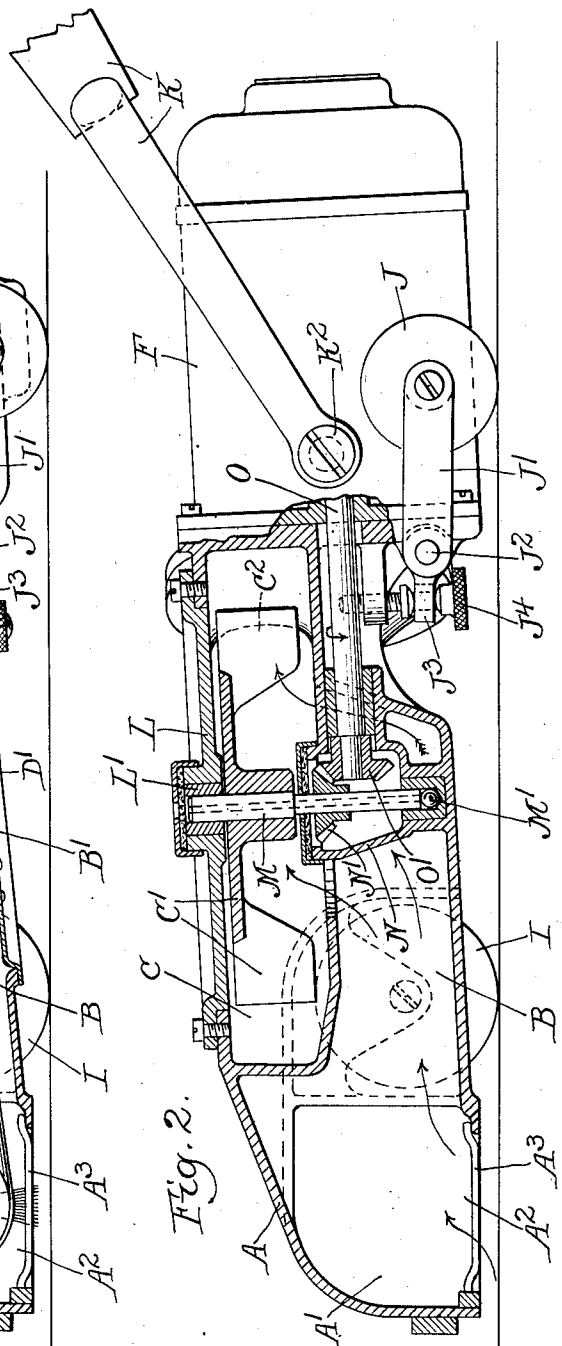


Fig. 2.

Witness.
Edward T. Wray.

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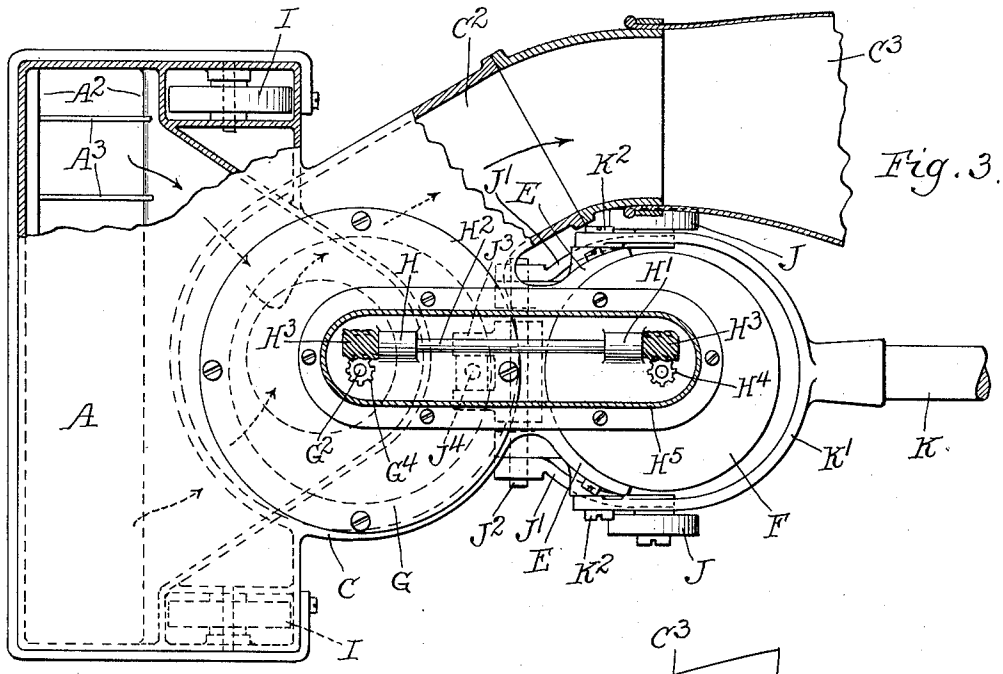


Fig. 3.

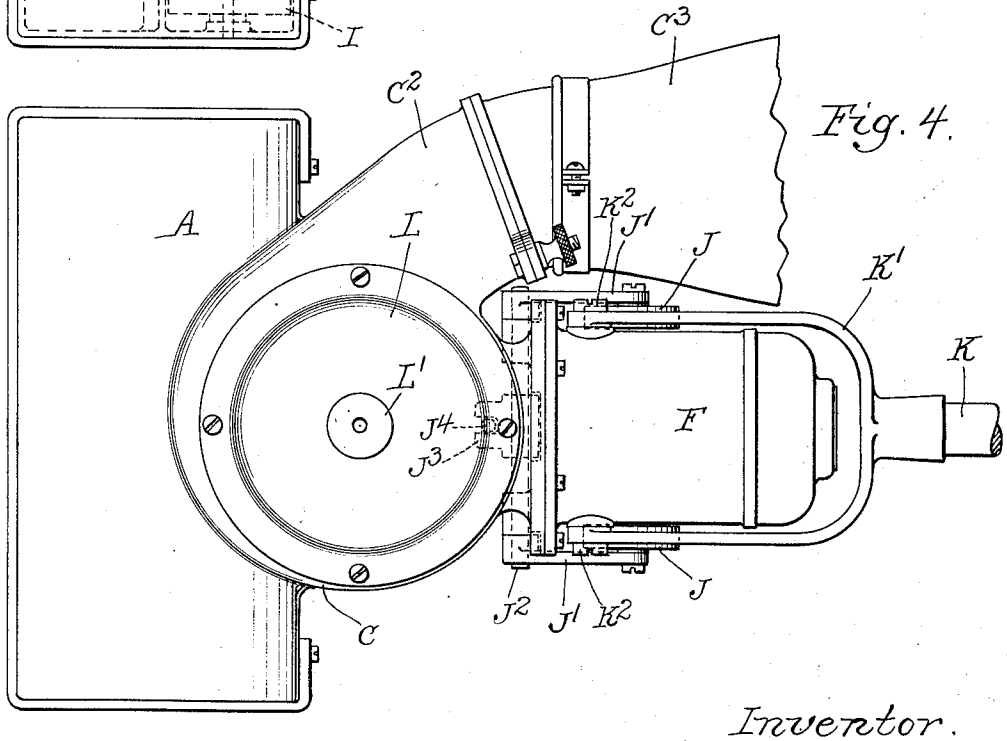


Fig. 4.

Witnesses.
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Patented Apr. 14, 1925. 1,533,806

UNITED STATES PATENT OFFICE.

LESLIE M. PARKER, OF EVANSTON, ILLINOIS, ASSIGNOR TO THE HOOVER COMPANY, A CORPORATION OF OHIO.

VACUUM CLEANER.

Application filed November 11, 1922. Serial No. 600,195.

To all whom it may concern:

Be it known that I, LESLIE M. PARKER, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Vacuum Cleaners, of which the following is a specification.

This invention relates to vacuum cleaners and particularly to cleaners which are operated by electrical motors. It has for one object to produce a vacuum cleaner having a fan and an electric motor for driving it in which the over-all height is reduced as much as possible. Other objects will appear from time to time throughout the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 is a longitudinal section of one form of my invention;

Figure 2 is a similar view of a modified form;

Figure 3 is a plan view with parts in section of the form shown in Figure 1;

Figure 4 is a plan view of the form shown in Fig. 2.

Like parts are designated by like characters throughout.

A is a vacuum cleaner casing having a suction chamber A′ and an open suction mouth A^2 across which are mounted a plurality of guard fingers A^3 which may be of any suitable form or shape. Within the casing A is a suction chamber B through which the dust laden air is drawn after entering the nozzle. This suction chamber B is in one form provided with a removable hand hole cover B′ by means of which the belt for driving the brush may be inserted and adjusted.

C is a fan chamber in which there is mounted a centrifugal fan C′. The chamber C is in communication with the suction chamber B and is provided with an outlet C^2 to which is attached a fabric bag C^3 for receiving the dust and dirt taken up by the machine.

In the form of the invention illustrated in Figure 1 there is also mounted within the nozzle A′ a rotary brush D and in its bottom the fan is provided with a downwardly extending shaft which terminates in a belt pulley D′ upon which a driving belt D^2 is mounted. This belt serves to drive the brush D.

In the form shown in Figure 1 the main casting is provided with a pair of rearwardly extending members E, E which embrace the motor casing F and to which the motor casing is secured. In this arrangement the fan shaft and motor shaft are both vertical. The top of the fan chamber is open and is provided with a removable cover plate G. This cover plate has mounted in it a bearing G′ in which the fan C′ is mounted. The fan shaft G^2 carries adjacent its upper end a laterally extending bearing flange G^3 and above this a spiral gear G^4.

The cover plate G has formed adjacent its center the bearing H. In the top of the motor casing there is formed a similar bearing H′. In these two bearings there is journaled a drive shaft H^2 which carries at each end a spiral gear H^3, H^3, one of which is in mesh with the spiral gear G^4 and the other of which meshes with a spiral gear H^4 in the upper end of the motor shaft. By means of this gearing the motor drives the fan and from the fan shaft the brush is driven. Surrounding this gearing is a covered housing H^5.

The forward end of the casing is supported by a pair of wheels I, I. The rear end of the casing is supported by a second pair of wheels J, J. The wheels J, J are mounted in a yoke J′. This yoke differs slightly in the form shown in Figure 1 from the form shown in Figure 2 but in its main essentials it is the same. It is pivoted at J^2 and provided with a forward extension J^3 in which an adjusting screw J^4 is mounted. By means of the rotation of this adjusting screw member, the open end of the yoke may be moved up and down and the wheels at the other end may correspondingly be raised or lowered.

The machine is moved and controlled by a handle K which is mounted in a handle bail K′ which is pivoted adjacent the rear of the machine as at K^2, K^2.

In the form shown in Figure 2 the brush is omitted and the motor shaft is horizontal. The top of the fan casing is closed by a closing plate L which is provided with a central bearing L′ in which the fan shaft M is mounted. This shaft is supported at its lower end on a ball bearing M′. About the

bearing and the lower end of the shaft is a bearing housing N. The shaft M carries the bevelled gear N'. The motor shaft O is extended forwardly from the motor casing and carries at its forward end a bevelled gear O' which lies within the gear housing N and engages the bevelled gear N'. By means of this gearing the motor drives the fan. It will be understood that the bearing housing is generally circular in plan, and lies within but does not fill or materially obstruct the opening from the suction chamber to the fan chamber.

Although I have shown an operative invention, still it will be obvious that many changes in size, shape and arrangement of parts may be made without departing materially from the spirit of my invention, and I wish therefore that my showing be taken as in a sense diagrammatic.

Where in the claims I have used the expression "main casing", I refer to the vacuum cleaner casing as a unit; the casing may include within itself, a fan chamber or casing and a suction chamber or casing.

The use and operation of my invention are as follows:

The parts are assembled as shown. An electric current is supplied to the motor by any suitable conduit, none being shown here since its details form no part of the present invention. When the current is turned on the motor rotates and through the gearing drives the fan, drawing air into the machine and so serves to clean the surface over which it is moved.

The machine is moved backwards and forward by the operator by means of the pivotal handle, the handle swinging and rising and falling with the movement of the hand of the operator.

I claim:

1. In a suction cleaner, a suction producing fan mounted to rotate about a substantially vertical axis, a casing for said fan, and an electric motor adapted to drive said fan, a separate casing for said motor, the highest point of said fan and motor casings lying in the same general horizontal plane.

2. In a suction cleaner, a suction producing fan a casing for said fan, and an electric motor adapted to drive said fan the shafts of fan and motor being discontinuous, a separate casing for said motor, said fan and motor casings lying in the same general horizontal plane.

3. In a suction cleaner, a suction producing fan mounted to rotate about a substantially vertical axis, a casing for said fan, and an electric motor adapted to drive said fan, a separate casing for said motor, said fan and motor casings lying in the same general horizontal plane.

4. In a suction cleaner, a suction producing fan mounted to rotate about a substantially vertical axis, a casing for said fan, and an electric motor adapted to drive said fan, a separate casing for said motor, said fan and motor casings lying in the same general horizontal plane, the shafts of the fan and motor being discontinuous.

5. In a suction cleaner, a suction producing fan mounted to rotate about a substantially vertical axis, a casing for said fan and an electric motor adapted to drive said fan, a separate casing for said motor outside of said fan casing, said fan and motor casings lying in the same general horizontal plane, the shafts of the fan and motor being discontinuous.

6. In a suction cleaner, a suction producing fan mounted to rotate about a substantially vertical axis, and an electric motor adapted to drive said fan, the highest point of fan and motor lying in substantially the same horizontal plane, the fan and motor shafts being discontinuous.

Signed at Chicago, county of Cook and State of Illinois, this 9th day of November, 1922.

LESLIE M. PARKER.