

G. CLEMENTS.

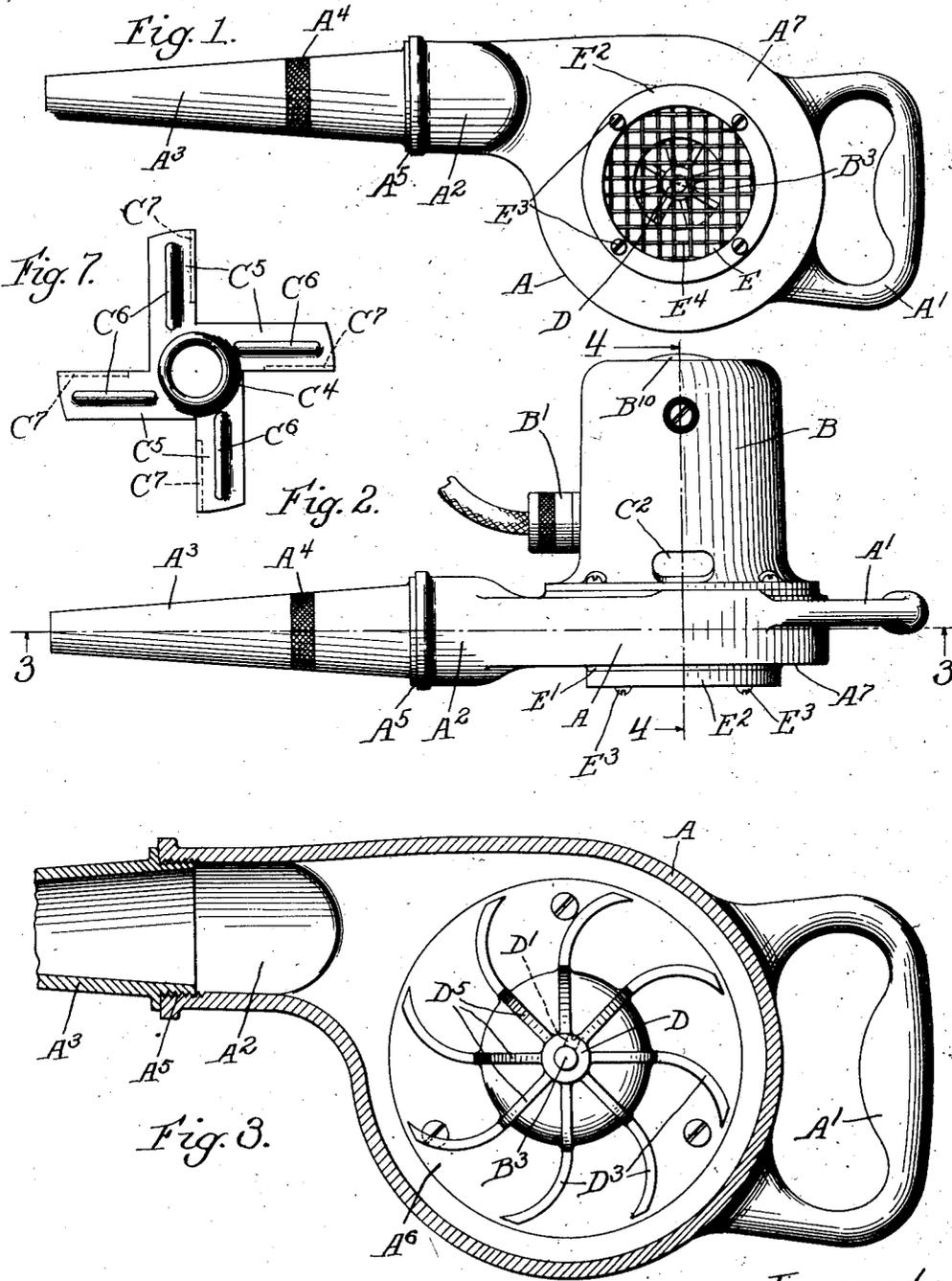
BLOWER.

APPLICATION FILED JULY 1, 1921.

Patented July 18, 1922.

2 SHEETS—SHEET 1.

1,423,190.



Witness
Edward T. Wray

by

Inventor
George Clements,
Parker & Carter
Attorneys

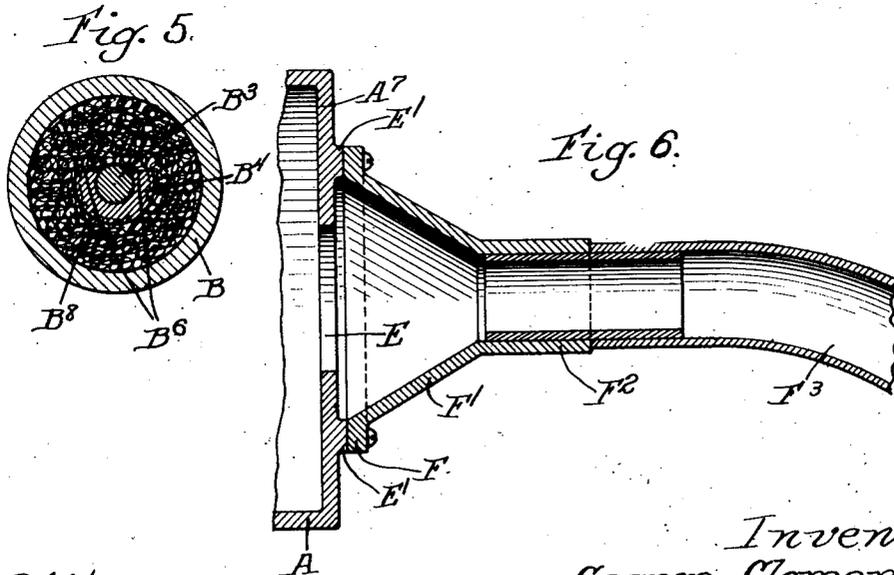
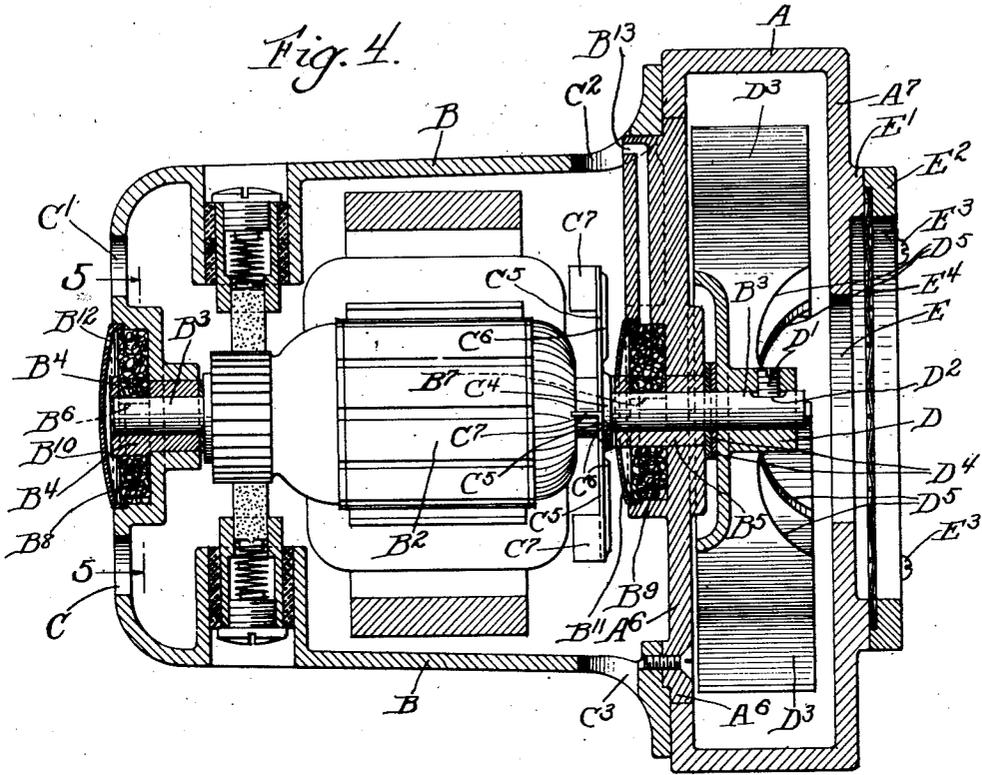
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UNITED STATES PATENT OFFICE.

GEORGE CLEMENTS, OF CHICAGO, ILLINOIS, ASSIGNOR TO CLEMENTS MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BLOWER.

1,423,190.

Specification of Letters Patent.

Patented July 18, 1922.

Application filed July 1, 1921. Serial No. 481,963.

To all whom it may concern:

Be it known that I, GEORGE CLEMENTS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Blowers, of which the following is a specification.

My invention relates to improvements in electric blowers, and particularly to blowers which have for their purpose to clean exposed machinery or any object on which dust or grit or foreign material gathers in large quantity and must be quickly removed therefrom. A further purpose of my invention is to provide such a blower which is adapted to be converted into a suction cleaner. Other purposes will appear from time to time in the course of the specification.

I illustrate my invention more or less diagrammatically in the following drawings, wherein—

Figure 1 is a side elevation of the blower;

Fig. 2 is a top view of the blower;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is a section on the plane illustrated in Fig. 4, showing the suction attachment.

Fig. 7 is a detail of the fan.

Like parts are illustrated by like letters and numbers throughout the drawings.

A is a blower fan casing body having a handle A¹ and a blowing spout A² to which is secured a tapered blowing nozzle A³ knurled as at A⁴ and screw-threaded or otherwise removably secured to A² as at A⁵.

Secured to the fan casing is a motor housing B with the usual electric connection or plug B¹, and having mounted therein a rotor B² rotating on the shaft B³ in the bearing sleeves B⁴ B⁵. Each such sleeve is cut away at the top as at B⁶ B⁷ and is surrounded by a felt ring B⁸ B⁹ which enters the cut-away portion and directly contacts the ends of the shaft B³. This ring is soaked with oil and the oil chamber is closed as by the caps B¹⁰ B¹¹. The oil ring B⁸ may be supplied with oil through the aperture B¹² in the cap B¹⁰, while the oil ring B⁹ may be so sup-

plied through the oiling duct B¹³, the outer opening of which lies adjacent and within the aperture C².

The details of motor and armature form no part of this invention, but at the outer end of the casing B is a plurality of apertures C, C¹, and at the inner end are the apertures C², C³. Mounted on the shaft B³ adjacent the partition A⁶, which separates the fan casing from the motor casing, is a fan C⁴ comprising a plurality of tangential arms C⁵ of sheet metal, each arm having a strengthening rib C⁶ and having one edge turned at an angle of 90 degrees to the arm to form the vanes C⁷. As the rotor rotates, the fan, which is secured against rotation on the shaft, rotates with it and centrifugally propels air through the apertures C² C³, thus drawing air through the apertures C, C¹ and cooling and ventilating the motor chamber.

The shaft B³ projects through the partition A⁶ into the fan chamber, and keyed on it in the fan chamber is a fan hub D secured by the set screw D¹ which penetrates the aperture D² adjacent the outer end of the shaft B³. Secured to this hub are the curved fan vanes D³, and between the hub and the partition A⁶ are the anti-friction bearing strips D⁴, which may be made of any preferred material.

The outer side A⁷ of the fan casing is apertured as at E, the walls of the aperture being substantially concentric with the shaft, the vanes of the fan being cut away as at D⁵ to provide a free space adjacent this aperture. About the aperture is a concentric raised ring E¹ to which is secured a ring E², as, for example, by the screws E³, and between the two rings is thereby clamped a wire lattice E⁴ or any other suitable means for permitting the penetration of air while protecting the fan within.

When desired, the ring E² may be removed and with it the wire lattice E⁴, and in its place is secured a suction element which includes a ring F, adapted to engage the ring E¹ and be secured thereto, and a tapered reduced projection therefrom F¹ terminating in a sleeve F² adapted to engage a suction passage for hose, F³, secured thereto by any suitable means. This suction hose may be terminated in any pre-

ferred mouth piece or nozzle not herein illustrated.

While I have illustrated and described herein a working apparatus which is actually successful and in use, it will be realized that the number, shape, proportion and disposition of the parts, etc., might be widely varied without departing from the spirit of my invention, and the drawings and description must be taken as in a great sense diagrammatic.

The use and operation of my invention are as follows:

I provide a fan blower in which the air is drawn through the wire grating and exhausted centrifugally through the restricted blower or nozzle. This provides a strong, confined jet of air which may be used for cleaning machinery or for blowing away dirt, grit, sand and ashes wherever they gather objectionably in exposed places.

If I so desire, I may convert the blower into a suction device by attaching a suction element to the air inlet. When so used, the dirt-laden air is exhausted through the nozzle, but, if desired, the restricted nozzle may be removed and a bag may even be applied in its place, or other suitable means be used to collect and dispose of the gathered dirt.

The rotor and fan are mounted on the same shaft but lie in completely separated chambers. The motor chamber is cooled and ventilated by a smaller fan mounted on the same shaft.

A particularly advantageous type of bearing is shown, the lubricating action being independent of the position of the blower.

I claim—

1. A cleaner comprising a fan casing and a fan adapted to rotate therewithin, an air outlet therefor, a motor casing associated with said fan casing, an airtight partition therebetween, a rotor adapted to rotate within said motor casing, a rotor shaft projecting through the partition between the motor and the fan casing, the fan being mounted on the outer end of said shaft, an air inlet in the outer side of said fan casing opposite the end of shaft, a plurality of ventilating apertures adjacent either end of said motor casing.

2. A cleaner comprising a fan casing and a fan adapted to rotate therewithin, an air outlet therefor, a motor casing associated with said fan casing, an airtight partition therebetween, a rotor adapted to rotate within said motor casing, a rotor shaft projecting through the partition between the motor and the fan casing, the fan being mounted on the outer end of said shaft, an air inlet in the outer side of said fan casing opposite the end of shaft, a ventilating fan

mounted in said motor casing in said rotor shaft.

3. A cleaner comprising a fan casing and a fan adapted to rotate therewithin, an air outlet therefor, a motor casing associated with said fan casing, an airtight partition therebetween, a rotor adapted to rotate within said motor casing, a rotor shaft projecting through the partition between the motor and the fan casing, the fan being mounted on the outer end of said shaft, an air inlet in the outer side of said fan casing opposite the end of shaft, a ventilating fan mounted in said motor casing in said rotor shaft, a plurality of ventilating apertures in said casing.

4. A cleaner comprising a fan casing and a fan adapted to rotate therewithin, an air outlet therefor, a motor casing associated with said fan casing, an airtight partition therebetween, a rotor adapted to rotate within said motor casing, a rotor shaft projecting through the partition between the motor and the fan casing, the fan being mounted on the outer end of said shaft, an air inlet in the outer side of said fan casing opposite the end of shaft, a ventilating fan mounted in said motor casing in said rotor shaft, a plurality of ventilating apertures in said casing, one or more of said apertures lying in a plane perpendicular to the rotor shaft, in which plane the ventilating fan is adapted to rotate.

5. A cleaner comprising a fan casing and a fan adapted to rotate therewithin, an air outlet therefor, a motor casing associated with said fan casing, an airtight partition therebetween, a rotor adapted to rotate within said motor casing, a rotor shaft projecting through the partition between the motor and the fan casing, the fan being mounted on the outer end of said shaft, an air inlet in the outer side of said fan casing opposite the end of shaft, a ventilating fan mounted on said motor casing in said rotor shaft, a plurality of ventilating apertures in said casing, one or more of said apertures lying in a plane perpendicular to the rotor shaft, in which plane the ventilating fan is adapted to rotate, the vanes of said fan lying in planes radiating from the rotor axis.

6. A cleaner comprising associated but separated motor and fan casings, a rotating shaft mounted therein, and projecting through both chambers, a rotor and a fan mounted thereon, ventilating apertures in said motor casing, and a ventilating fan mounted on said shaft in said casing.

Signed at Chicago county of Cook and State of Illinois, this 28th day of June 1921.

GEORGE CLEMENTS.