May 7, 1935. E. GORISSEN 2,000,480

BLOWER, MORE PARTICULARLY FOR USE IN VACUUM CLEANERS

Filed March 31, 1934

Fig. 1.

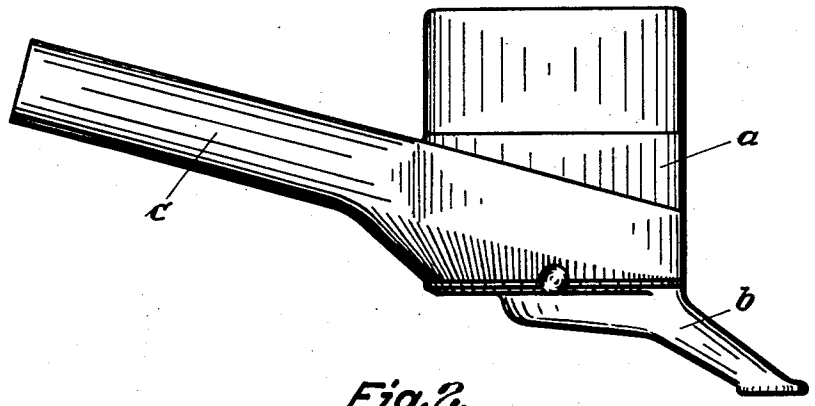


Fig. 2.

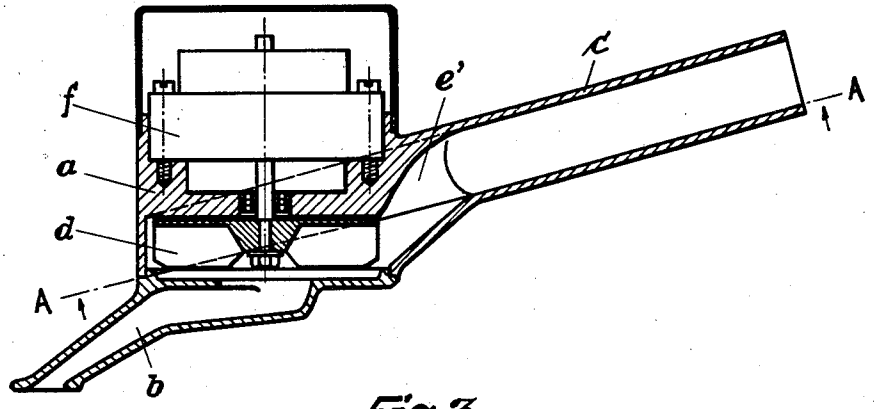
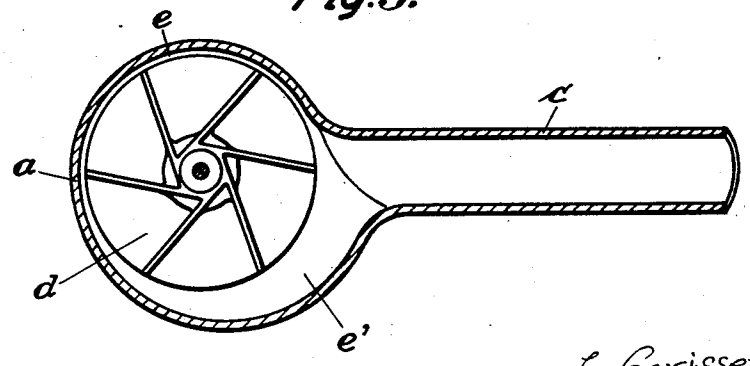


Fig. 3.



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BLOWER, MORE PARTICULARLY FOR USE IN VACUUM CLEANERS

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4 Claims. (Cl. 230—133)

In known vacuum cleaners provided with blowers consisting of rotating vane wheels, the point of connection of the air outlet nozzle to the blower is at the same level as the air passage running parallel to the vane wheel, and is comparatively close to the vane wheel. Consequently the air circulating at a high speed immediately on the periphery of the vane wheel and flowing through the air passage extending between the vane wheel and the wall of the casing is broken at the corner or edge at the outlet, and thereby produces a noise like a siren, which, being continuous, becomes in time very disagreeable. At the same time eddies and obstructions occur in the air current at this point, and these prove very disadvantageous to the delivery of the air.

In order to obviate the disadvantages of the arrangement of the air-guiding passage at the same height as and parallel to the vane wheel chamber in the manner that has hitherto been characteristic of all vacuum cleaners, the air-guiding passage, according to the present invention, ascends helically either in the direction of rotation of the vane wheel or in the opposite direction, as a result of which the corner or edge at the air outlet, which has hitherto broken up or choked back a current of air and produced undesirable eddies, is eliminated, and the air is guided out of the region of the vane wheel to the outlet in a uniformly ascending helical path without any hindrance. In this way not only is the whistling noise prevented, but a considerable increase in the efficiency of the blower is obtained.

One form of construction of the blower according to the invention is illustrated by way of example, in conjunction with a vacuum cleaner, in the accompanying drawing,

Figure 1 being a side elevation,

Figure 2 a longitudinal section, and

Figure 3 a sectional plan on the line A—A in Figure 2.

In the drawing *a* is a blower casing for a vacuum cleaner, provided with a suction nozzle or suction pipe connection *b* and an outlet connection *c*. In an ecentrically arranged space *e* a vane wheel *d* mounted directly upon the shaft of an electric motor *f* is so arranged that between the vane wheel and the wall of the casing an air-guiding passage *e'* is formed, which continually widens towards the outlet, as shown in Figure 3. According to the invention the passage *e'* is no longer located in the plane of the vane wheel chamber, as in the known vacuum cleaners illustrated, but ascends towards the air outlet helically in the direction of rotation or in a direction opposite to the direction of rotation of the vane wheel, as illustrated in Figures 1 and 2. The point of connection for the tubular member *c* and therefore also the corner or edge thereof, is thereby shifted away from the region of the vane wheel, so that there is no longer any corner or edge in the immediate neighbourhood of the latter, upon which the current of air circulating at the periphery of the vane wheel with a comparatively high speed can break or impinge. Moreover owing to the fact that the air-guiding passage *e'*, in consequence of its eccentric arrangement, becomes continually wider as it approaches the outlet, no sudden disturbing differences of pressure arise therein, with the result that the efficiency of the blower is comparatively high.

What I claim is:—

1. A blower, more particularly for vacuum cleaners, comprising a casing, a vane wheel revolubly mounted in the casing, an air outlet, and an air guiding passage between the vane wheel and the peripheral wall of the casing, the said air guiding passage being a helical passage rising uniformly throughout its entire length round the axis of the vane wheel, and merging into the air outlet without any sharp edge or corner upon which the current of air produced by the vane wheel can impinge.

2. A blower, more particularly for vacuum cleaners, comprising a casing, a vane wheel revolubly mounted in the casing, an air outlet, and an air guiding passage between the vane wheel and the peripheral wall of the casing, the said air guiding passage being a helical passage rising uniformly throughout its entire length in the direction of rotation of the vane wheel, and merging into the air outlet without any sharp edge or corner upon which the current of air produced by the vane wheel can impinge.

3. A blower, more particularly for vacuum cleaners, comprising a casing, a vane wheel revolubly mounted in the casing, an air outlet, and an air guiding passage between the vane wheel and the peripheral wall of the casing, the said air guiding passage being a helical passage rising uniformly throughout its entire length in a direction opposite to the direction of rotation of the vane wheel, and merging into the air outlet without any sharp edge or corner upon which the current of air produced by the vane wheel can impinge.

4. A blower, more particularly for vacuum cleaners, comprising a casing, a vane wheel revolubly mounted in the casing, a tubular air out-

let arranged in a substantially radial direction in relation to the axis of the vane wheel but not in the plane of the vane wheel, and an air guiding passage between the vane wheel and the peripheral wall of the casing, the said air guiding passage being a helical passage rising uniformly throughout its entire length round the axis of the vane wheel and merging into the radial air outlet without any sharp edge or corner upon which the current of air produced by the vane wheel can impinge.

ENGELBERT GORISSEN.