W. E. & J. H. WATSON.

SUCTION FAN.

APPLICATION FILED NOV. 2, 1908.

923,914. Patented June 8, 1909.

Fig. 1.

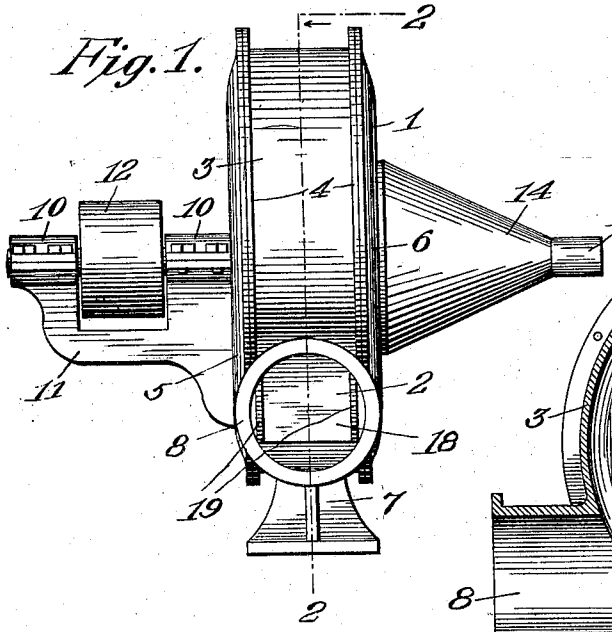


Fig. 2.

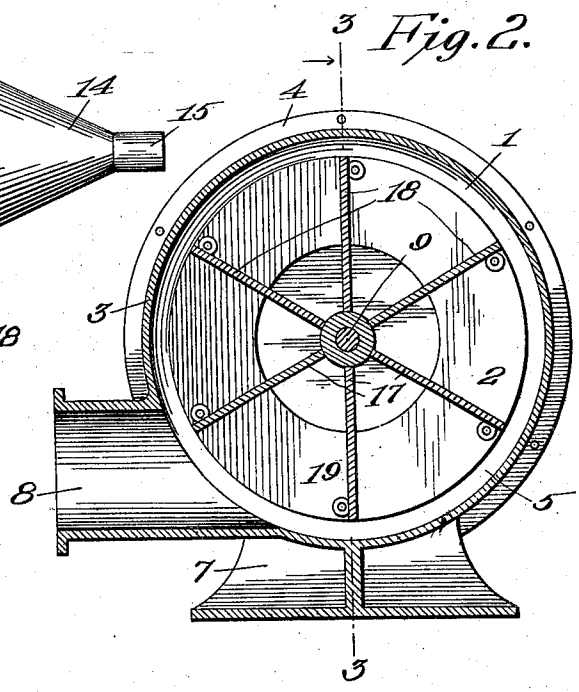


Fig. 3.

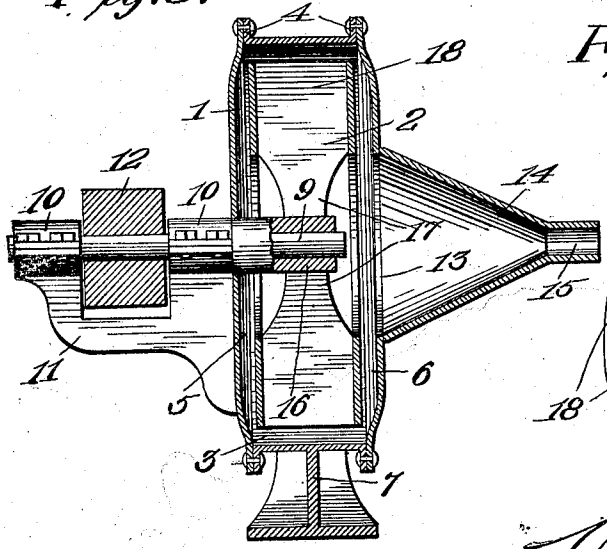
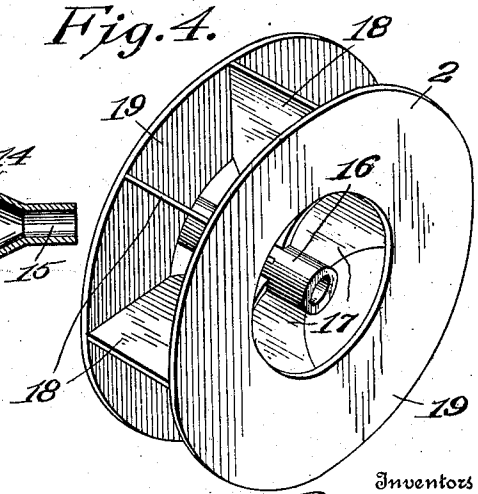


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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SUCTION-FAN.

No. 923,914. Specification of Letters Patent. Patented June 8, 1909.

Application filed November 2, 1908. Serial No. 460,757.

To all whom it may concern:

Be it known that we, WILLIAM E. WATSON and JOSEPH H. WATSON, citizen of the United States, residing at Hinsdale, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Suction-Fans, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in exhaust fans and more particularly one designed for use in connection with vacuum or suction cleaning apparatus for cleaning carpets, furniture and the like.

The object of the invention is to improve and simplify the construction and operation of devices of this character and thereby render them less expensive and more durable and efficient.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the improved exhauster or suction fan; Fig. 2 is a vertical section taken on the plane indicated by the line 2—2 in Fig. 1; Fig. 3 is a vertical transverse section taken on the plane indicated by the line 3—3 in Fig. 2; and Fig. 4 is a perspective view of the rotary fan.

In the drawings 1 denotes a substantially cylindrical casing containing a rotary fan 2 and consisting of a cylindrical body 3 formed at its ends with radially projecting annular flanges 4 to which are riveted or otherwise secured two circular heads 5, 6. Upon the cylindrical body 3 of the casing is provided a suitable base 7 and formed integral with it adjacent to its bottom is an outlet pipe 8. The fan 2 is fixed to one end of a transverse shaft 9 journaled in spaced bearings 10 on a bracket 11, which latter is secured to the head 5. Fixed to said shaft between the bearings 10 is a pulley 12 over which is passed a suitable driving belt. Formed in the center of the head 6 is an inlet opening 13 which is surrounded by a cone-shaped or funnel-shaped member 14 having a reduced tubular connection 15 for the attachment of a hose of flexible tube (not illustrated) which carries the suction head or nozzle.

The fan 2 comprises a hub 16 fixed to the end of the shaft 9 which projects into the casing, a plurality of radiating spokes 17 terminating at their outer ends in broad flat blades 18, and two annular plates or rings 19 which are united to the opposite edges of the blades 18 by fastenings passed through said plates and through apertured ears 20 formed on the side edges of the blades, as shown in Fig. 2.

The inlet opening 13 in the fan casing is of the same diameter as the opening in the adjacent side plate or ring 19 of the fan so that as the latter is rotated in the direction indicated by the arrow in Fig. 2, air will be drawn in through the funnel-shaped reducing member 14 and will be forced by the blades of the wheel out of the casing through the outlet pipe 8, which latter may lead to any suitable point of discharge. By constructing the wheel as shown with the broad blades united by the side plates and arranging the same within a casing having a large inlet provided with a reducing connection, a very effective exhaust device is produced, and one which will be strong and durable in use and capable of being operated with a small expenditure of power.

Having thus described the invention what is claimed is:

The hereindescribed exhaust fan comprising a casing having a cylindrical body formed at the edges of its open ends with radially projecting annular flanges and at the bottom of its exterior with an integral supporting and attaching base and at the lower portion of one of its sides with an integral horizontally projecting outlet pipe, circular heads bolted to the flanges of the cylindrical body and closing its open ends, one of said flanges having a centrally arranged opening forming an inlet for the fan casing, a bearing upon the other head, a shaft in said bearing and projecting into the casing, a radial shaft arranged in the casing and comprising a hub fixed to the inner end of the shaft, spokes radiating from the hub and formed with large flat outer ends to provide radially projecting blades and rings arranged upon and secured to the side edges of the blades to unite them, the ring adjacent to the side provided with the inlet opening having an inner diameter corresponding to that of said inlet opening, a cone-shaped re

ducing connection having its large end nxed to the head over said inlet opening and a cylindrical tube projecting from the small end of the cone-shaped reducing connection and adapted to have a suction hose secured thereto.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

WILLIAM E. WATSON.
JOSEPH H. WATSON.

Witnesses:
JENNIE WATSON,
MARION TAYLOR.