

(No Model.)

W. M. SMITH & J. CALDWELL
VENTILATING FAN.

No. 427,375.

Patented May 6, 1890.

Fig. 1.

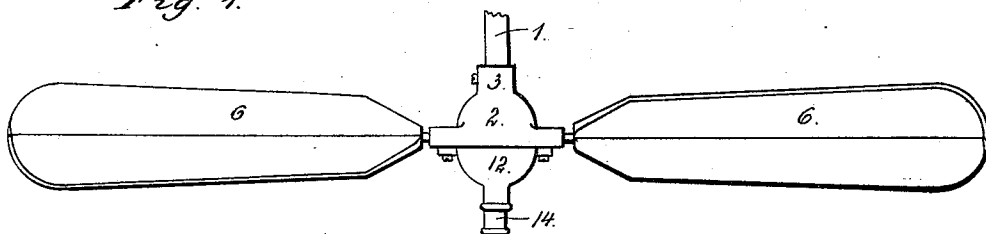


Fig. 2.

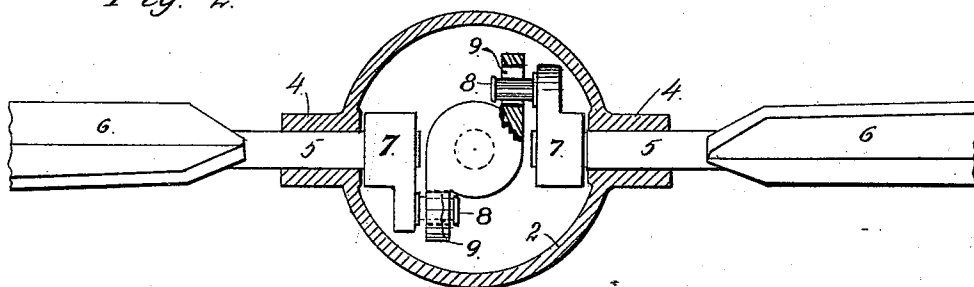
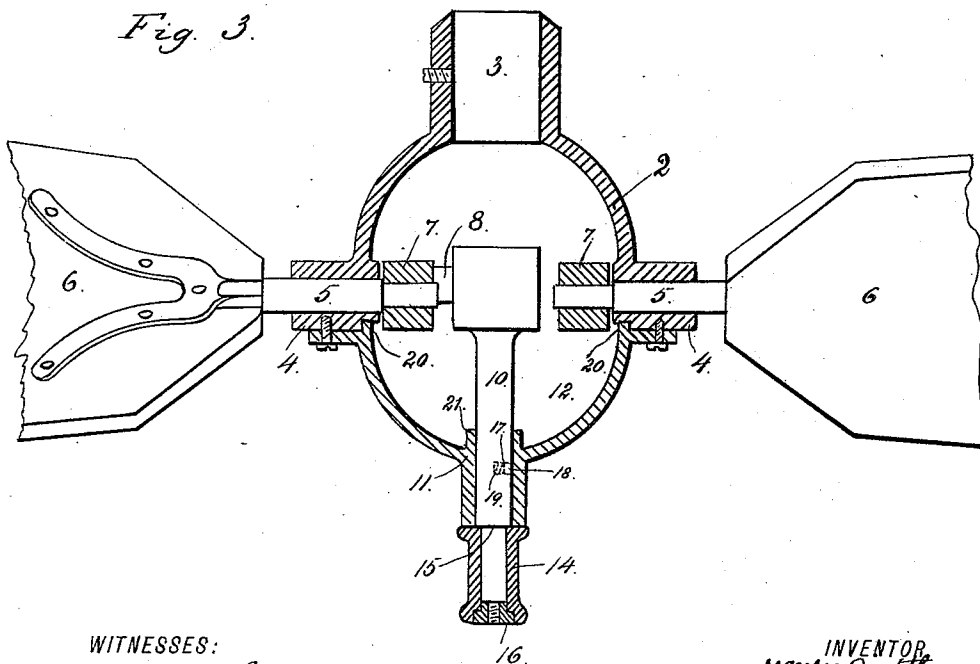


Fig. 3.



WITNESSES:

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VENTILATING-FAN.

SPECIFICATION forming part of Letters Patent No. 427,375, dated May 6, 1890.

Application filed April 17, 1889. Serial No. 307,566. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM M. SMITH and JAMES CALDWELL, both citizens of the United States, and both residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ventilating-Fans; and we do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

This invention relates to that class of ventilating-fans by which the air of apartments is caused to circulate by the rotation of vanes or blades inclined to the plane of their rotation, and which can be varied and adjusted while in motion in the direction and extent of their angle of inclination, so as to vary the direct force and velocity of air-currents.

The object of this invention is a neater and cheaper construction, preventing soiling of surrounding objects by the lubricants used, and susceptible of better finish ornamentation; and to effect these desiderata our invention consists of a bowl-case inclosing the adjusting mechanism and the arrangement of inclosed operating parts hereinafter described, and shown in the annexed drawings, in which—

Figure 1 shows a front elevation of a fan embodying this improvement; Fig. 2, a central vertical section of a part thereof in the plane indicated by the dotted lines *xx* in Fig. 1, and Fig. 3 a central vertical section of the same parts in a plane at right angles to that of Fig. 2.

The same reference - marks indicate like parts in the several figures.

1 represents the upright shaft of a fan, which may be rotated by any of the usual means.

2 is an inverted bowl, having a central nut 3 fitted on the shaft 1 so as to turn with it, and having near its greater diameter bosses 4 4, formed diametrically opposite each other, through which are fitted the spindles or arbors 5 5 of the vanes or blades 6 6. Upon each of

the arbors 5 5 is securely attached an arm or crank 7 7, having a wrist-pin 8 8, the wrist-pins 8 8 fitted in horizontal slots 9 9 in the upper end of a sliding bar 10, fitted so as to slide vertically in the line of the axis of the shaft 1 in a guide 11, formed in the lower part of a cup 12, secured by screws 13 to the under side of the bowl 2. The lower end of the slide 10 extends through the guide 11 and is fitted with a knob 14, in which it turns freely, but moves lengthwise therewith, by reason of the shoulder 15 and nut 16 holding the knob 14 in the direction of its axis. In order to retain the slide 10 and the connected arms 7, arbors 5, and blades 6 in the adjustments in which they may be placed, a cavity 17 is formed transversely in the slide 10, into which is fitted a plug 18, forced outwardly by a helical spring 19, so as to cause the end of the plug 18 to press with sufficient force against the inner surface of the guide 11 to cause friction adequate to hold the slide 10 in the guide 11 in whatever position it may be placed by moving the knob 14. The upper inner edge of the bowl 2 is provided with a rim 20, which fits within the rim of the core 12, and serves to center them with each other, and also to guide any oil or other free lubricating-fluid which may be in the bowl 2 below the joint between the bowl 2 and cover 12. A rim 21, projecting upwardly, surrounds the upper end of the guide 11 within the cover 12 and arrests the downward flow of any lubricant that may be in the bowl 2 and cover 12.

The parts inclosed in the structures above described are protected from accidental injury, and the bowl 2 and cover 12 are more readily and cheaply susceptible of neat finish or decoration than the inclosed and concealed mechanism, and the adjustment of the slide 10 controls the angle of the blades. The fan can be varied or reversed and will retain such adjustment until intentionally changed.

It is not essential that the frictional device for holding the vanes in angular adjustment be located in the slide 10. Any elastically-ap-

plied pressure to force other surfaces moving against each other during the adjustment will fulfill this requirement.

Having described this invention, what we
5 claim is—

In an angularly-adjustable ventilating-fan, the combination of the bowl 2, the cover 12, provided with rims 20 and 21, adapted to guide oil or other free lubricant within said cover,
10 the bearings 4, fan-blades 6, and guide 11,

with the wrist-pins 8, and adjustable bar 10, having horizontal slots 9, said wrist-pins fitted so as to slide vertically in said slots, substantially as shown and described.

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