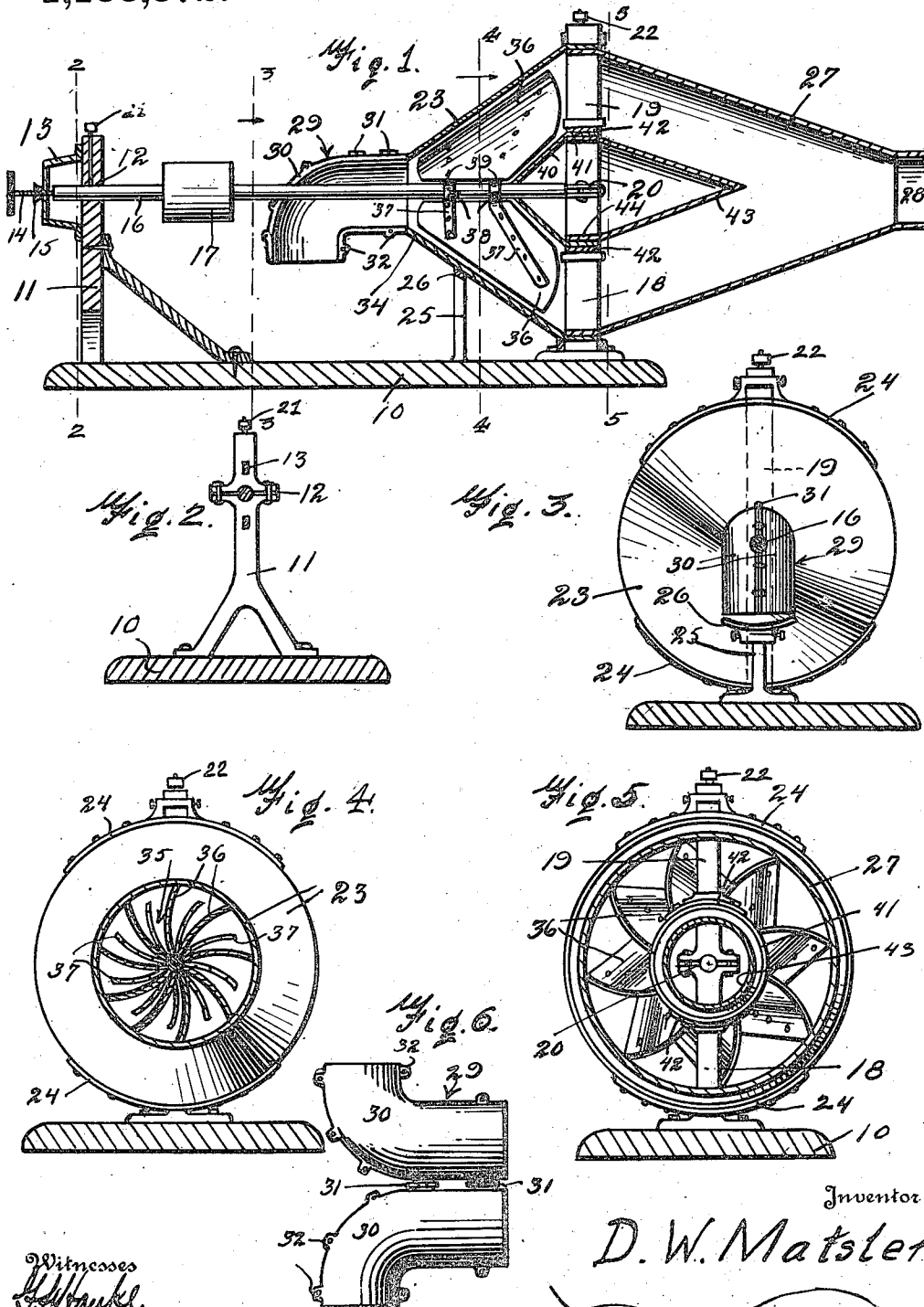


D. W. MATSLER.
VENTILATOR FAN.
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1,153,872.

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Witnesses
H. H. Kunkel
Inspector

384

Inventor
D. W. Matsler
Charles H. Kunkel
Attorney

UNITED STATES PATENT OFFICE.

DAVID W. MATSLER, OF KINGSTON, OKLAHOMA.

VENTILATOR-FAN.

1,153,872.

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To all whom it may concern:

Be it known that I, DAVID W. MATSLER, a citizen of the United States, residing at Kingston, in the county of Marshall, State of Oklahoma, have invented certain new and useful Improvements in Ventilator-Fans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ventilators, particularly to ventilator fans, and has for its object the provision of a simple and novel inclosed ventilator fan adapted to suck in air and discharge it under pressure.

An important object is the provision of a device of this character, the inlet portion of the casing of which is hinged and openable to afford access to the interior mechanism.

Another important object is the provision of means within the casing adjacent the fan for preventing an accumulation of dead air and for also lessening back pressure against the fan.

Still another object is the provision of a device of this character which will be simple and inexpensive in manufacture, efficient in operation, durable in use, and a general improvement of the art.

Other objects and advantages such as improvements in the specific details of construction, will be made apparent during the course of the following description and illustrated in the accompanying drawing, in which,

Figure 1 is a longitudinal sectional view through my novel ventilator fan. Fig. 2 is a cross sectional view through the front bearing taken on the line 2—2 of Fig. 1, Fig. 3 is a cross section taken on the line 3—3 of Fig. 1 looking at the front of the inlet portion of the casing, Fig. 4 is a vertical cross section taken on the line 4—4 of Fig. 1, Fig. 5 is a sectional view on the line 5—5 of Fig. 1 looking at the rear bearing and showing the dead air preventing means, and Fig. 6 is a detail view of the inlet portion of the casing open.

Referring more particularly to the drawing, the numeral 10 designates a base upon which my ventilator fan and its casing are adapted to be secured. Secured upon one end of the base 10 and extending upwardly therefrom is an upright 11 which carries a journal box 12 and which further carries a

spider 13 through which extends a screw 14 engaged by a lock nut 15. A shaft 16 has one end supported in the bearing 12 and has its end engaged by the screw 14 for preventing longitudinal thrust. The shaft 16 carries a pulley 17 by means of which it may be rotated.

Secured upon the base 10 and spaced from the upright 11 is a second upright 18 formed at its upper end as the lower half of a journal box and having coacting therewith a similarly formed upright member 19. The upright members 18 and 19 together form a journal box 20 for supporting the other end of the shaft 16. The uprights 11 and 19 are provided with oil cups 21 and 22 by means of which the journal boxes may be lubricated.

My novel ventilator fan is inclosed within a casing which comprises a frusto-conical portion 23 secured within substantially semicircular members 24 carried by the upright members 18 and 19. The forward end of the casing portion 23 is supported by a standard 25 mounted upon the base 10 and carrying at its upper end a curved member 26 bolted or otherwise secured to the portion 23. The rear portion of the casing comprises a shell 27 secured within the frusto-conical portion 23 by any desired means, as for instance rivets or bolts. The shell 27 converges to a narrow opening 28 which forms the outlet therefrom and through which a blower pipe or distributing pipe may be attached if desired.

The intake portion of the casing is designated as a whole by the numeral 29 and comprises a pair of similar elbow sections 30 hinged together along their upper edges, as shown at 31, and detachably connected at their other edges by bolts 32 passing through suitable ears. One section 30 is rigidly secured to the smaller end 34 of the casing section 23.

In order to produce suction through the inlet casing portion 29 and to discharge air under pressure through the opening 28, I provide a fan structure 35, which comprises a plurality of dished blades 36 secured upon the radial arms 37 of a pair of spiders 38 having their hubs 39 rigidly secured upon the shaft 16.

It will be readily observed that when power is applied to the pulley 17, the shaft 16 will be rotated, carrying with it the spiders 38 and consequently the fan blades,

rotation of which will cause air to be sucked through any suitable suction pipe secured upon the end of the casing inlet portion 29 and through the shell 27 and out through the opening 28 to the atmosphere or to a suitable distributing pipe. It will be noted that by opening one section 30 of the member 29, access may be had to the forward portion of the fan.

In order to prevent the accumulation of dead air at the center of the fan 35, I provide a deflecting member which comprises a conical shell 40 terminating at its large end in a cylindrical portion 41 held in place upon the upright member 18 and 19 by being secured within curved plates 42 secured thereon. It will be seen that when the fan 35 is rotated, air will strike the conical deflecting member 40 and will be thrown outwardly toward the periphery of the shell 27.

In order to prevent back pressure upon the fan 35 when the air is being pressed through the constricted outlet opening 28, I provide a conical shell 43 having its apex disposed toward the outlet 28 and terminating at its larger end in a cylindrical portion 44 disposed within and secured to the cylindrical portion 41 of the shell 40.

From the foregoing description and a study of the drawing it will be apparent that I have thus provided a simple and powerful ventilator fan which is provided with means whereby an accumulation of dead air is prevented, whereby back pressure upon the fan is eliminated and which is capable of producing strong and powerful ventilation.

It will be readily understood that I reserve the right to make various changes in the form, construction, and arrangement of parts, without departing from the spirit of the invention or limiting the scope of the subjoined claims.

Having thus described my invention, what I claim is:—

1. A ventilator fan structure comprising a casing tapered at its inlet and outlet ends, a shaft journaled therein, a fan secured on said shaft, and an elbow casing secured on said main casing at its inlet end and comprising two similar sections hinged at one edge and detachably connected at their other edges.

2. A ventilator fan structure comprising a supporting base, an upright secured thereon, a frusto-conical shell having its large end secured by curved plates carried on said upright, a separable elbow casing connected with the smaller end of said shell, a shaft extending through said shell and journaled through said upright, a rotary fan secured on said shaft, a second shell secured to the larger end of said first named shell and terminating in a constricted discharge opening, and means carried by said upright member for deflecting air away from the center of said fan.

In testimony whereof I affix my signature, in the presence of two witnesses.

DAVID W. MATSLER.

Witnesses:

WATTON LONDROM,
W. S. GRANT.