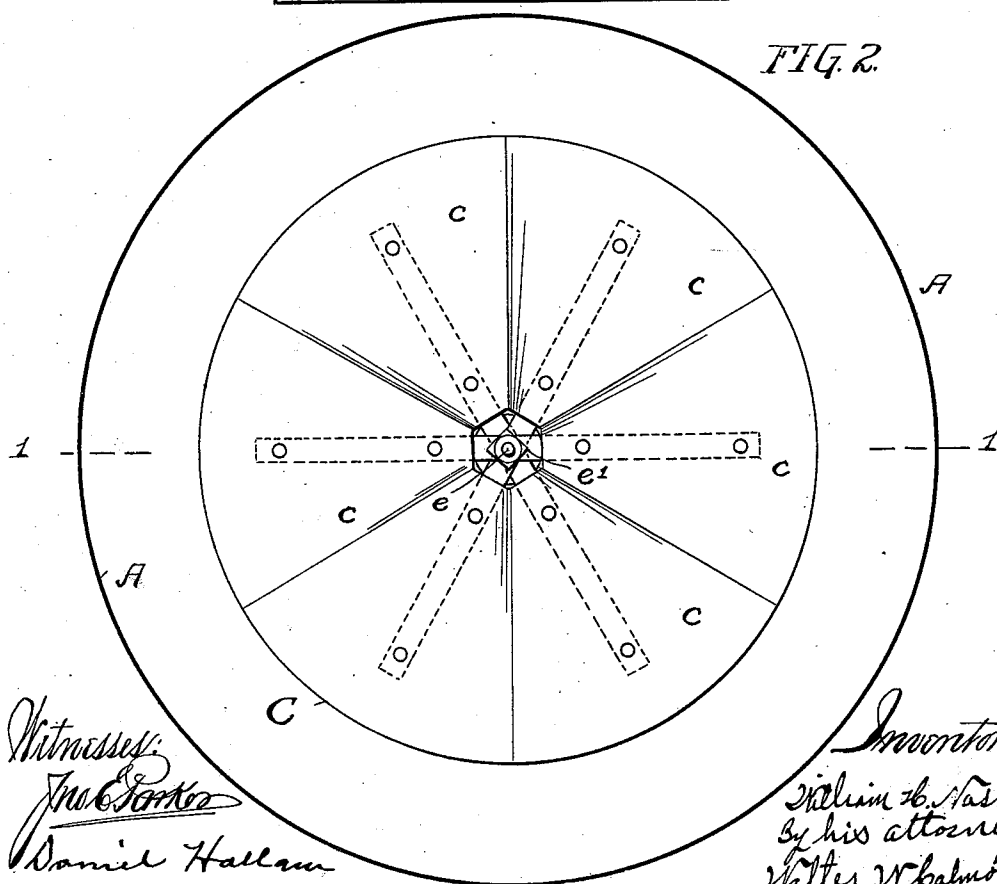
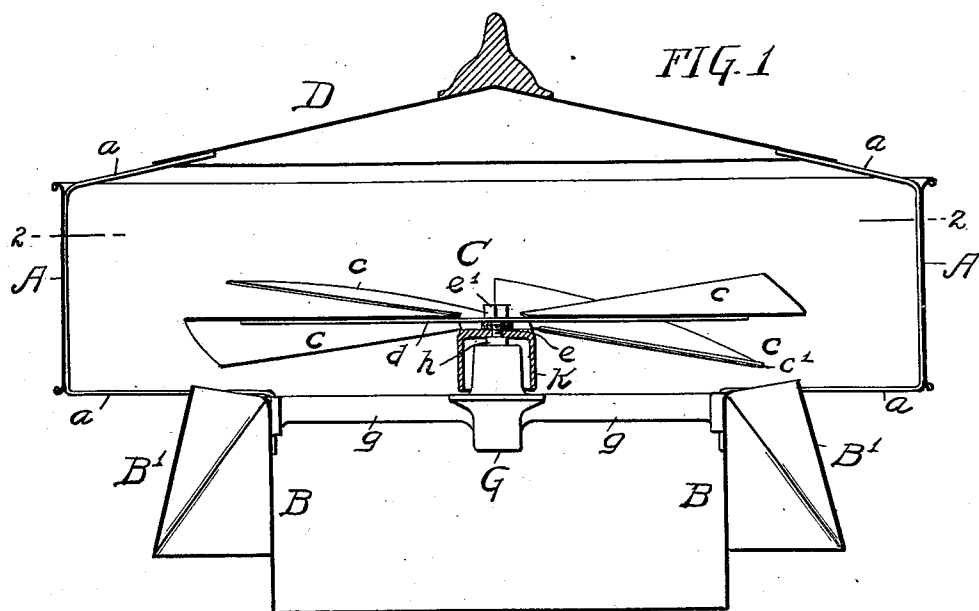


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VENTILATOR AND CHIMNEY COWL.

No. 561,236.

Patented June 2, 1896.



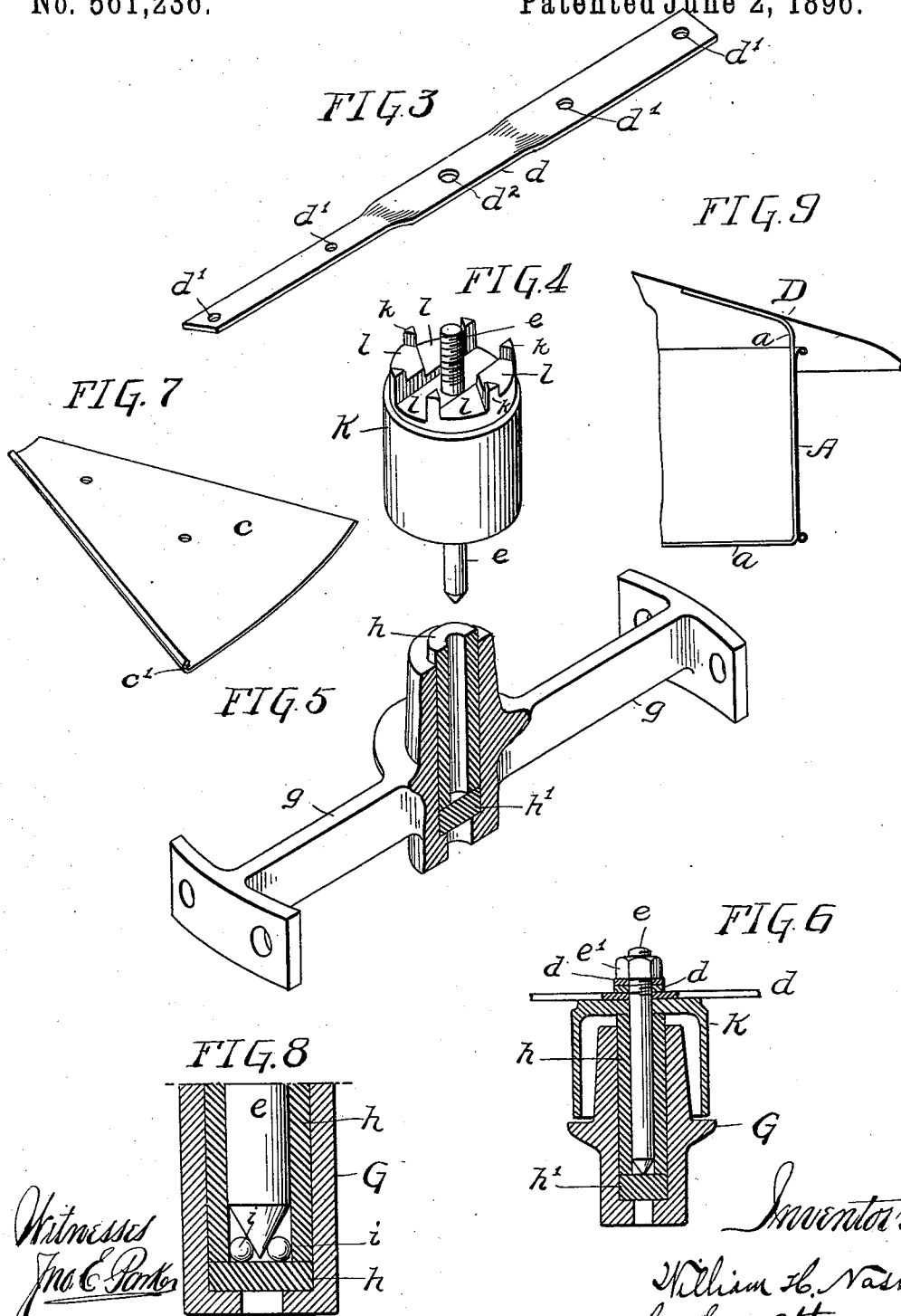
Witnesses:
John C. Parker
Daniel Hallam

Inventor:
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By his attorney
Walter W. Baltimore

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UNITED STATES PATENT OFFICE.

WILLIAM H. NASH, OF PHILADELPHIA, PENNSYLVANIA.

VENTILATOR AND CHIMNEY-COWL.

SPECIFICATION forming part of Letters Patent No. 561,236, dated June 2, 1896.

Application filed May 3, 1894. Serial No. 509,962. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. NASH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ventilators and Chimney-Cowls, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in ventilators or chimney-cowls, and has for its object to improve, simplify, and cheapen the same, as more fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a sectional elevation, on the line 1 1, Fig. 2, of a chimney-cowl or ventilator constructed in accordance with my invention. Fig. 2 is a sectional plan view of the same on line 2 2, Fig. 1. Figs. 3, 4, 5, 6, and 7 are views of details of the invention. Fig. 8 is a sectional elevation illustrating a modified construction of bearings which may be employed for heavier fans, and Fig. 9 is a partial sectional elevation of a modification of the protecting-hood.

My present invention is designed more particularly to improve and simplify the chimney-cowl forming the subject of Letters Patent granted on the 25th day of June, 1889, No. 405,698, and to this end I have devised certain improvements in the general construction of the device, and more particularly in the arrangement of the bearing or support for the revolving fan and in the structure and assembling of the parts of the fan proper.

Referring to the drawings, A represents an outer cylindrical ring, supported from the base-ring B by a series of radially-projecting arms *a*. The base-ring B is adapted to be secured to the escape-pipe or chimney, and it carries a fluted ring B', which in a measure tends to evenly distribute the currents of air to the exhaust-fan C. Above the ring A is a hood D, which extends over the fan and protects the same from the weather, while the spaces between the hood and the ring A and the ring A and the base-ring are sufficiently great to permit the free passage of air-currents. In some cases, however, it is preferred to arrange the hood, as shown in Fig. 9, to project beyond the line of the ring A, so as to prevent the deflection of air-currents down-

wardly upon the fan. The hood, when arranged as shown in Fig. 9, will prevent the entrance of air-currents from the outside, and, moreover, such air-currents will, on the unexposed side of the ring and hood, tend to form a partial vacuum, which will assist in the escape of air or gas from the interior and tend to revolve the fan C more rapidly.

The fan C has any number of blades *c* preferred, six in the present instance, and each diametrically opposite pair of blades is secured to a single supporting-bar *d*, three of such bars, each of the same shape, being employed to carry the six blades of the fan. The shape or configuration of each bar is more clearly shown in Fig. 3, wherein it is illustrated as comprising a flat bar having its opposite ends bent at opposite angles to be properly secured to the diametrically opposite blades of the fan, and each is provided with holes *d'* for the passage of the securing-rivets by which the fans are held to the bars. At the center of each bar is an opening *d''* for the passage of a threaded rod *e*, over which the bar is fitted, and all are then confined by a nut *e'*.

At the upper portion of the base-ring B is secured a transverse bar *g*, having at its central portion a recessed box G, in which is placed a lining or sleeve *h* of plumbago or other equivalent lubricating material, and within which the lower end of the threaded rod or spindle *e* is fitted. Below the sleeve *h* is a step-bearing or block *h'*, also formed of plumbago or similar material, and forming a rest or support for the lower end of the rod *e*, so that a perfectly noiseless easy-running bearing is provided for the rod and all the squeaking and annoying noise usually attendant in the employment of revolving ventilator-fans is avoided.

When the fan is exceptionally heavy, it is preferable to employ a step-bearing of the construction more clearly shown in Fig. 7, in which the lower conical end of the rod *e* rests upon a series of antifriction-balls *i*, which are supported upon the lower bearing-block *h'*, so that a perfect antifriction-ball and lubricant bearing is provided which will stand wear for a long time without the slightest attention. The rod *e* passes up through a threaded orifice in a dust-proof or protect-

ive cap K, which fits over the box G and effectually prevents all entrance of dust or dirt to the bearing. The upper face of this dust-cap K is more clearly shown in Fig. 4, and, referring to this figure, *k* represents six ribs disposed equidistantly around the periphery of the cap and extending in vertical lines for varying distances above its upper surface.

The upper surface of the cap has as many grooves *l* as there are pairs of fan-blades, and as three pairs of the latter are shown, three of such grooves crossing each other at the proper angles are formed in the cap K. The grooves *l* are of different depth and are so arranged that the bars *d* may fit within them, one upon the other, and each be separately confined within its proper groove and between the projections *k*.

The construction of the fan-blades *c* is more clearly illustrated in Fig. 7, which represents one of the blades detached from its carrying-bar. The blade is formed for convenience of sheet metal stamped or otherwise formed and at its lowermost edge is curved or bent upwardly, forming a radial channel or pocket *c'*, into which will flow any moisture or rain which may fall on the blade, and the rapid rotary movement of the latter will be sufficient to throw off the water by centrifugal force from the outer edge of the blade to a point beyond the mouth of the base ring or pipe B B, thus preventing its entrance to the chimney or ventilating-pipe.

In assembling the parts of the fan the bars *d* are first secured by rivets or otherwise to the various fan-blades, and then each bar, carrying diametrically-opposite blades, is placed within the grooves *l* and the series of bars secured in position by the nut *e*. By this means the entire structure is greatly simplified and cheapened and the various parts may be readily and accurately assembled.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. The combination in a chimney cowl or ventilator, of an exhaust-fan having a series of radially-disposed blades, a series of carrying-bars for said blades, a spindle or rod carrying the same, a box, as G, a lining or sleeve *h* for said box, a dust-cap extending over and protecting the bearing-surface, said dust-cap having a series of grooves crossing each other, said carrying-bars being adapted to said grooves, substantially as specified.

2. The combination with the fan having diametrically-opposite blades, of a spindle *e*, a bearing therefor, a dust-cap for said bearing also carried by said spindle, carrying-bars for the fan-blades, there being a series of grooves *l* in the upper surface of said dust-cap adapted to receive the carrying-bars, substantially as specified.

3. The combination in a chimney cowl or ventilator, of an exhaust-fan having a series of radially-disposed blades, diametrically arranged, superposed carrying-bars for said blades, a bearing, a spindle adapted thereto, a dust-cap extending over the bearing, said spindle passing through the dust-cap and carrying-bars, and a nut screwing on the upper end of the spindle and confining the carrying-bars to the dust-cap, substantially as specified.

4. A blade for an exhaust-fan having its lowermost radial edge bent upward from the inner to the outer end of the blade and adapted to receive the water collected on the blade and to discharge the same from its outer edge, substantially as specified.

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

WILLIAM H. NASH.

Witnesses:

JAMES F. HAGEN,
WALTER W. CALMORE.