Dec. 22, 1936. R. G. FERRIS 2,065,438

VENT HEAD

Filed March 25, 1935

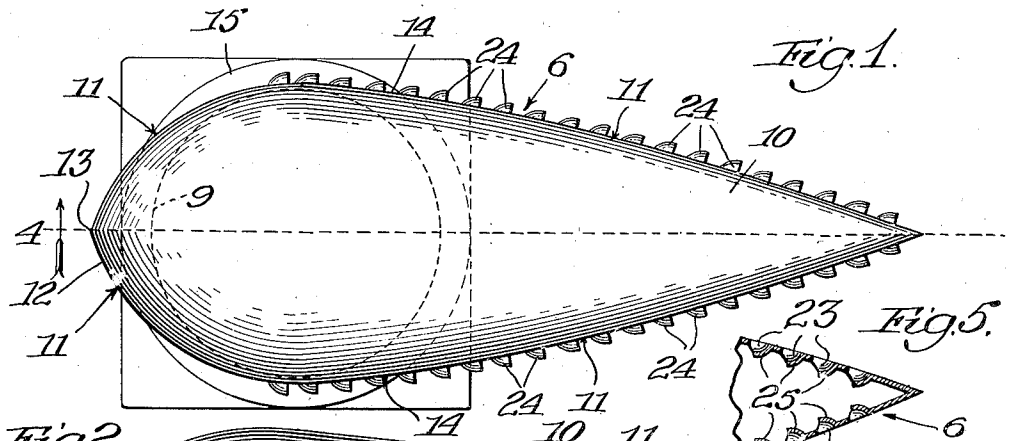


Fig. 1.

Fig. 5.

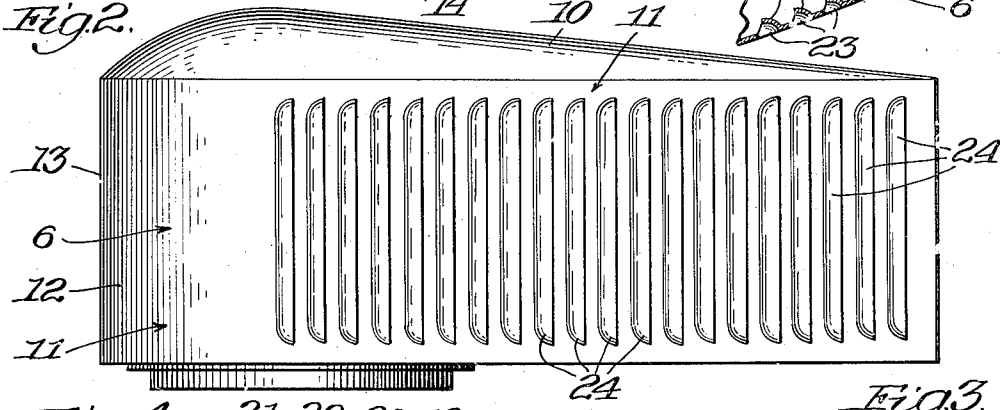


Fig. 2.

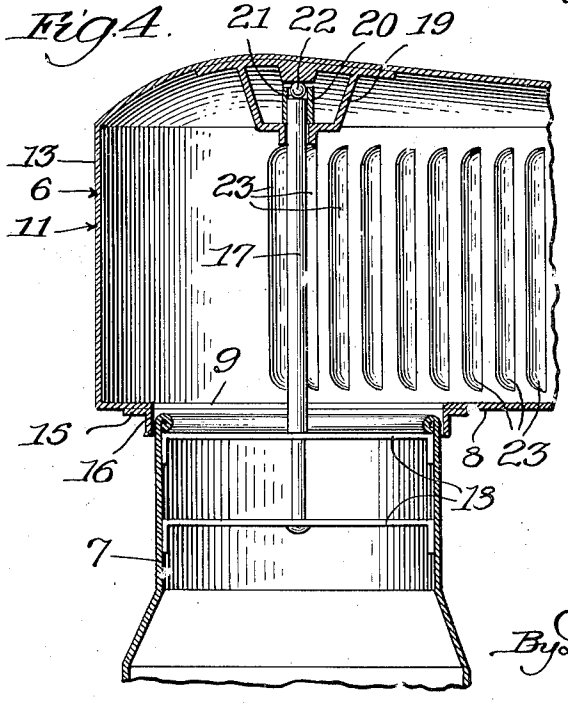


Fig. 4.

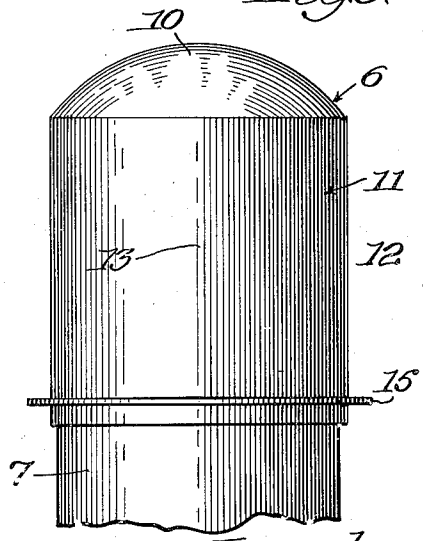


Fig. 3.

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VENT HEAD

Robert G. Ferris, Harvard, Ill., assignor to Starline, Inc., Harvard, Ill., a corporation of Illinois

Application March 25, 1935, Serial No. 12,955

2 Claims. (Cl. 98—70)

My invention relates to the heads, often referred to as cowls, provided at the outlet ends of vent conduits, such as for example ventilator pipes and smoke stacks, to cause suction to be exerted in the conduit under the action of wind blowing against the head or the movement of the head through the air, the heads where applied to stationary conduits commonly being rotatable thereon to head into the wind regardless of its direction.

My primary object is to provide improvements in vent heads to the end of increasing the suction action exerted in the conduit with which it is associated, in the relative movement of the head and the surrounding air, whether the head is stationary or is carried by a moving object.

Referring to the accompanying drawing:

Figure 1 is a plan view of a vent head shown of a construction particularly suited for use at the outlet of a ventilating conduit, and embodying my invention.

Figure 2 is a side view of the structure of Fig. 1.

Figure 3 is a front view of the structure of Figs. 1 and 2 showing it as mounted on the upper end of a ventilator conduit.

Figure 4 is a central vertical section taken through the structure at the line 4 on Fig. 1; and

Figure 5, a fragmentary plan sectional view of a modification of the vent head of the preceding figures.

As a preface to the following detailed description of the constructions illustrated it may be said that the invention contemplates the forming of the vent head of such shape as to present streamlined sides of such contour as to substantially coincide with the natural streamlining of the air in the movement of the vent-head through the air or the air past the head, and providing openings in these negative-pressure area streamline sides preferably substantially throughout their length and preferably louvered, at which suction is produced in the relative movement of the head and the air.

Referring to the particular construction shown in Figs. 1–4, inclusive, the vent head is represented at 6 and is shown as of a construction particularly suited for use as the outlet of a ventilating conduit shown at 7 and on which the head 6 is rotatably mounted.

The head 6 is formed of a bottom wall, or deck, 8 apertured at 9 for registration with the upper, open, end of the ventilating conduit 7, a top wall, or deck, 10 and a surrounding side-wall structure 11 between the decks 8 and 10.

The side wall structure 11 is so shaped as shown, as to form, with the forward portions of the decks 8 and 10, a hollow vent head portion 12 with its forward portion of blunt, generally cylindrical, form, shown as, but not necessarily, slightly deformed to present an apex portion 13. From the ends of the wall of the hollow portion 12 the side wall structure 11 continues rearwardly at opposite sides of the head and as continuations of the general cylindrical wall referred to, forming fairings 14 which converge toward the rear end of the vent head and are of such contour as to substantially conform with the natural streamlining of the air in the relative movement of the head and the air.

The shapes of the decks 8 and 10 and the surrounding wall structure 11 are substantially the same in plan, both decks extending rearwardly to the end of the surrounding wall structure.

The head 6 is shown as provided with a frame 15 surrounding the opening 9 in the lower deck 8 and having a circular opening 16 at which it extends over the top of the conduit 7 about which the entire head is rotatable to permit it to head into the wind at all times.

The rotatable support for the head comprises a vertical post 17 supported centrally in the opening 9 by cross-members 18 in the conduit 7, the post extending upwardly into the head 6 and through a guide bracket 19 depending from the deck 10. A sleeve 20 encircling the upper end of the post 17 and extending above the upper end of the latter and resting on the bracket 19, forms a socket 21 for a ball-bearing 22 upon which the entire head 6 is rotatably supported.

The negative pressure areas along the side wall 11 of the vent head are located wholly within the confines of the fairings 14 and in accordance with my invention, as above stated, I provide in the fairings throughout these negative pressure areas openings through which this negative pressure may be effective to exert suction in the head 6 and in turn in the ventilator conduit.

The openings referred to are represented at 23 and each extends at an angle to the horizontal, being shown as extending substantially vertically, these openings in each fairing being shown as provided in a series extending from substantially the junctures of the fairings with the ends of the walls of the hollow part 12, to substantially the rear end of the head 6.

The openings are preferably closely spaced and relatively narrow as shown, and to augment the suction action for venting the conduit, are provided with louvers 24 which extend outwardly

from the fairings 14 and toward the rear of the vent-head as shown.

As will be understood from the foregoing the streamlining of the vent-head results in the creation of the maximum areas of negative pressure, distributed along the sides of the head, available for the creating of suction action in the head through the openings 23 in its sides, and consequently increased suction as compared with structures of non-streamlined form.

The addition of louvers to the openings 23 increases the effective suction in the head. Instead of providing the louvers 24 as shown in Figs. 1–4 they may be provided on the inside of the head at the rear edges of the openings 23 and extend inwardly and forwardly as represented of those shown at 25, louvers thus provided having been shown, by experiment, to be more effective than when provided as shown in Figs. 1–4.

While I have illustrated and described certain forms of structure constituting embodiments of my invention I do not wish to be understood as intending to limit it thereto as the invention may be embodied in other forms of structure and those shown variously modified and altered without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is:

1. A vent head having an opening at its bottom, a vertical plane of the greatest length of the head intersecting a vertical plane of the greatest width thereof producing a line of intersection substantially coincident with the longitudinal axis of said opening, the head tapering rearwardly, its rear portion being longer than its forward portion the side walls of the rearwardly extending portion of the head having louvers presenting openings therebetween elongated at angles to the horizontal the forwardly extending side walls of the head being imperforate.

2. A vent head having an opening at its bottom, a vertical plane of the greatest length of the head intersecting a vertical plane of the greatest width thereof producing a line of intersection substantially coincident with the longitudinal axis of said opening, the head tapering rearwardly, its rear portion being longer than its forward portion, the side walls of the rearwardly extending portion of the head having openings therein, and the forwardly extending side walls of the head being imperforate.

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