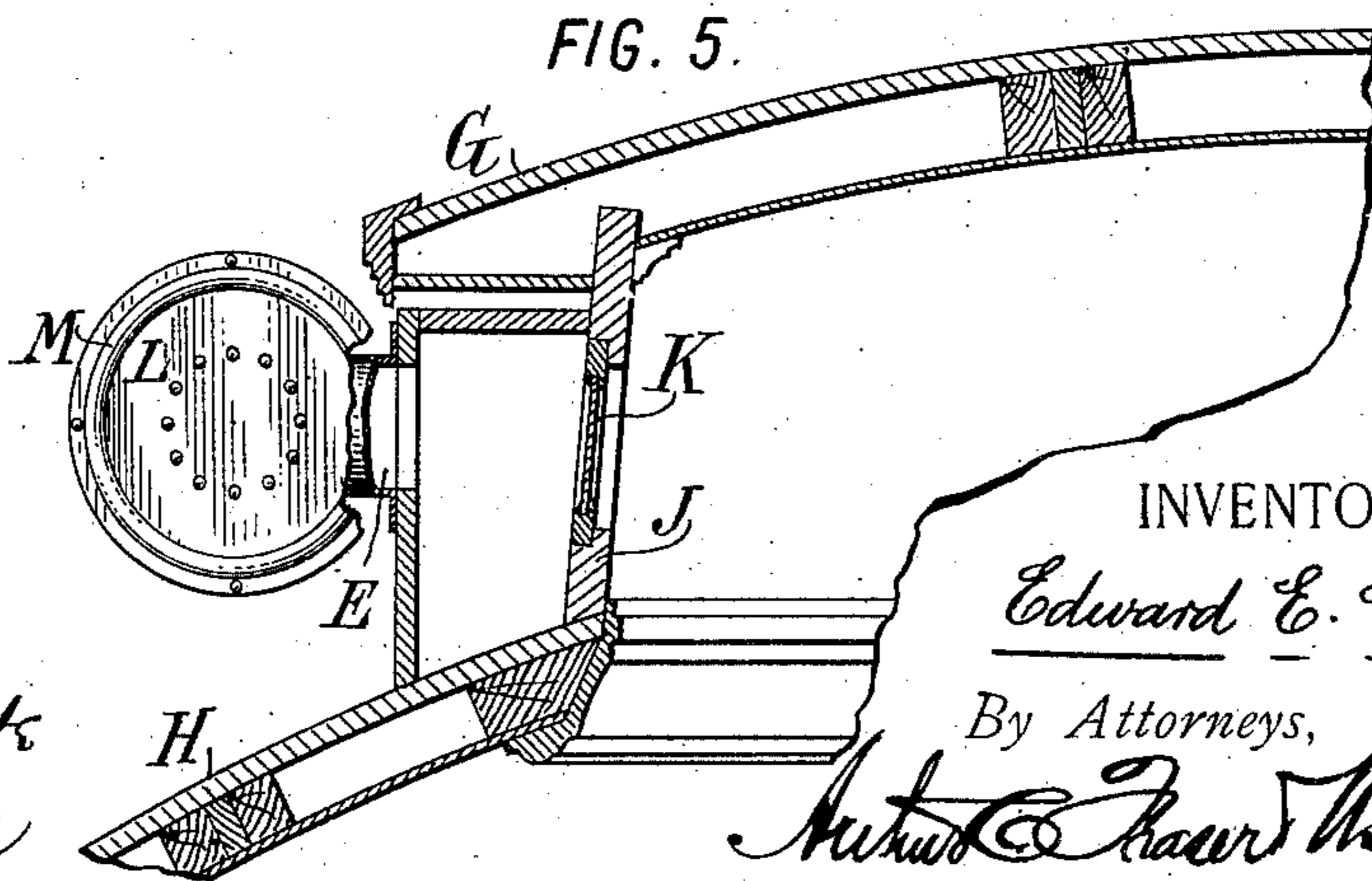
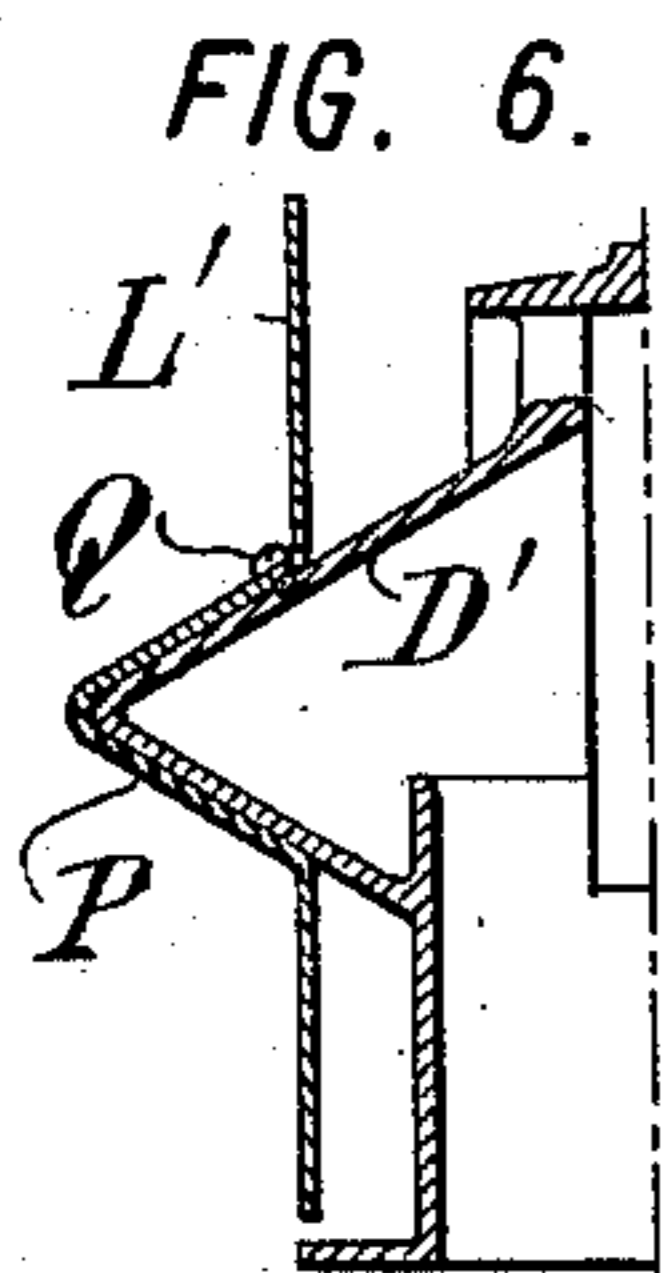
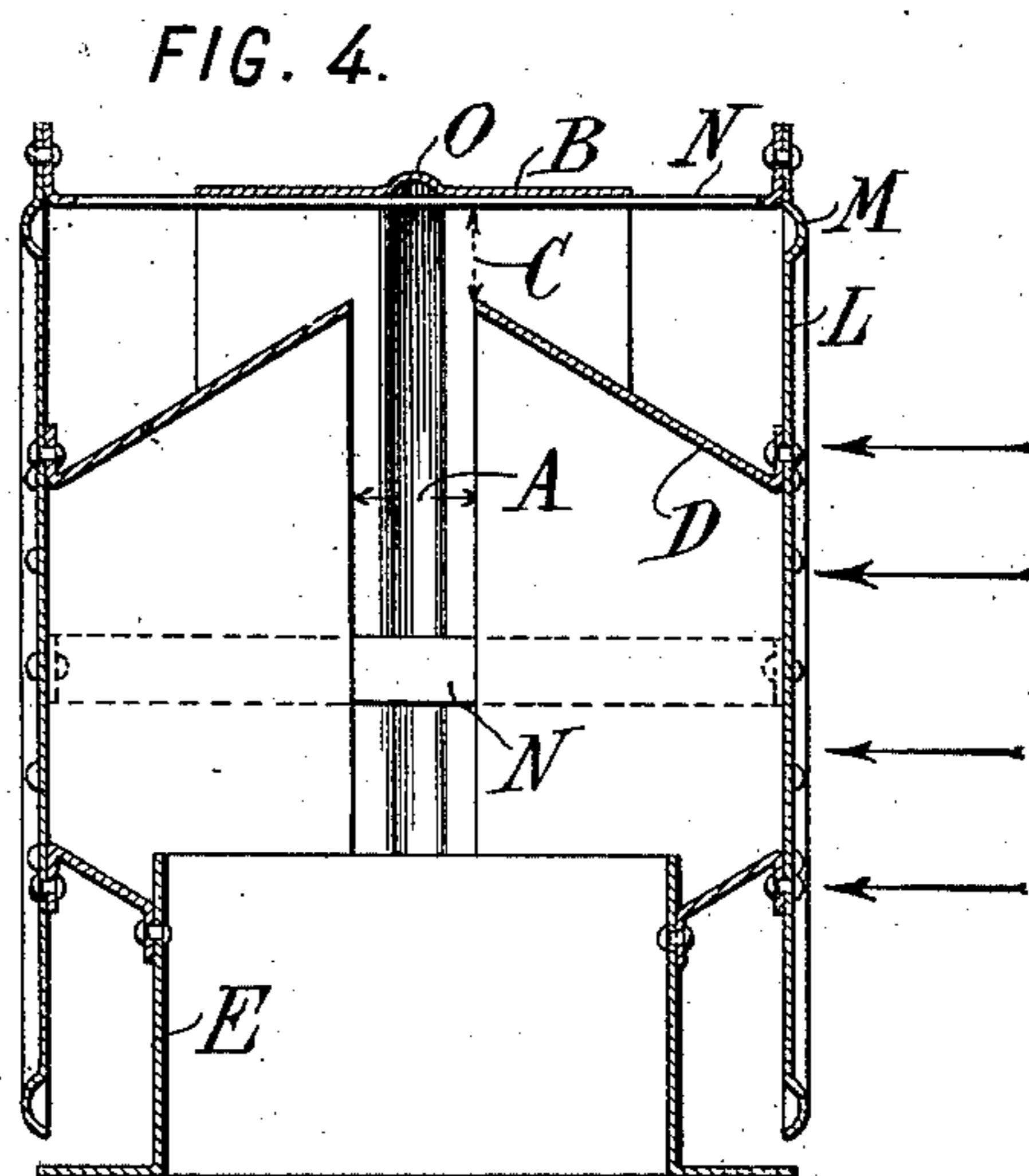
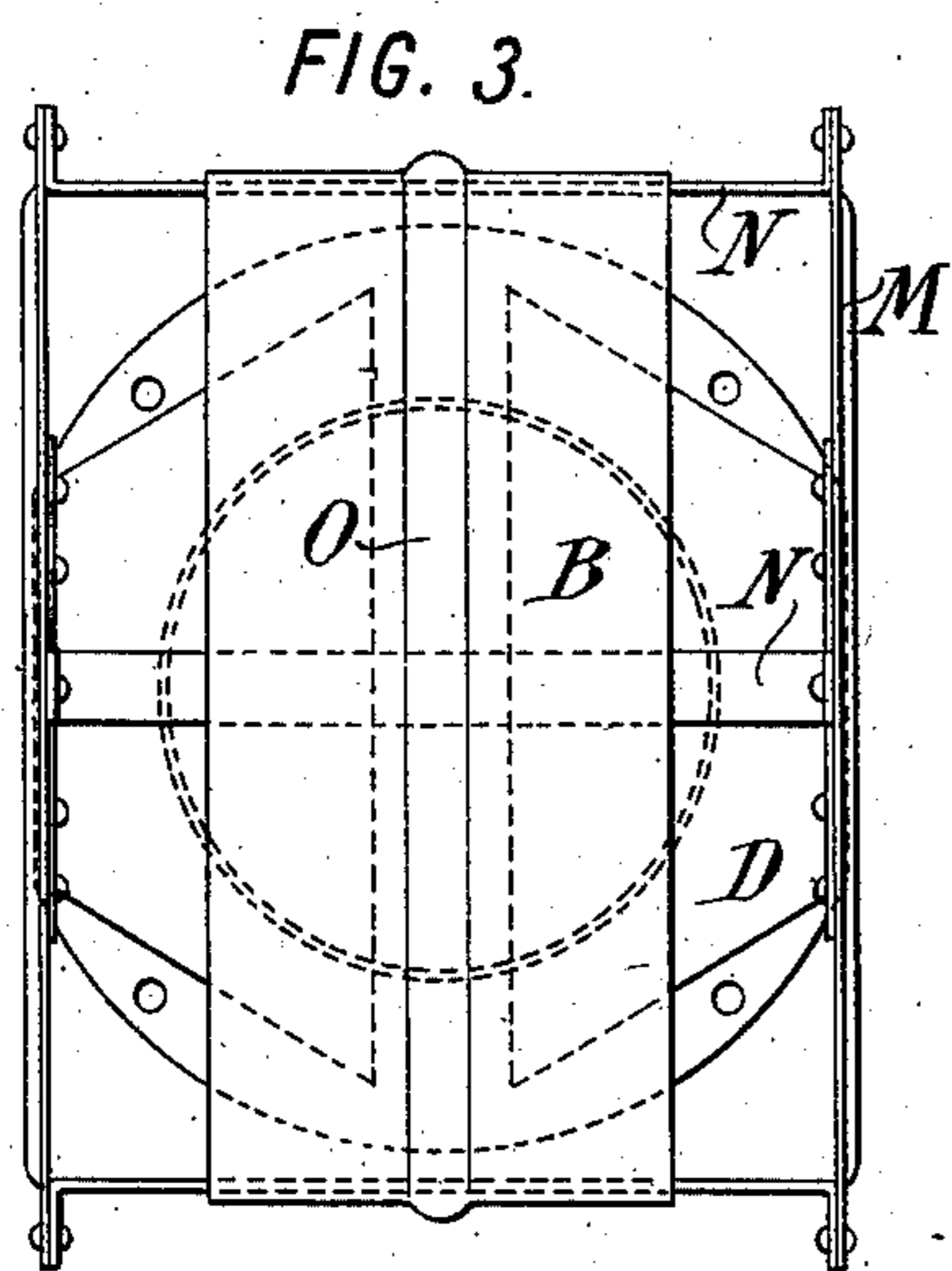
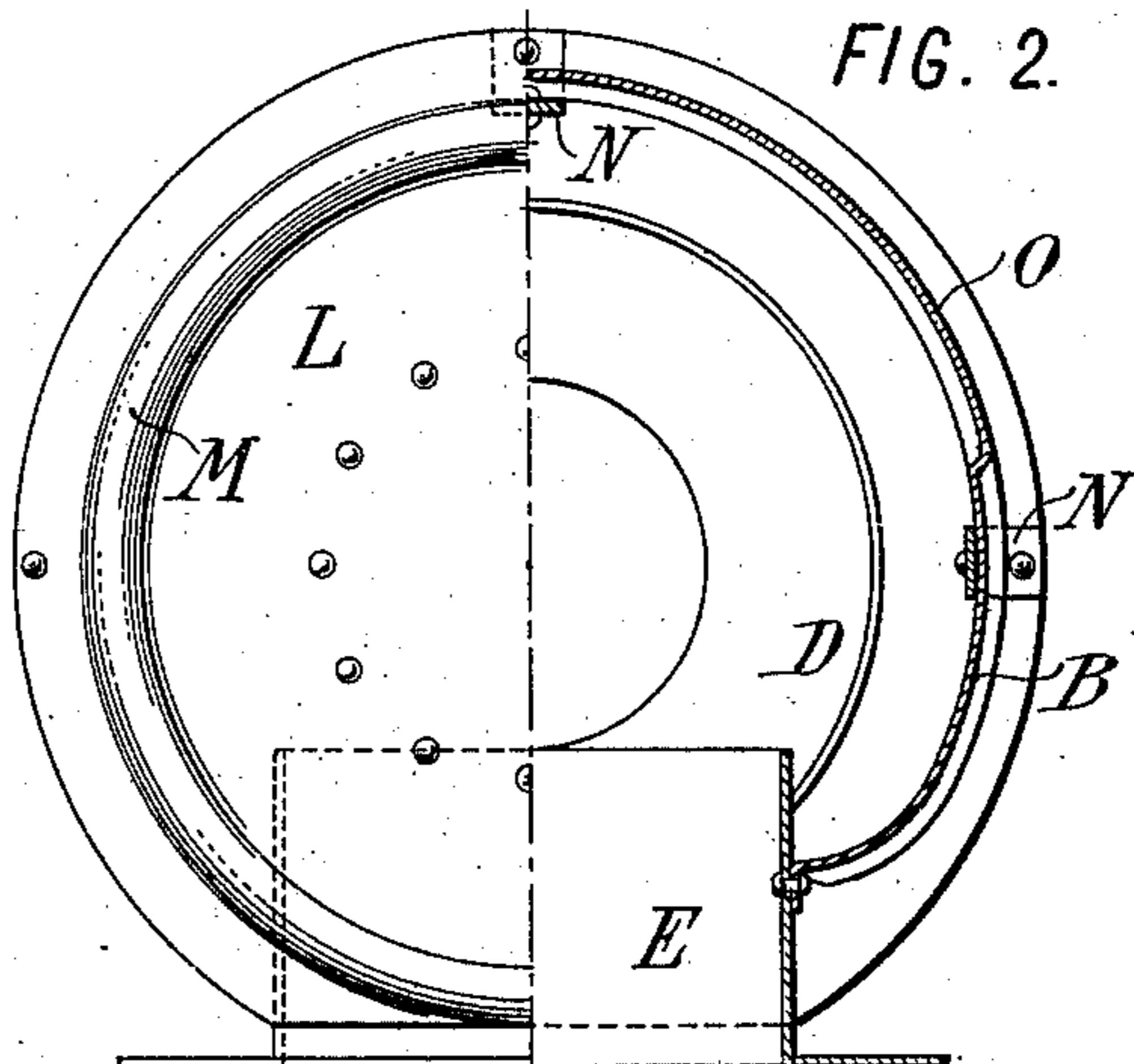
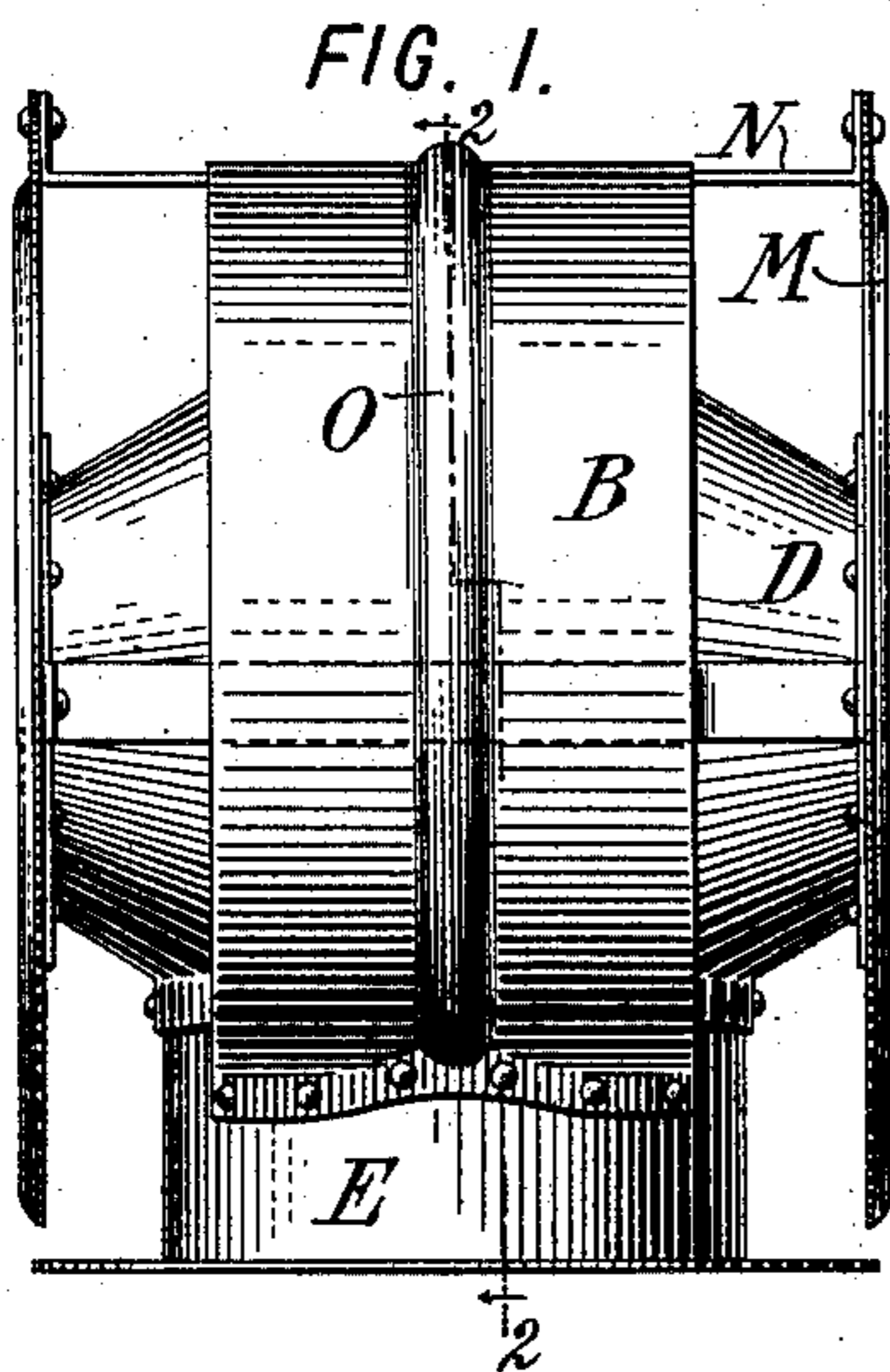


E. E. GOLD.
VENTILATOR.
APPLICATION FILED SEPT. 28, 1909.

985,158.

Patented Feb. 28, 1911.



WITNESSES:

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René's Ruine

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UNITED STATES PATENT OFFICE.

EDWARD E. GOLD, OF NEW YORK, N. Y.

VENTILATOR.

985,158.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed September 28, 1909. Serial No. 519,934.

To all whom it may concern:

Be it known that I, EDWARD E. GOLD, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention aims to provide certain improvements in ventilators of the type in which the wind causes a suction and withdrawal of air from within a car or other compartment.

In the particular form illustrated the device is an improvement upon a type of ventilators in common use for ventilating railway carriages. By this improvement ventilators of old types can be made much more efficient with very little change, and new ventilators of the improved type can be made as cheaply or more cheaply than those of the old style and of less weight.

Other features of advantage are referred to in detail hereinafter.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a side elevation of a ventilator; Fig. 2 is partly an end elevation and partly a section of the same on the line 2—2 of Fig. 1; Fig. 3 is a top view thereof; Fig. 4 is a longitudinal section; Fig. 5 is a cross-section through the top of a car showing the manner of applying the ventilator thereto; Fig. 6 is a longitudinal section illustrating the manner of applying the invention to an old ventilator.

In the embodiment of the invention illustrated, the outlet of the air to be withdrawn is an annular space A, across which extends an annular hood B providing lateral passages C across the outlet A. The members D are of conical shape with their bases toward each other, and spaced apart to form the annular outlet A, the annular hood being supported by having its ends attached to the pipe E. The outlet A is not a complete annulus, nor is the hood B, nor are the bases of the cones D complete circles, and the terms "annular" and "circular" are to be understood as including a partial annulus or a partial circle. The apparatus is double-ended to receive the wind upon either end, the wind being caused principally by the movement of the car which of course advances at different times in opposite directions. It is applied to the top of the roof of

a carriage in the vertical position, or is applied in sidewise position shown in Fig. 5 in which G indicates the upper portion of the roof, H the lower portion and J the approximately vertical deck plate connecting the two portions of the roof end in which is located the transom K adapted to be swung open to a greater or less extent to permit the escape of bad air out through the ventilator, and to restrict the quantity of air so escaping. A baffle is arranged across the path of the wind in advance of the lateral passages between the ventilator outlet and the hood. Where a double-ended type of apparatus is desired, there should be a baffle at both sides of the hood so as to work equally with a wind coming from either direction. Such a baffle for example may be the plate L extending beyond the edges of the conical members D, each member D being preferably a frustum instead of a complete cone, and the member L constituting the smaller base of the frustum and extending beyond the same as shown. The members L are of circular shape and are stiffened by ribs M and connected to the hood B at the top and sides by means of flat bars N turned up at the ends and riveted to the members L and B. The hood B is preferably provided also with a rib O extending around it between its forward and rear edges. This stiffened rib and the several connections N, as well as the connections of the hood at its lower ends to the pipe E, makes it possible to make the hood of very light sheet metal, notwithstanding the strain of high winds to which it is subjected. Likewise the attachment of the baffle plates L near their outer edges to the hood and to each other, stiffens the structure very much without seriously interfering with the free passage of air therethrough, and makes it possible to build it of comparatively light sheet metal. The manner of constructing the apparatus, however, may be considerably varied. Ventilators similar in shape but having the conical members D extending completely out to an apex and having no baffle plates, are manufactured of cast iron. Such ventilators might be readily converted into a shape utilizing much of the advantage of the present invention by casting them with a baffle plate similar to the plate L. When made of sheet metal the ventilator may be stamped out in parts and riveted as shown in Fig. 4, or it may be stamped in parts

which are individually of different shapes from those shown, and the parts may be riveted or soldered or otherwise fastened together.

5 Where the improved apparatus is to be made from ventilators already in existence, the baffle plate L' (Fig. 6) may be formed as a flange upon a cone P adapted to fit over the end of the conical member D', and to be
10 fastened thereon by a screw or other suitable means. This insures that there shall be no leakage of wind between the inner edge of the plate L' and the cone D' to which it is attached, an important point in maintain-
15 ing high efficiency.

The exact shape of the baffle, its dimensions and its location relatively to the other parts of the apparatus, are important to the securing of high efficiency. With baffles of
20 the construction, dimensions and location shown in the drawings (and varying in diameter) I have secured very high efficiencies in a number of experiments. The highest efficiency was obtained with the
25 baffles of the diameter shown, and I prefer this construction, shape and proportions for a ventilator where the pipe E is four inches internal diameter (the drawing showing the other dimensions to true scale), this being
30 the size generally used for railway carriages. With such a ventilator I have made numerous tests and have found that the addition of the baffles L largely increases the velocity of bad air withdrawn through the
35 pipe E for a given velocity of wind. I have found a small increase in efficiency by removing the baffle L at the side opposite that from which the wind arrives, and it would be advantageous therefore to use an appa-
40 ratus with a baffle at only one end wherever feasible, as where the wind for operating the ventilator arrives always in the same direction or where the apparatus can be swiveled and made to face the wind from whatever
45 direction it comes, like a weather vane. Various other modifications in detail and in the arrangement and combination of the parts may be made by those skilled in the art, without departure from the invention,
50 even though not obtaining the very highest efficiency. Besides its function of increasing the draft the baffle L serves to deflect cinders and dust away from the mouth of the ventilator. Any cinders entering be-
55 tween the cones are also deflected by the outcoming air and caught behind the end of the pipe which projects into the cones.

When the apparatus is arranged horizontally as in Fig. 5 the conical members D
60 catch practically all the rain which may blow in and conduct it downward and out through the passage A at the under side. The upward extension of the pipe E above its connection with the conical members
65 serves, when the apparatus is arranged ver-

tically, to prevent the flowing of water from within the cones down into the pipe E, deflecting any such water and causing it to flow out at the sides between the two conical members.

What I claim is:—

1. A wind operated ventilator having a transverse hood over its outlet and curved about an axis approximately parallel with the general direction of the wind, a conical
75 deflector with its base within said hood and its smaller end extending forward so as to tend to deflect the wind toward the annular space between the hood and the base of the de-
80 flector, and a baffle extending about said deflector beyond the outer end of said annular space.

2. A wind operated ventilator having an inlet pipe, for the air to be withdrawn, a pair of conical members in line with each
85 other across the outer end of said inlet pipe with their bases toward each other and open and separated from each other to leave a passage between them, a hood surrounding the bases of said cones at a distance to leave
90 an annular space between said bases and said hood, and a baffle projecting beyond one of said conical members in front of the annular space between said hood and said cone.

3. A wind operated ventilator, having a pipe E, a transverse hood B curved about an axis transverse to that of the pipe E, and attached at opposite ends to opposite
100 sides of said pipe, a conical deflector D attached to the outer end of said pipe with its base within said hood and its smaller end extending forward so as to tend to deflect the wind toward the annular space
105 between the hood and the base of the deflector, and a baffle comprising a plate L extending about said deflector and in advance of said annular space.

4. A wind operated ventilator having a pipe E, a pair of conical deflectors D at-
110 tached to the outer end of said pipe on a common axis extending across the end of the pipe with their bases toward each other and open and separated from each other to leave an outlet between them, a hood B surround-
115 ing the bases of said cones at a distance to leave an annular space, and plates L surrounding said conical deflectors and located in advance of said annular space.

5. A wind operated ventilator comprising
120 a pipe E, a pair of conical deflectors D of sheet metal fastened upon the end of said pipe with their bases arranged toward each other and open and separated from each other to leave a passage between them, a
125 hood B of sheet metal surrounding said passage and fastened upon the end of said pipe, and baffles L of sheet metal surrounding said conical deflectors and connected directly to said deflectors and to said hood.

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6. A wind operated ventilator comprising
a pipe E, a pair of conical deflectors D of
sheet metal fastened upon the end of said
pipe with their opposite ends open and their
5 bases separated from each other to leave a
passage between them, a hood B of sheet
metal surrounding said passage and fas-
tened upon the end of said pipe, baffles con-
sisting of plates L fastened to said de-
10 flectors across their outer ends and extend-
ing beyond the circumferences of said outer
ends, and members N fastening said hood
to said baffles at points beyond said circum-
ferences.

15 7. The combination with a car of a wind
operated ventilator having a horizontal in-
let pipe, a pair of conical members with

their axis parallel to the length of said car,
their bases facing and slightly separated
from each other to provide an outlet and 20
to permit water to escape at the under side,
a hood surrounding the bases of said cones
at a distance to leave an annular passage
between said bases and said hood, and a baf-
fle projecting beyond one of said conical 25
members in front of said annular passage.

In witness whereof, I have hereunto
signed my name in the presence of two sub-
scribing witnesses.

EDWARD E. GOLD.

Witnesses:

D. ANTHONY USINA,
FRED. WHITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
