

W. P. BREWSTER.
RESPIRATOR.
APPLICATION FILED FEB. 26, 1912.

1,050,718.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



WITNESSES:
Wm. H. Scott
E. M. Harrington.

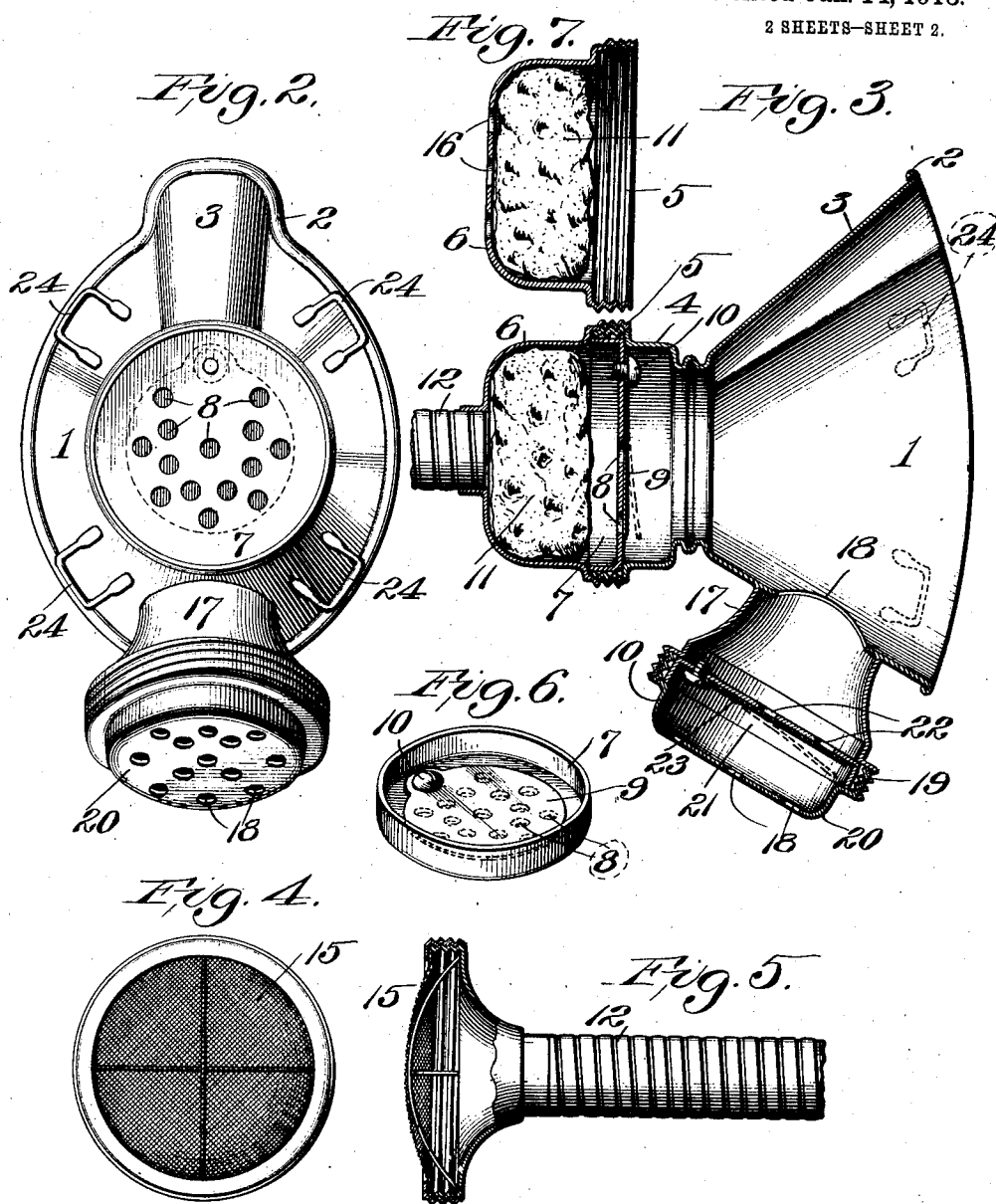
INVENTOR.
Wm. P. Brewster,
BY
Alfred T. Loughan.
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

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RESPIRATOR.

1,050,718.

Specification of Letters Patent.

Patented Jan. 14, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM P. BREWSTER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Respirators, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved respirator, and consists in the novel construction hereinafter described and pointed out in the claim appended to the specification.

The object of my invention is to provide an improved respirator which is adapted to be temporarily attached to the head of the user over the mouth and nose, with the parts arranged in such a manner that the absorbent or medicated filtering material will only be exposed to air drawn from the exterior of the respirator and cannot be contaminated by the exhaled air.

A further object of my invention is to provide such a respirator with an improved construction of fresh air tube, whereby fresh air from the exterior of the house may be drawn into the respirator through the said tube and through the medicated absorbent material within the respirator and thence pass into the lungs of the user, and then exhaled through a special exhaling valve, without contaminating the medicated absorbent material.

A further object of my invention is to provide a respirator of improved construction, especially adapted for use in treating diseases of the lungs.

In the drawings Figure 1 is a perspective view of my improved respirator in practical use upon a patient lying in bed adjacent a window; Fig. 2 is a front elevation of my respirator with the absorbent-material chamber detached in order to show the inhaling passages and inhaling valve; Fig. 3 is a sectional side elevation of the respirator; Fig. 4 is a front elevation of a fresh air strainer applied to the outer end of the fresh air tube; Fig. 5 is a sectional side elevation of the fresh air strainer; Fig. 6 is a detail perspective view of a valve seat made use of in carrying out my invention; and Fig. 7 is a sectional side elevation of a detachable absorbent-material chamber, which may be interchangeably applied to the res-

pirator in lieu of the absorbent-material chamber to which the inner end of the fresh air tube is connected.

The numeral 1 indicates the body of the respirator, which is substantially cone-shaped, but the base margin 2 of which is shaped in the arc of a circle as shown at the right hand side of Fig. 3. At the opposite side of the body 1 is an integral hollow nose-bridge 3, which together with the marginal edge 2 of the body is shaped to anatomically fit the user's nose and face at points adjacent his mouth.

At the outer end of the conical body 1 is the inhaling valve chamber 4 the outer end of which is screw threaded to fit corresponding screw threads 5 formed upon the absorbent-material chamber 6 which is detachably connected to said inhaling valve chamber 4. Mounted within said valve chamber 4 is the inhaling valve seat 7 having a series of perforations 8 and detachably clamped in position within said valve chamber by the absorbent-material chamber 6 when the latter is screwed into position. Fixed upon the inner face of said valve seat 7 and adapted to normally close the perforations 8 of said valve seat, is a flexible inhaling valve 9, preferably made of mica or other flexible material. Said inhaling valve 9 is supported upon its seat by means of a screw or rivet 10, so that when inhalations take place the valve will open inwardly as indicated by dotted lines in Fig. 3.

In the treatment of diseases of the air passages of the head, throat and lungs, I locate within the absorbent-material chamber 6 a sponge or other body of absorbent or filtering material as indicated by the numeral 11.

12 indicates a flexible fresh air tube which has its inner end secured to one of the absorbent-material chambers, as shown in Fig. 3, while the other end, is, during use to be passed out through an opening 13 in the window sash 14, as shown in Fig. 1, to permit fresh air to be drawn into the respirator in treating lung diseases. Located upon the outer end of the said fresh air tube 12 is a strainer 15, which may be of any preferred construction.

In using the fresh air tube 12 the absorbent-material chamber to which the inner end of said tube is attached, is screwed into position upon the respirator; but when the inhaled air is taken from the room in which

the user is located, the said fresh air tube and its absorbent-material chamber, are replaced by an interchangeable absorbent-material chamber which is shown in Fig. 7, the same having a series of inlet perforations 16 in its outer end.

17 indicates an exhaling valve chamber, the interior of which is in communication with the interior of the body 1 by means of an opening 18. The outer end of said exhaling valve chamber is screw threaded to receive the screw threads 19 of the screw cap 20. The inhaling-valve chamber 4 and the absorbent-material chamber 6, are (as will be seen) constructed with annular enlargements at the meeting ends of each; thereby forming opposite annular shoulders, or seats, separated by a space within which the valve-seat 7 is removably clamped. It will thus be seen that said valve-seat is clamped between said opposite annular shoulders within the said annular enlargements. The said screw cap 20 clamps in position the exhaling valve seat 21 provided with a series of perforations 22 normally closed by an exhaling valve 23. The construction of the said exhaling valve is preferably identical with said inhaling valve 10 previously described, except that the exhaling valve opens outwardly while the inhaling valve opens inwardly.

The numeral 24 indicates strap loops to which the straps 25 are attached, in temporarily securing the respirator in position upon the user, as shown in Fig. 1.

In use the sponge 11 is properly saturated with a medicated liquid, and placed within the absorbent-material chamber, so that all air entering the interior of the respirator must necessarily pass through the said sponge. When the user inhales the air will be drawn in through said medicated sponge and through the apertures 8 of the inhaling valve and will thence pass into the nose or mouth of the user. Exhalations are prevented from coming in contact with the medicated sponge or other material located

in the absorbent-material chamber, by the automatic closing of the inhaling valve 9, so that said exhalations must pass outwardly through the openings 22 of the exhaling valve seat 21. Likewise, when inhalations are made by the user the said exhaling valve 23 will automatically close and prevent the entrance of air otherwise than through the said absorbent-material chamber.

The valves 9 and 23 are preferably made of mica, because I have discovered that this material has certain advantages not possessed by any other material known to me, as it is flexible, moisture-proof and transparent, besides possessing other advantages which need not be recited.

The annular enlargements of the inhaling-valve chamber 4 and the absorbent-material chamber 6 engage each other telescopically, as well as being threaded together, said enlargements forming a very convenient hand-hold during the operation of uniting and separating said parts, while they are being prepared for use.

I claim:

The improved respirator, comprising a hollow body shaped to fit the user's face, a valve-chamber and an absorbent-material chamber having mating telescopic annular enlargements screw-threaded together at the front end of said body and forming a hand-hold on the exterior of said parts, and having internal opposite annular shoulders and a corresponding annular space within said chambers, a perforated valve-seat carrying an inhaling-valve and removably clamped in said annular space of said enlargements between said opposite shoulders, and a suitable exhaling-valve also connected to said body.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

WILLIAM P. BREWSTER.

Witnesses:

JOHN C. HIGDON,
E. L. WALLACE.