April 23, 1929. J. R. GIBBS 1,710,160

RESPIRATOR

Filed Feb. 4, 1925

Fig. 1.

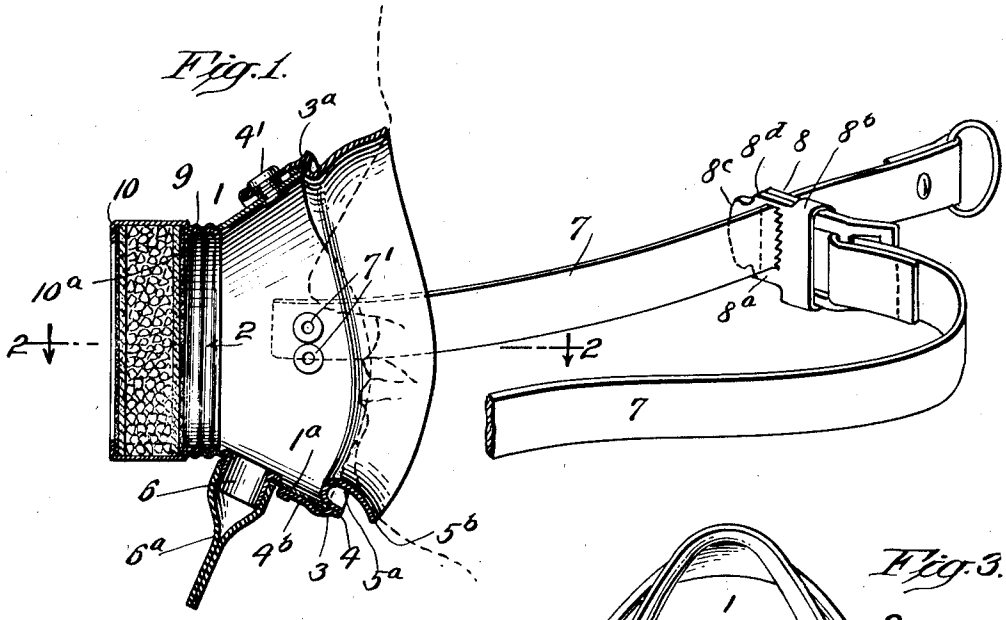


Fig. 3.

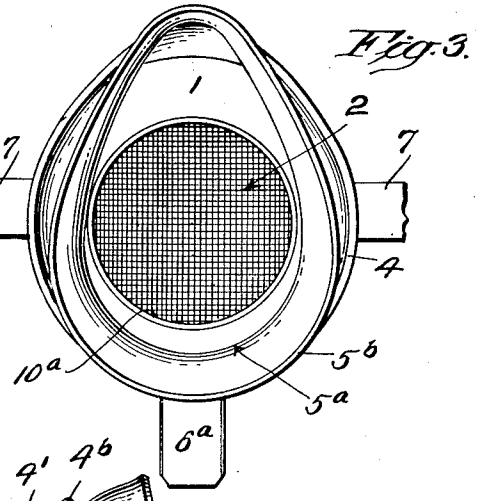


Fig. 2.

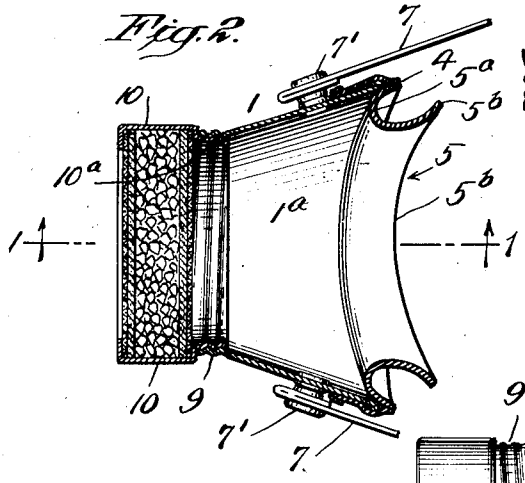
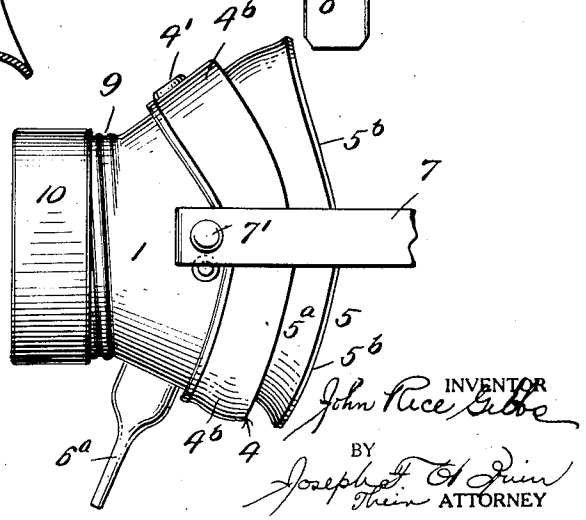


Fig. 4.



INVENTOR
John Rice Gibbs
BY
Joseph T. O'Brien
ATTORNEY

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UNITED STATES PATENT OFFICE.

JOHN RICE GIBBS, OF NEW YORK, N. Y., ASSIGNOR TO GIBBS WAHLERT MASK CO., INC., A CORPORATION OF NEW YORK.

RESPIRATOR.

Application filed February 4, 1925. Serial No. 6,707.

This invention relates to improvements in respirators.

The object of this invention is to produce a respirator particularly adapted for use of tenants, employees in buildings, and others to enable egress through smoke-filled passages in case of fire.

Another object of my invention is to produce a respirator which will be always ready for use, which may be applied over the mouth and nose instantaneously and without any preliminary blowing-up or inflation; and which, when so applied, will effectively conform to the contour of the face to completely exclude smoke-charged air and other deleterious gases.

Another object of my invention is to enable the instantaneous fastening and release of the device on the head of the user.

Another object of my invention is to provide a readily removable and renewable cartridge having a direct mounting on the respirator body and which will effectively filter and purify smoke-charged air admitted through said cartridge into the body of the respirator so as to cause such air to reach the mouth and nostrils of the wearer in purified conditions.

With these and other objects in view, the invention comprises the combination of members and arrangement of parts so combined as to co-act and cooperate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawings, in which:—

Fig. 1 is a vertical section substantially on the line 1—1 of Fig. 2 of a respirator embodying my invention applied over the nose and mouth of the user;

Fig. 2 is a transverse section on the line 2—2 of Fig. 1;

Fig. 3 is a rear elevation of the respirator shown in section in Figs. 1 and 2; and

Fig. 4 is a side elevation of the respirator shown in Figs. 1 to 3 inclusive.

Referring now to these drawings which illustrate a preferred embodiment of this invention, 1 indicates a respirator provided with a metallic body or shell 1^a having an air-inlet opening or nozzle 2 in the outer surface and being provided at the inner perimetral edge with a face-pressing portion 3 having in its upper portion a nose-notch or depression 3^a. The marginal edge of the face-pressing portion 3 is provided with a rubber rim-strip 4 which is preferably fastened to the metallic body adjacent to the nose-notch 3^a by a fastener 4′ and is of a novel type which is always ready for use without initial inflation and thus enables immediate application of the respirator-body to the face of the user. Furthermore, the close conformance of the rubber portion to the face of the user effectively exclude the passage of any air, smoke or gases between said rim-strip and the face.

In the preferred embodiment shown, the rim-strip 4 is provided with a retaining flange 4^a which closely hugs the marginal edge of the respirator-body and is fastened thereto at one or more points. This flange 4^a has fastened thereto at its outer edge a stiff reentrant face-contacting strip 5 having the conformation of a sectional cylinder or tube with a reentrant grooved or cylindrical portion 5^a and an outwardly extended free edge 5^b. The body of the face-strip 5 conforms to and extends outwardly beyond the edge of the respirator-body but a portion of its body extends within the shell or body and its edges lie completely within the wall or face-contacting opening of said respirator-body so that when said respirator-body is pressed against the face, the face-contacting strip will be capable of a flexing movement inwardly within the body and a close contact with the face will result, thus shutting out or excluding any smoke-filled air or other deleterious gas.

The respirator 1 is preferably provided with an exhalation valve of any suitable form, and, as shown, an exhaling pipe or nipple 6 is provided at the bottom portion of the respirator-body, to which pipe is fastened an automatically-closing pipe valve 6^a of conventional type.

The respirator 1 is preferably attached to the head by means of a strap 7 having an automatically-fastening buckle 8. Said buckle 8 is provided with a frame 8^a having a toothed bar 8^b slidable thereon and actuated to slide into gripping position by a strap-engaging bar 8^c integral with the toothed bar 8^b and so arranged as to cause any backward pull on the strap to produce a gripping and tightening of the toothed bar on the strap. In order to permit ready release of this buckle I provide a thumb piece 8^e projecting from a strap-engaging bar 8^d.

In the preferred embodiment of my invention, I also provide the respirator with a

screw-threaded nozzle or inlet-orifice 9 having removably attached thereto a cartridge 10 containing a filtering and purifying medium such as charcoal, for the purpose of filtering any air passing through said cartridge. Said cartridge is as illustrated, directly connected with the respirator shell or body and is provided with a screw-threaded nipple or flange 10^a for engagement with the screw-threaded inlet or orifice or nozzle.

Having described my invention, I claim:—

A respirator embodying a rigid shell adapted to fit over the mouth and nose of the wearer and provided with suitable inlet and outlet openings and having a rigid rim generally conforming in outline with the face of the wearer and an annular elastic air-excluding rubber cushion mounted on said rigid rim of said shell and composed of an attaching strip having a detachable connection with the outer surface of said rigid rim and a reentrant and outwardly-opening groove portion provided at one side of its groove with a free edge and connected at the other side edge to said attaching strip and extending inwardly of said rim, said cushion having a seat for said rigid rim adjacent to the connection between said attaching strip and groove portion.

In witness whereof, I have signed my name to the foregoing specification.

JOHN RICE GIBBS.