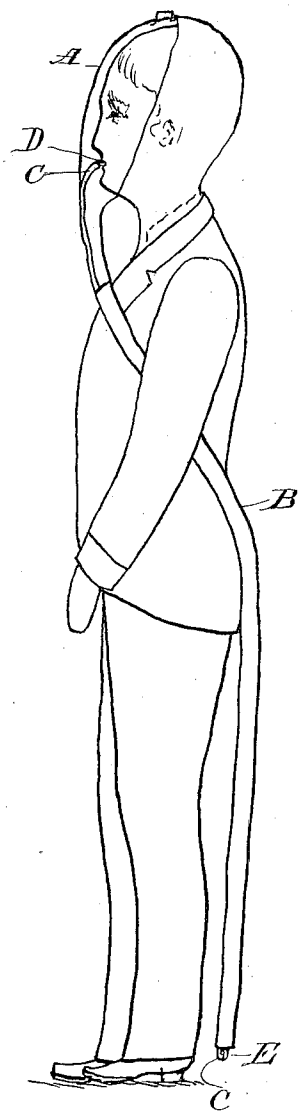
G. A. MORGAN.

BREATHING DEVICE.

APPLICATION FILED SEPT. 21, 1912.

1,090,936. Patented Mar. 24, 1914.

Fig. 1



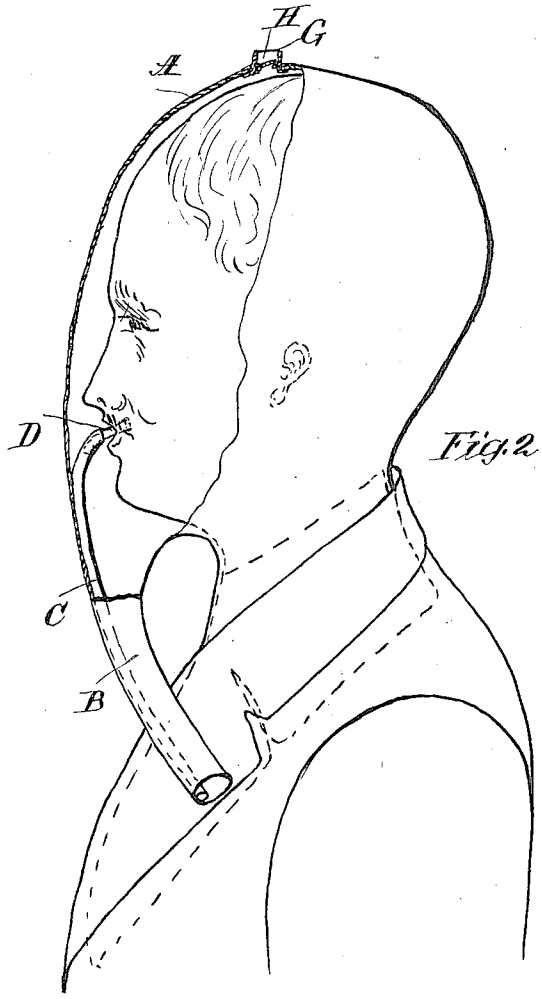


Fig. 2

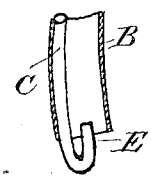


Fig. 3

Witnesses
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UNITED STATES PATENT OFFICE.

GARRETT A. MORGAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL SAFETY DEVICE COMPANY, OF OBERLIN, OHIO, A CORPORATION OF OHIO.

BREATHING DEVICE.

1,090,936. Specification of Letters Patent. Patented Mar. 24, 1914.

Application filed September 21, 1912. Serial No. 721,648.

To all whom it may concern:

Be it known that I, GARRETT A. MORGAN, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Breathing Devices, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide means whereby a fireman having his head inclosed in a hood with which a hanging air tube communicates will be able to supply himself at will with fresh air from near the floor or other suitable place and at the same time forcibly remove smoke or injurious gases from the air tube.

This invention is adapted for use in connection with the protecting hood and air tube described in my application for breathing device filed August 19, 1912, bearing Ser. No. 715,697, in which the head of the fireman is shown as enveloped in a protecting hood with which a tube descending toward his feet communicates, and through which tube fresh air from the lower portion of a room or hallway is drawn.

The present invention comprises a tube having a mouthpiece inclosed within the hood which can be inserted in the mouth and this tube is turned upward at the lower end to enter the mouth of the lower end of the air tube and by forcibly exhaling into the mouthpiece a strong current of air can be driven into the lower end of the air tube.

The invention is hereinafter further described, shown in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my breathing device in place on an operator, a portion of the breathing device being broken away; Fig. 2 is an enlarged, partly sectional side elevation of the upper portion of the breathing device; Fig. 3 is a vertical section of a portion of the breathing tube near its lower end.

In this device A is the hood which incloses the head.

B is the air tube arranged as in my previous application to depend from the hood and has its outer opening at a low level so as to provide an inlet for fresh air from the lowest stratum of air surrounding the operator.

C is the exhaling tube which is provided with the mouthpiece D into which air from the lungs is forcibly exhaled. The lower end of this tube is turned upward at E to enter the mouth of the air tube and is preferably central therein so that when the air is blown from the lungs into the exhaling tube it will produce a strong upward current through the air tube and thereby will drive out the air in the air tube and all collections of gas or smoke which may have entered the tube, such gas or smoke passing upwardly within the hood and out through an opening G at the top thereof. As this passage of the foul air past the wearer's face is at the time when he is exhaling, no damage results therefrom. A continued exhalation draws into the tube a supply of fresh air from any available source. Usually the air near the floor is pure enough to be easily breathed. If not, the fireman may step for a moment to some place where the air is purer. For this purpose the end of the tube can be dropped for a minute out of a window. In case the atmosphere about the operator should become too foul to breathe the lower end of the air tube could be placed for a moment outside of a window or apartment free from smoke and by forcibly blowing from the exhaling tube the air tube could be filled with fresh air which the operator could breathe and would supply the lungs with fresh air for a short period of time.

At the top of the hood A is shown an opening G protected by a valve H which permits the foul air in the hood to escape as fresh air is driven into the hood. Whenever the hood and air tube become filled with foul air, fresh air can be driven through the tube into the hood and a supply contained within the hood and air tube will prevent the suffocation of the operator until he can escape and also enable him to perform considerable work in an atmosphere too foul to breathe. The lower end of the tube after it has been thoroughly freed from suffocating gas or smoke can be temporarily closed by compressing by hand, or a clamping means may be attached to close the same.

Having described the invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a hood adapted to inclose the head of the operator, and an air tube depending therefrom, an exhaling tube, a mouthpiece therefor located within the

hood and a lower extremity for said exhaling tube communicating with the lower end of said air tube.

2. In a breathing device, the combination with a hood, an air tube depending therefrom, the said hood provided with an opening at its upper end, of an exhaling tube having one extremity inserted in said hood, and accessible to the mouth of the wearer, the lower extremity of said exhaling tube turned upward to inject a stream of air from said exhaling tube into the lower end of said air tube, and thereby draw fresh air into the lower end of the tube.

3. In a breathing device, the combination of a hood having an opening, an air tube connected with the hood, and means operated by the breath of the wearer for clearing the tube from foul air.

4. In a breathing device, the combination of a hood adapted to inclose the head of the operator, an air tube depending therefrom, an exhaling tube accessible for the operator within the hood, said exhaling tube discharging upwardly within the air tube.

5. In a breathing device, the combination of a hood adapted to inclose the head of the operator, an air tube depending therefrom, an exhaling tube extending downwardly within the air tube from a point adjacent to the operator's mouth, the lower end of the exhaling tube being turned upwardly.

6. The combination, with a hood adapted to inclose the head of the operator, of an air tube depending therefrom, an exhaling tube, a mouth piece within the hood at the upper end of the exhaling tube, the lower end of the exhaling tube discharging upwardly in the air tube.

7. In a breathing device, the combination of a hood having an opening adjacent to its upper portion, an air tube depending from the front lower portion of the hood, an exhaling tube within the air tube and of smaller diameter, a mouth piece for the exhaling tube positioned to be adjacent to the mouth of the operator within the hood, the lower end of the exhaling tube being turned upwardly to discharge exhaled air into the air tube and establish an upward current through such tube.

8. The combination, with a hood adapted to inclose the head of the operator, of an air tube depending therefrom, and a clearing tube adapted to discharge air upwardly in the air tube.

9. In a breathing device, the combination of a hood having an opening adjacent to its upper portion, an air tube depending from the front lower portion of the hood, and a clearing tube, the lower end of which is turned upwardly in the air tube to discharge air into the air tube and establish an upward current therethrough.

In testimony whereof, I hereunto set my hand this 16th day of September, 1912.

GARRETT A. MORGAN.

In presence of—
GEO. S. COLE,
WM. M. MONROE.