G. A. MICKELSON.

OPEN FACE GAS MASK.

APPLICATION FILED MAY 17, 1919. RENEWED MAY 19, 1920.

1,344,349. **Patented June 22, 1920.**

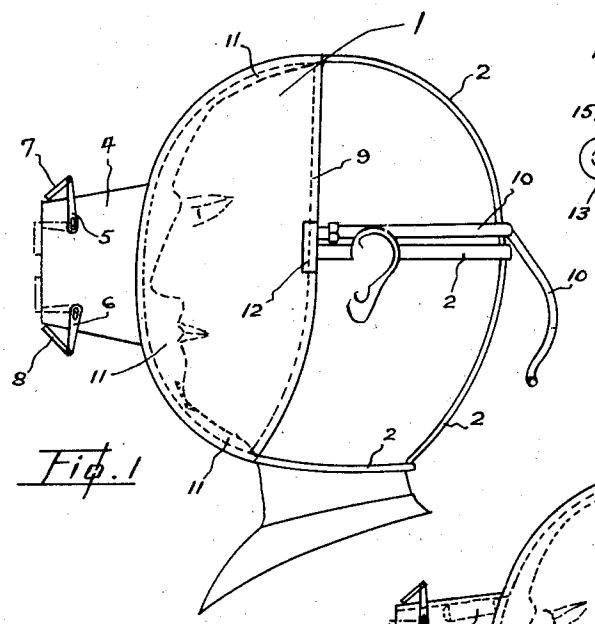


Fig. 1

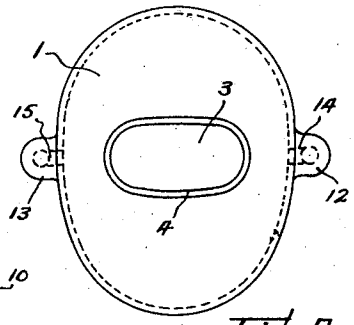


Fig. 2

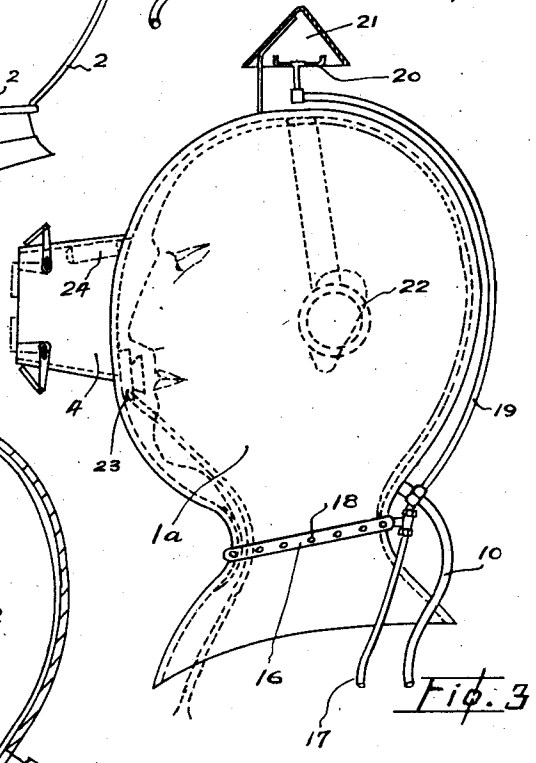


Fig. 3

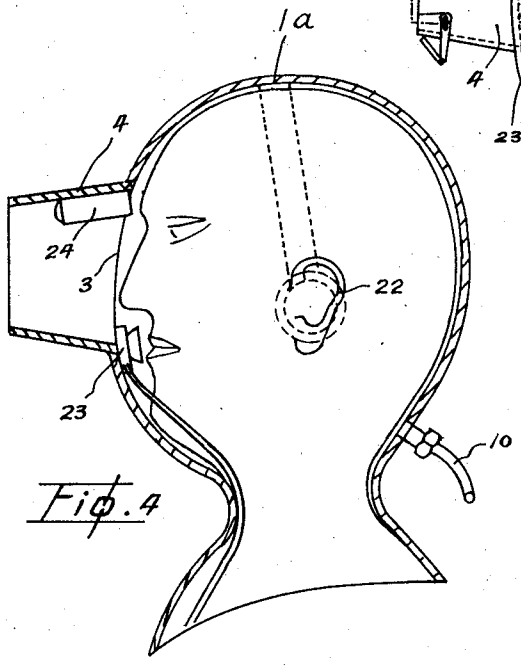


Fig. 4

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UNITED STATES PATENT OFFICE.

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OPEN-FACE GAS-MASK.

1,344,349. Specification of Letters Patent. Patented June 22, 1920.

Application filed May 17, 1919, Serial No. 290,819. Renewed May 19, 1920. Serial No. 382,640.

To all whom it may concern:

Be it known that I, GEORGE ARTHUR MICKELSON, a citizen of the United States, and a resident of the city of Vancouver, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Open-Face Gas-Masks, of which the following is a specification.

My invention relates to improvements in gas masks or helmets, and the object of my invention is to devise a mask or helmet which, although having an open face, may be employed with great facility to permit the wearer to enter and work in places where deadly gas is found, such as in sewers, tanks, flues or the like, or intense heat, such as blast or smelting furnaces, or which may be fitted to a specially prepared suit for use in fire fighting.

I attain this object by the construction illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the mask.

Fig. 2 is a face view.

Fig. 3 is a side elevation of the mask in helmet form.

Fig. 4 is a sectional elevation of the helmet.

Similar figures of reference indicate similar parts throughout the several views.

The mask, indicated by the numeral 1, may be made of any suitable material, and is formed to inclose the face and sides of the head extending backwardly almost as far as the ears, being provided with suitable straps 2 for fastening it in place. In front of the eyes, however, the mask is provided with an opening 3 from which extends outwardly a tube 4, positioned so that the wearer may have an unobstructed view therethrough, and swingably mounted toward the outer end of the tube on suitable arms 5 and 6 are upper and lower shutters 7 and 8 respectively which may be swung downwardly in front of the tube to restrict the tube opening so as to obtain a greater velocity of air or upwardly clear of the opening, as desired. The rear edge of the mask is provided with an inner ring 9 of suitable material adapted to form an air tight joint between the mask and the head when the mask is secured in place.

10 indicates an air inlet pipe adapted to be connected to the mask so that air may be blown into the air space 11 between the mask wall and the face by means of any suitable blower or air pump (not shown) to which the opposite end of the pipe is connected, the pipe 10 being preferably attached to side extensions 12 and 13 having passages 14 and 15 communicating with the interior of the mask.

The manner in which the mask is used may be briefly described as follows: When it is desired to enter a sewer or place where poisonous gas may exist the mask is placed on the face and secured by the straps 2, being adjusted, of course, so that the opening of tube 4 is directly in front of the eyes, the air line 10 being connected to the passages 14 and 15, when, a continual stream of air being forced into the mask, the wearer may safely pass into and work in a body of poisonous gas without injury, since the air forced into the mask passes out through the tube 4 and provides pure air for the wearer to breathe, thus allowing him to conduct examinations into any abnormal conditions existing around him, to conduct any necessary repairs, or to rescue anyone who may have been overcome with the gas while at the same time providing fresh air for the rescued party from his own tube 4 by holding the same close to the mouth of the other party.

The modification according to Figs. 3 and 4 shows the device in helmet form, and in this construction the mask is extended to form a hood or helmet 1^a adapted to entirely inclose the head and extend down on to the shoulders, being tightened around the neck or body by any suitable means so as to form an air tight connection with the body, otherwise the construction and operation is the same as has already been described with reference to the mask. The helmet is preferably used for hot work, such as in operating blast or smelting furnaces or in fighting fire, in which case to keep the head and body cool a perforated pipe 16 is mounted around the neck of the helmet through which water may be circulated from a supply pipe 17 so that the jets of water issuing from the perforations 18 will fall all over the body of the wearer, while an extension 19 of pipe 17 is carried up to a short distance above the crown of the helmet and is provided at its extremity with a revolving spraying device 20 similar to that used in gardening work, the discharge from which is deflected downwardly over the helmet by means of a hood member 21 mounted directly above it.

The air inlet pipe 10 may enter the helmet at any suitable point, as shown, and in the interior of the helmet may be provided a telephone receiver 22 and transmitter 23 by means of which the wearer may converse with those beyond the danger zone. An electric lamp or flash light 24 may also be mounted in a suitable place in the tube 4 to give light in a dark place, the glass being kept clean and free from blur by the air passing out through the tube.

From the foregoing it will be seen that I have provided a simple and inexpensive means whereby examination, repair, and rescue work may be carried on in the midst of deadly gas or abnormal heat safely and without injury to the user.

What I claim as my invention is:

1. A mask or helmet adapted to inclose the face or head respectively so as to preserve an air tight space therearound having an inlet opening for air under pressure and an air exit opening in front of the eyes, and a funnel secured to said mask or helmet in line with said exit opening whereby the air issuing therefrom is concentrated and directed forwardly as a stream to penetrate smoke or gases against which it is projected.

2. A mask or helmet adapted to inclose the face or head respectively so as to preserve an air tight space therearound having an inlet opening for air under pressure and an air exit opening in front of the eyes, a funnel secured to said mask or helmet in line with said exit opening whereby the air issuing therefrom is concentrated and directed forwardly as a stream to penetrate smoke or gases against which it is projected, and means for varying the velocity of air flow through the said funnel.

3. A mask or helmet adapted to inclose the face or head respectively so as to preserve an air tight space therearound having an inlet opening for air under pressure and an air exit opening in front of the eyes, a funnel secured to said mask or helmet in line with said exit opening whereby the air issuing therefrom is concentrated and directed forwardly as a stream to penetrate smoke or gases against which it is projected, and means for varying the velocity of air flow through the said funnel, said means comprising shutters adapted to be swung down in front of the funnel to reduce the area of the funnel opening.

Dated at Vancouver, B. C. this 3rd day of April 1919.

GEORGE ARTHUR MICKELSON.