E. W. MILLER.

GAS MASK.

APPLICATION FILED DEC. 2, 1918.

1,348,819. Patented Aug. 3, 1920.

Fig. 2.

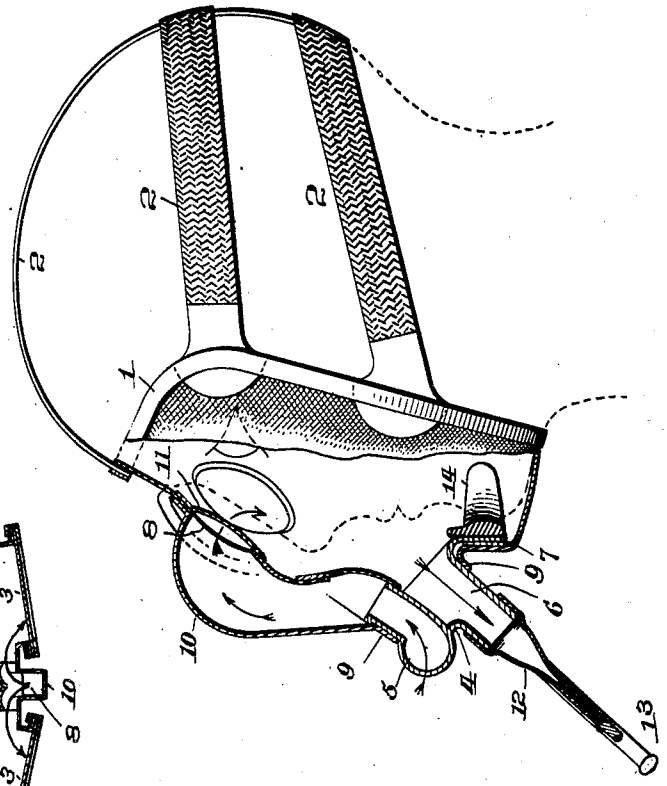


Fig. 4.



Fig. 5.

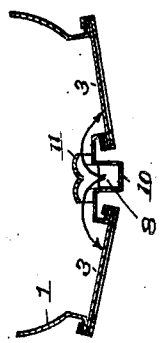


Fig. 1.

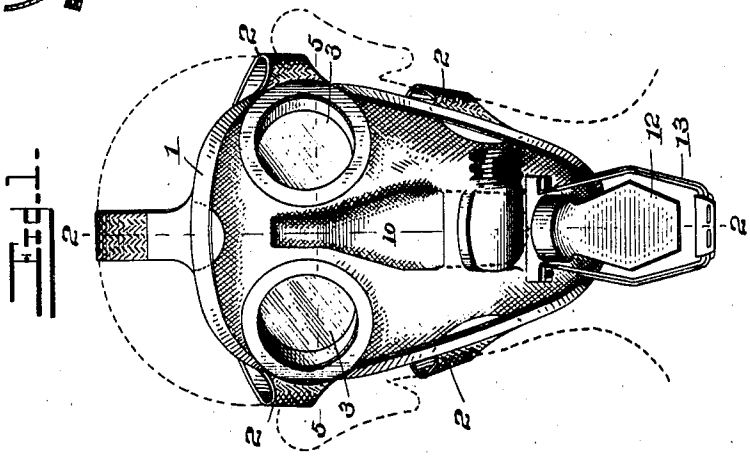


Fig. 3.



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UNITED STATES PATENT OFFICE.

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GAS-MASK.

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To all whom it may concern:

Be it known that I, ELTON W. MILLER, a citizen of the United States, and a resident of Washington, District of Columbia, have invented new and useful Improvements in Gas-Masks, of which the following is a specification.

This invention relates to improvements in masks of the kind adapted to protect the eyes, and respiratory organs and passages of the wearer from injurious gases mixed with air. More specifically, it relates to masks wherein the air is led into the mask in such manner as to clear the lenses of moisture which condenses thereon.

Among the objects of the invention is the production of a mask which is comfortable, which is so arranged as to give unimpaired vision and which is simple in construction, inexpensive, durable and efficient.

Further and more specific objects of the invention are the production of a mask which has the number of openings thereinto reduced to a minimum, whereby the chances for leakage of gas into the mask are correspondingly reduced, and the production of one that has a simple and effective arrangement for causing the flow of air across the lenses of the eyepieces.

The usual mask outfit comprises a vessel containing the air purifying material, a tube leading therefrom to the mask, and that part which fits over the face and hereinafter termed the "mask." The latter is provided with means for causing the wearer to inhale through this tube and exhale through a valved opening provided for the purpose.

The present invention is particularly concerned with the construction and arrangement of the air passages of the mask and the arrangement for clearing the lenses of moisture, and will be more easily described and understood by referring to the accompanying drawing, in which Figure 1 represents a perspective view of the mask as worn and viewed from the front; Fig. 2 represents a side view, partly in section along the line 2—2 of Fig. 1; Fig. 3 shows a longitudinal section of the baffle member; Fig. 4 shows a cross section of the latter; and Fig. 5 is a section through the eyepieces and baffle, taken on line 5—5 of Fig. 1, and shows the direction of the incoming air currents and location of the baffle. In the drawings, the mask comprises a face cover 1 adapted to cover and protect the eyes, nose, and mouth of the wearer. This mask is provided with head-straps 2 and transparent eyepieces of suitable material 3 mounted gas tight in the mask.

In the face cover, there are provided two openings 8 and 9, located, one, 8, between the eyepieces and the other, 9, at a point approximately opposite the mouth of the wearer. In the latter opening there is mounted a fitting or connection 4, provided with two passages, 5 and 6, and having a depending arm or lip 7 at the lower edge of the innermost end of one of them.

Permanently attached over the opening 8, is the end of a tube or air conduit 10 for admitting air to the interior of the mask. This tube extends along the outside of the face cover from the opening 8 to a point just above the opening 9, where it enters the face cover and is connected to the inner end of passage 5. The under side of this tube, from the lower edge of opening 8 to where the tube enters the face cover just above the opening 9, may be and preferably is integral with the face cover so as to add a degree of rigidity longitudinally of the mask.

It should be noted that the opening 8 is permanently covered by the tube 10 which is sealed thereto by vulcanizing or cementing as distinguished from the method of closing opening 9 which contains the fitting inserted and fastened in place by tape or the like.

Opposite the upper end of the tube 10, and between the eyepieces, is placed a small baffle 11, having a plurality of curved surfaces shaped as shown in Figs. 3 and 4; that is, the cross section of the baffle is substantially like a double U, with the adjacent edges of the U's fastened together and sharpened so as to form a divider for the stream of air, the remaining part of the U serving to throw the air against the eyepieces. This baffle is provided for the purpose of dividing the stream of air coming in through tube 10 and positively deflecting the portions of the stream against and across the inner surfaces of the transparent eyepieces so as to prevent the accumulation of moisture thereon.

There are several advantages to be derived from the construction shown over the

masks heretofore used and among these are first, the simplified construction, there being only one air supply tube to be attached to the mask, second, attaching this tube to the outside of the mask adds a certain degree of rigidity to the mask, thus aiding in the positioning of the mask with respect to the face of the wearer and allowing breathing space, and, third, by using a single tube of fairly large bore, the resistance to the incoming air is reduced and the stream may be more evenly divided than may be done with a branched tube supplying air to the two eyepieces separately.

To the outer end of passage 5 is attached the usual flexible tube leading to the vessel containing the air purifying material (the tube and vessel not being shown).

Attached to the outer end of passage 6 in the fitting 4 is the exhalation valve 12 provided with a metal guard 13, and attached to the depending arm or lip 7 at the inner end of passage 6, is a chin rest 14.

Further details of the operation of the device will be more or less obvious to those familiar with this class of devices so that no description thereof will be given.

The mask may be made of any suitable material such as rubber and cloth and the fitting, eyepieces, and guard for the exhalation valve also of suitable material such as metal, for the guard and fitting and glass for the eyepieces.

It is not intended that the invention shall be limited to the specific details herein given, as it is obvious that these may be varied without departing from the invention as indicated in the accompanying claims.

Claims:

1. A gas mask comprising a face cover provided with a pair of transparent eyepieces, means for admitting incoming air at a point between the said eyepieces and means for deflecting the incoming air across the inner surfaces of said eyepieces.

2. A gas mask comprising a face cover provided with a pair of transparent eyepieces, means for admitting a stream of air into the mask at a point between the eyepieces, and means for dividing the stream of air and deflecting the parts thereof across the inner surfaces of said eyepieces.

3. The combination in a gas mask having a conduit for supplying air thereto and a pair of transparent eyepieces of a baffle having a plurality of curved surfaces positioned over the outlet of said conduit for dividing the stream of air and deflecting the parts across the inner side of said eyepieces.

4. A gas mask comprising a face cover adapted to protect the wearer's eyes, nose, and mouth and being provided with transparent eyepieces, a fitting or connection mounted in an opening in said mask, the fitting being provided with a plurality of passages for air, and a flexible tube leading from one of said passages to a point between the eyepieces of the mask.

5. A gas mask for protecting the eyes, nose, and mouth of the wearer, the mask comprising a face cover provided with transparent eyepieces and having two openings, one of which is located between the eyepieces, a fitting or connection, containing tubular inlet and outlet passages for air, mounted in the other of said openings, and a tube sealed to and connecting the first mentioned opening with the inlet passage of the fitting.

6. A gas mask comprising a face cover provided with transparent eyepieces, a fitting mounted in an aperture in said cover and having inlet and outlet passages therein, a tube attached along the outside of said cover and leading from the inner end of said inlet passage to the interior of the mask at a point between the eyepieces, and means for directing incoming air across the inner side of the eyepieces.

7. A gas mask comprising a face cover provided with a pair of transparent eyepieces, means for admitting a stream of air into the mask at a point between the eyepieces, and means for dividing the stream of air and deflecting the parts thereof across the said eyepieces, the latter means comprising a baffle whose cross section is substantially that of a doubled U, having the adjacent sides fastened together.

8. A gas mask for protecting the eyes, nose, and mouth of the wearer, the mask comprising a face cover provided with transparent eyepieces and having two openings, one of which is located between the eyepieces, a fitting or connection, containing tubular inlet and outlet passages for air, mounted in the other of said openings, a tube sealed to and connecting the first mentioned opening with the inlet passage of the fitting, and a baffle opposite the upper end of said tube for dividing and deflecting the stream of incoming air against and across the eyepieces.

9. A gas mask for protecting the eyes, nose, and mouth of the wearer, the mask comprising a face cover provided with transparent eyepieces and having two openings, one of which is located between the eyepieces, a fitting or connection, containing tubular inlet and outlet passages for air, mounted in the other of said openings, a tube sealed to and connecting the first mentioned opening with the inlet passage of the fitting, and a baffle opposite the upper end of said tube for dividing and deflecting the stream of incoming air against and across the eyepieces, said baffle having a cross-section substantially that of

a doubled U having the adjacent sides fastened together.

10. A gas mask comprising a face-cover having transparent eye-pieces and nose and mouth covering portions, an air outlet, an external air-inlet pipe jointed to said face-cover at a point substantially between the eye-pieces, and means on the inner side of the face-cover forming a continuation of the aperture of said pipe and provided with lateral discharge slits impinging against the rear side of the eye-pieces.

ELTON W. MILLER.