

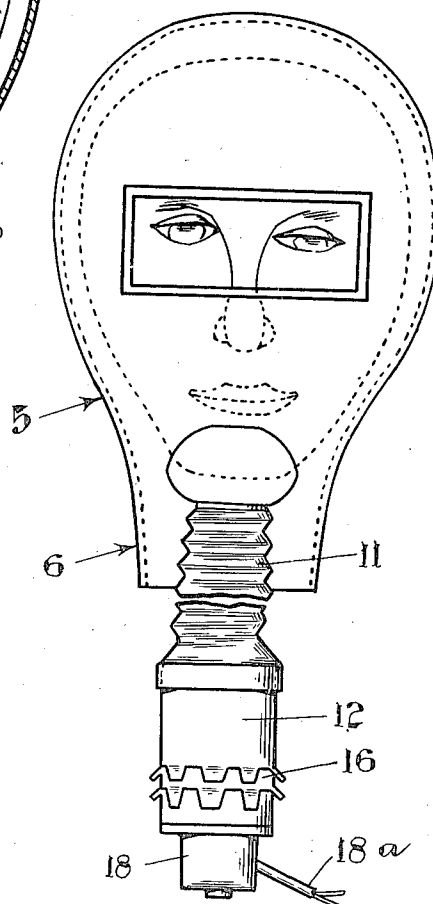
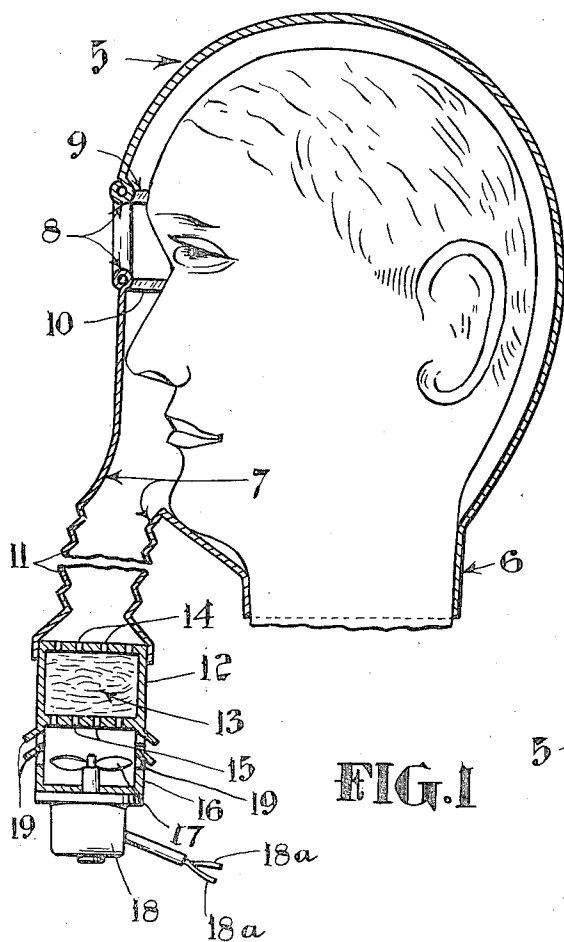
Oct. 26, 1943.

M. NATHANSON

2,332,662

GAS MASK

Filed Sept. 21, 1942



INVENTOR  
MAX. NATHANSON  
BY *Fetherstonhaugh & Co.*  
ATTORNEYS

## UNITED STATES PATENT OFFICE

2,332,662

GAS MASK

Max Nathanson, Montreal, Quebec, Canada

Application September 21, 1942, Serial No. 459,205

1 Claim. (Cl. 128-143)

This invention has, for its principal object, the provision of improved anti-gas respirator apparatus which can be used with greater comfort and safety as compared with conventional apparatus of this type.

The main feature of the invention consists in the provision of a head enclosing hood which is provided with air admission and discharge openings and which, when in use, is maintained filled with air under superatmospheric pressure by forcing air inwardly through said air admission opening at a rate in excess of the discharge capacity of the air discharge opening, the leakage of air through the last mentioned opening serving the dual purpose of preventing entrance of gas therethrough and ensuring a sufficient circulation of air through the hood to maintain the head of the wearer in a relatively cool and comfortable condition.

Further features and advantages of the invention will be dealt with in the following detailed description of the accompanying drawing, in which—

Fig. 1 is a diagrammatic view showing, in vertical section, the component parts of an anti-gas respirator apparatus constructed in accordance with my invention.

Fig. 2 is a front view of the apparatus appearing in Fig. 1.

Referring more particularly to the drawing, 5 designates a head enclosing hood or mask provided with a closely fitting neck encircling portion 6, an air admission opening 7 and an air discharge opening 8, the latter being preferably located directly in front of the eyes of the wearer and being unobstructed. Sealing strips 9 and 10 are secured to the inside of the hood or mask 5 at the upper and lower edges of the opening 8. The strip 9 is arranged to engage the forehead of the wearer while the strip 10 is arranged to engage the nose and cheek bones.

An air supply tube 11 has one end connected to the hood or mask 5 at the opening 7 and the other end secured to a filter casing 12 containing a suitable gas absorbing substance 13. The top wall of casing 12 is provided with air outlet openings 14 placing said casing in communication with air supply tube 11 while the bottom wall of said casing is provided with air inlet openings 15 placing said casing in communication with a fan housing 16 containing a fan 17 which is driven by a fan motor 18 fastened to the bottom wall of casing 16, the latter being provided with suitable air admission openings 19.

When the apparatus is in use air is drawn

into the fan housing 16 by the motor driven fan 17 and is forced into the hood 5 through the filter casing 12, air supply tube 11, and hood opening 7. The rate at which the air is thus supplied to the hood 5 through the air admission opening 7 is greatly in excess of the rate at which air is discharged from the hood through the leakage opening 8. This ensures that the hood 5, when in use, will always be maintained filled with air at superatmospheric pressure and also provides for a circulation of cooling air through the hood from the air admission opening to the discharge opening 8. At the latter opening the air escapes at sufficient volume and velocity to prevent any possibility of gas leaking inwardly through said opening. It may also be noted here that, owing to the provision of the sealing strips 9 and 10, the air passing to the discharge opening 8 is caused to flow horizontally between the sealing strips and across the eyes of the wearer before being discharged through the opening 8. This obviates any possibility of gas leaking inwardly through the opening 8 and coming in contact with the eyes of the wearer of the hood.

It will be understood that the specific embodiment of the invention illustrated in the present drawing is cited merely by way of example and that the principles of the invention may be embodied in any type of anti-gas respirator apparatus. The main feature of the invention consists in maintaining the head enclosing hood filled with filtered air under superatmospheric pressure while making provision for sufficient leakage of air from the hood to keep the head of the wearer in a relatively cool and comfortable condition and, at the same time, to prevent inward flow of air through the leakage opening of the hood.

The fan driving motor 18 is provided with leads 18a which may be connected to a battery or, if desired, may be fitted with a plug adapted to be inserted in a suitable socket.

The apparatus described herein is especially adapted for the use of the driver and other occupants of an armored tank since, in this case, the motor 18 may conveniently be connected to a battery or socket arranged inside the tank. The apparatus may, however, be used in other confined spaces where the user is forced to endure conditions of excessive temperature or poor ventilating conditions for a considerable period of time. If the apparatus is intended to be used as a portable self-contained apparatus, the motor 18 may be connected to a small battery which is carried about the person of the user.

Having thus described what I now conceive to be the preferred embodiment of the invention it will be understood that various modifications may be restored to within the scope and spirit of the appended claim.

Having thus described my invention, what I claim is:

Respirator apparatus comprising a head and face covering hood provided with a neck portion adapted to closely encircle the neck of the wearer, the face covering portion of the hood being provided with an air admission opening and an air discharge opening, the air admission opening being located below the nose of the wearer and the air discharge opening consisting of a single relatively long and narrow unobstructed slot extending across the hood in front of the upper portion of the nose and both eyes of the wearer, upper

and lower sealing strips extending respectively along the upper and lower edges of said discharge opening and projecting inwardly therefrom into engagement with the face of the wearer, said strips forming the upper and lower walls of a horizontal air passage which is open at both ends to the interior of the main portion of the hood, means for forcing air under pressure into the hood through said air admission opening at a rate in excess of the air discharge capacity of said air discharge opening whereby said hood is maintained filled with air under suepratmospheric pressure, the air thus supplied to the main portion of the hood being caused to flow horizontally between the sealing strips and across the eyes of the wearer before being discharged through the discharge opening.

MAX NATHANSON.