

Oct. 4, 1932.

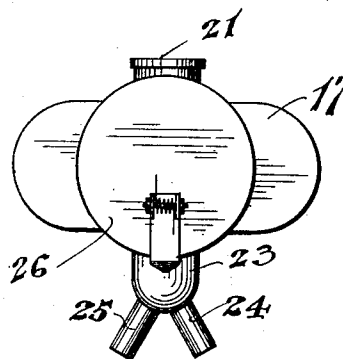
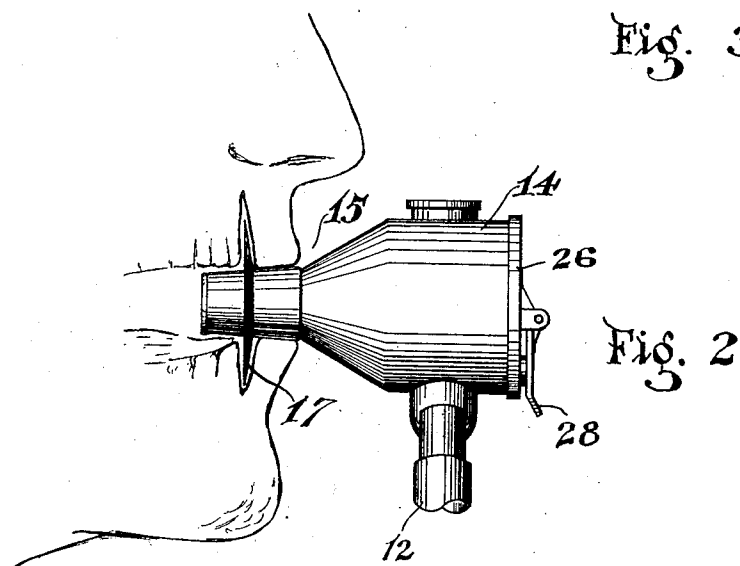
H. V. STURTEVANT

1,880,998

BREATHING APPARATUS

Filed Aug. 1, 1928

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

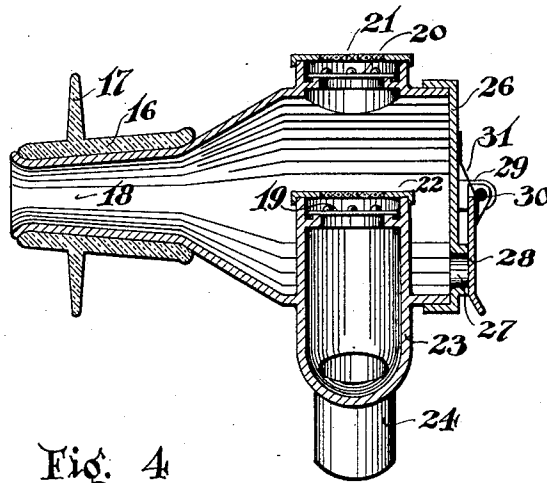


Fig. 4

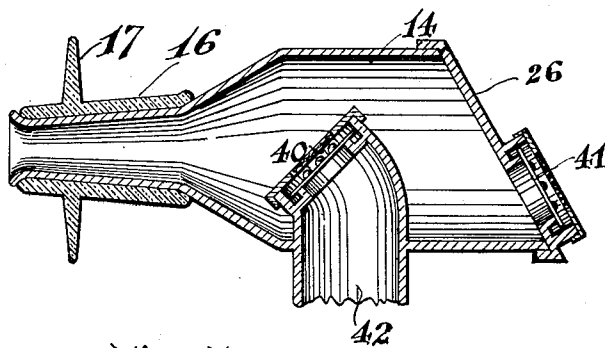


Fig. 5

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UNITED STATES PATENT OFFICE

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BREATHING APPARATUS

Application filed August 1, 1928. Serial No. 296,681.

This invention relates to improvements in respiratory apparatus and more particularly to a mouth piece for breathing apparatus which shall facilitate breathing in an atmosphere where excessive dust, dangerous or noxious gases are present.

The object of this invention is to provide a mouth piece having a saliva reservoir located therein to collect and retain saliva so as to facilitate the operation of the apparatus.

Another object of the invention is to provide a mouth piece of the character designated having an air inlet valve located on the inside of the mouth piece so that the saliva collected therein shall not enter the air inlet tube and prevent proper inhalation of air.

A further object of the invention is to provide a mouth piece of the character designated which shall be light in weight, simple in construction, and more efficient in operation than similar apparatus heretofore employed.

These and other objects of the invention will be more manifest from the following specification and description taken in connection with the accompanying drawings and specifically set forth in the claim.

In the drawings,

Figure 1 is a diagrammatic view of the apparatus as applied to the person;

Figure 2 is a side view of the mouth piece supported in the mouth of the person;

Figure 3 is an end view of the apparatus shown in Fig. 2;

Figure 4 is a longitudinal sectional view of the mouth piece; and

Figure 5 is a modification of the apparatus shown in Fig. 4 in which the valves are set at an angle to each other.

Referring to Fig. 1 of the drawings, there is shown a breathing apparatus employing a mouth piece 10, constructed in accordance with the present invention. This mouth piece may be made of any suitable light metal such as aluminum, for example. The mouth piece is contemplated to be of such size that it may readily be grasped between the teeth and supported in the mouth of the wearer without the aid of any straps or other bandages frequently

employed to hold such apparatus in position.

The mouth piece is connected to a suitable air purifying apparatus, carried on the back of the person, by two flexible tubes 12 and 13 adapted to lie over the shoulders of the person. This arrangement provides a convenient apparatus which may be worn with a minimum amount of annoyance or discomfort to the wearer. Such a device has particular application for use by miners or other persons who are obliged to work under adverse conditions where cumbersome breathing apparatus cannot be endured for long periods of time.

In the preferred embodiment of the invention, the mouth piece comprises a cylindrical casing or body member 14 having one end thereof formed into a tubular mouth portion 15. This mouth portion is provided with a rubber covering 16 having a soft rubber flange 17 projecting therefrom so as to extend between the teeth and lips of the wearer, so that it may be held firmly in the mouth and prevent the inhalation of any dust or gases except through the mouth piece. The flange 17 may be of any convenient shape, round or elliptical, for example, to suit the convenience of the wearer.

The casing 14 is provided with air inlet and discharge valves, and, as shown in Fig. 4, an air inlet valve 19 is located in the interior of the casing 14 and a discharge valve 20 is located in the top part of the casing directly above the inlet valve. These valves are of the usual disc type, and are protected by screen members 21 and 22, respectively, arranged to regulate the extent to which the valves are opened and also to prevent any coarse or foreign matter from entering the valves.

Air is conducted to the mouth piece from the purifier apparatus 11 by the tubes 12 and 13, and these connect with the mouth piece by means of a Y-shaped metallic tubular member 23, which extends into the lower portion of the casing member. The tubular member 23 projects well into the interior of the casing in accordance with the present invention, and serves to provide a support

for the inlet valve 19 at the interior of the casing and also provides a saliva reservoir in the bottom portion of the casing 14. The exterior branch portion of the member 23 is provided with tube connections 24 and 25 for the air inlet tubes 12 and 13 respectively. This reservoir serves to collect and retain any moisture that accumulates and prevents it from entering the air inlet tubes and thereby impair the operation of the apparatus. When the breathing apparatus is in constant use for long intervals of time, the accumulation of saliva is adequate to lubricate the valves and cause them to seat properly under all conditions to which a workman wearing the device may be subjected.

The outer end of the body member 14 is closed by a cap 26 which may be removed to allow access to the interior of the mouth piece for any reason. This closure cap is provided with an opening 27 near the lower peripheral edge thereof for draining the reservoir of excess saliva. This opening 27 is provided with an outwardly projecting rim or flange which serves as a seat for a flat closure member 28 which may manually be operated by the wearer to drain the saliva reservoir whenever it is desired. The valve member 28 is hingedly mounted on the closure cap by means of a U-shaped bracket 29 and pivot pin 30, and maintained in a closed position by means of a spring 31.

In the modification shown in Fig. 5, the air inlet and discharge valves are located at an angle to the axis of the casing 14 and at an angle to each other. In this construction, the closure cap is disposed at an angle to the casing member and arranged to support an air discharge valve 41 near the peripheral edge thereof, so that it shall also serve as a drain valve for the saliva reservoir. This is an important feature, as it provides a simple and effective means for automatically draining the saliva reservoir, which operates without any attention of the workman using the device. In this construction, an air inlet valve 40 is supported at an angle to the axis of the casing by means of the tubular inlet member 42, projecting into the casing.

The arrangement of providing air inlet and discharge valves which are inclined at an angle to each other insures a more reliable operation of the valves in the various positions necessarily obtained while the apparatus is being worn by a workman. It frequently happens that a miner, for example, must necessarily work in many positions in which the usual type of horizontal disc valve does not function properly, and by thus providing angularly disposed valves with the mouth piece above described, their lubrication and operation is greatly facilitated.

From the foregoing description, it is obvious that a mouth piece embodying the

present invention provides a simple device which shall take care of excess saliva and provide for using some of the saliva for lubricating the valves and thereby facilitating the operation thereof.

While I have shown two modifications of the invention, it is obvious that various changes may be made therein without departing from the scope of the invention as defined in the claim.

I claim:

A mouth piece for breathing apparatus comprising; in combination, a cylindrical casing providing a horizontal chamber; a reduced tubular extension formed on one end of the casing above the bottom of the chamber for insertion in the mouth of the user; a removable closure having a flange engaging the casing at the opposite end; an exhaling outlet in said removable closure, the lowest level of which is below the lowest level of the reduced tubular extension; an outwardly opening disk valve on the outside of said outlet; a vertical tubular inhaling conduit extending through the bottom of the casing and terminating above the lowest level of the exhaling outlet whereby saliva and water of condensation may collect in the lower portion of the chamber and discharge by gravity through the exhaling outlet without overflowing into the inhaling conduit or the reduced tubular extension; and an upwardly opening disk valve at the upper end of the inhaling conduit.

In testimony whereof I affix my signature.
HAROLD V. STURTEVANT.