(No Model.)

W. F. MERRYMAN.

AIR ACCUMULATOR.

No. 441,119. Patented Nov. 18, 1890.

Fig. 3.

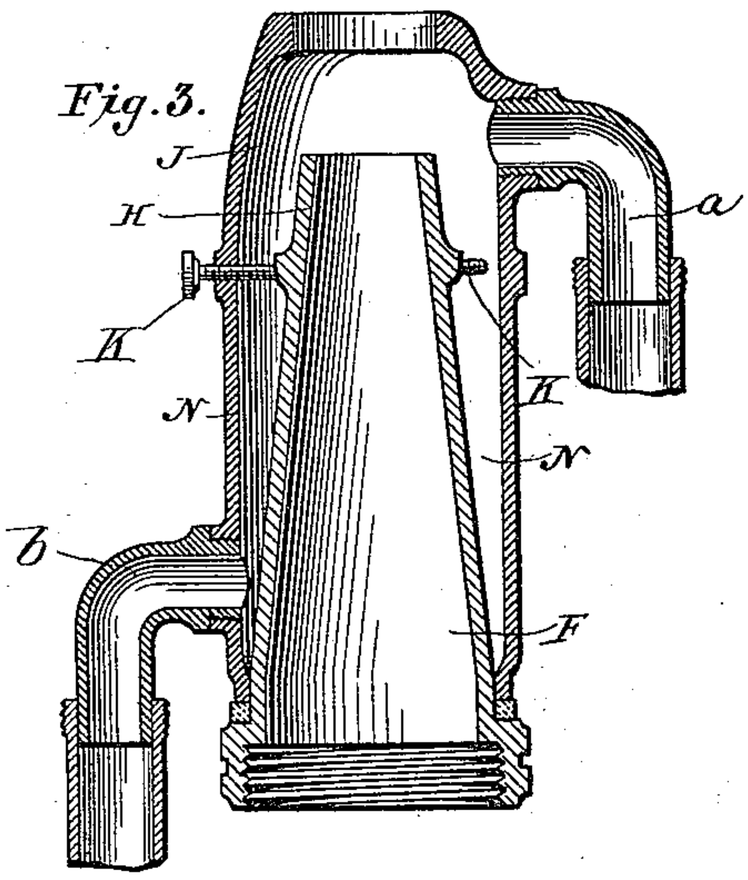


Fig. 4.

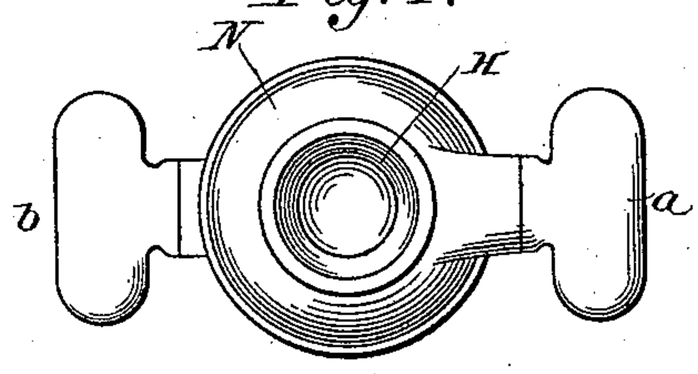


Fig. 5.

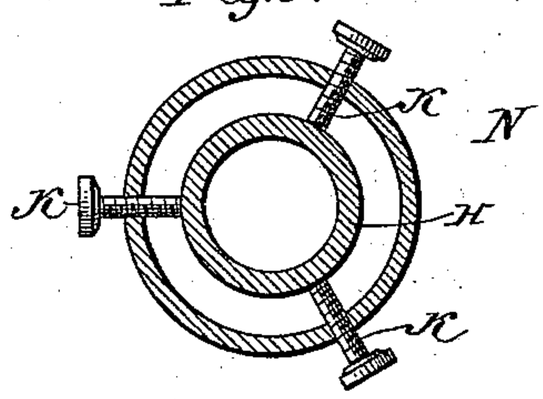


Fig. 2.

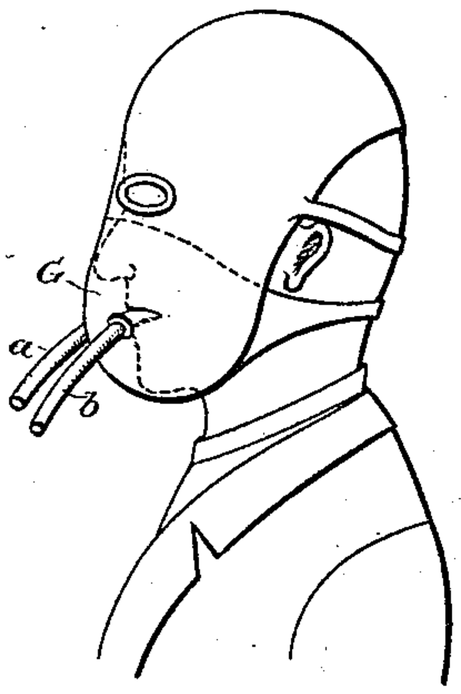


Fig. 1.

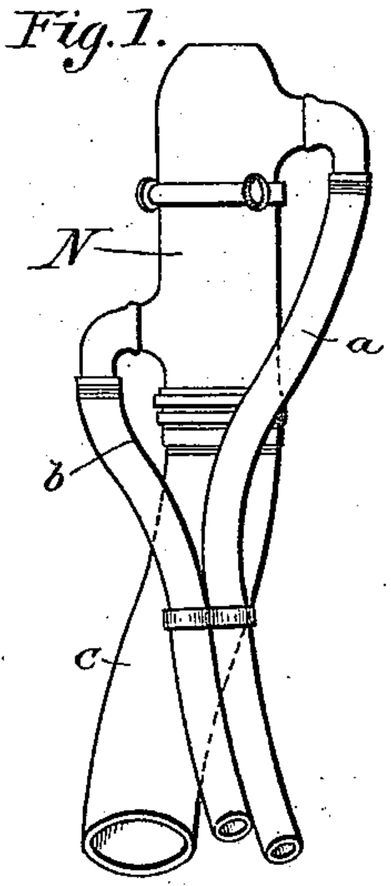
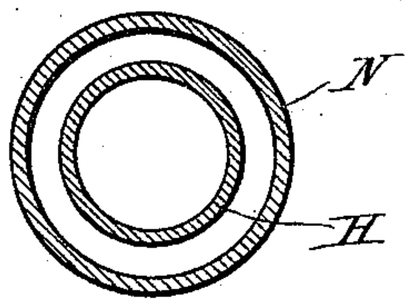


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM FRANCIS MERRYMAN, OF DENVER, COLORADO.

AIR-ACCUMULATOR.

SPECIFICATION forming part of Letters Patent No. 441,119, dated November 18, 1890.

Application filed April 4, 1889. Serial No. 305,987. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FRANCIS MERRYMAN, a citizen of the United States, residing at the city of Denver, in the county of Arapahoe and State of Colorado, have invented a certain new and useful Improvement in Air-Accumulators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to and is intended for accumulating air, which may be contained in or issued from a stream of water or other liquid substance at the mouth, vent, or point of exit of water or any liquid substance from any nozzle attached to hose or any tube from whence air is conveyed by tubes to the person's mouth to furnish fresh breathing air.

The object of my invention is to enable a person handling a hose or a nozzle attached to it, to whom this apparatus is attached, to be supplied with fresh pure breathing air gathered from a stream of water, and by this method to avoid the necessity of breathing smoke, heated or impure air in a burning structure.

Figure 1 is a side elevation of my air-accumulator applied to a hose and nozzle. Fig. 2 is a view of the mask applied to the head and face of a fireman. Fig. 3 is a central longitudinal section of my air-accumulator applied to a nozzle. Fig. 4 is an outer end view thereof. Fig. 5 is a transverse section of the nozzle and attachment, taken above the clamp-screws; and Fig. 6 is a similar section of the same parts, taken below the screws.

This invention is most particularly intended and designed for the use of firemen. The object is accomplished by attaching the apparatus shown in the drawings to the nozzle upon the hose, which will give the external appearance, as is shown in Fig. 1. The accumulator is a hollow cylinder fitted over the mouth or vent of nozzle, as is shown in Fig. 3. The tubes are air-ducts connecting the accumulator with a mask, which is fitted over the face and tight fitting, so as to exclude air which is not carried through the tubes. The tubes *a* and *b* in Fig. 1 are connected with tubes shown in Fig. 2, which lead to the mask, which is close-fitting and attached to the face and head, as is shown in Fig. 2. By this means a current of fresh air is gathered from the water as it issues from the nozzle of the hose, and is conveyed to the face in the mask for breathing.

F is a nozzle.

N is an air-chamber made of brass, rubber, gutta-percha, or any hard substance.

H is the mouth of the nozzle where water issues. At the point H air escapes from the stream and accumulates in the chamber and creates in escaping from the water a pressure, from whence it is conveyed by a current created by this pressure through the tube *b* to the mask attached to the face, from whence it, being utilized and breathed, is conveyed by another tube back to the chamber of the accumulator, from whence it enters the air-chamber N, and from whence it is conveyed to the space J, adjoining the stream of water, and escapes.

J is the space from the end of the nozzle to the end of the accumulator.

In Fig. 6 are shown clamps K K K, attaching and holding the front end of the air-chamber in place. The clamps are of compressed rubber, and after being forced behind the rib of the mouth of the nozzle resume their rigidity and act as stays.

Fig. 2 shows the mask attachment upon the head, which is to be air-tight and close-fitting, with tubes *a* and *b* for conveying air to and from the chamber, which is G.

The tubes connecting the accumulator with the mask are to be made of rubber. The mask is to be made of rubber or gutta-percha, and the accumulator is to be made of rubber, gutta-percha, iron, brass, or any hard substance, and to be attached to the nozzle by slipping the accumulator over the nozzle and held in place by rubber clamps at the front end of the air-chamber, as illustrated in Fig. 6 at the points K K K; or the accumulator may be made of iron, brass, or any other hard substance, and attached by screwing the same upon threads made upon a nozzle constructed for that purpose.

The accumulator is used by attaching, as

described above, the accumulator upon the end of a nozzle, placing the mask upon the face of the person who handles the nozzle. Then, after the stream of water begins to pass through, such person is furnished with air gathered from the stream of water.

It is well known that water contains air, and when it is passed through a hose or nozzle it is compressed, and as the stream passes out through the mouth of the nozzle the air expands immediately upon obtaining liberty and fills the accumulator, and by its own force of accumulation and pressure caused by its expansion drives or forces itself out through the tubes, from whence it is utilized, as above described.

A fireman is able to wear the mask on entering a burning building where there is gas, smoke, hot air, or any condition of the atmosphere making it unfit to breathe, and such person is all the time supplied through the stream of water with fresh pure breathing-air, and can remain and continue the use of the water in its application to the fire so long as the stream can be forced through the nozzle.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a water-supply nozzle, of a case surrounding its end and forming an air-chamber about said end, which case is provided with an aperture for the escape of the air and with an aperture in line with the nozzle for the escape of water, substantially as described.

2. The combination, with a water-supply nozzle, of a case surrounding its end and forming an air-chamber about said end, which case is provided with an aperture in line with the nozzle for the escape of water and with an aperture for the escape of air, and a mask adapted to cover the nose of the user, and a tube connecting said mask and air-aperture, substantially as described.

3. The combination, with a water-supply nozzle, of a case surrounding its end and forming an air-chamber about said end, which case is provided with an aperture in line with the nozzle for the escape of water and with apertures to permit the circulation of air, a mask adapted to cover the nose of the user, and tubes connecting said mask with said air-apertures, substantially as described.

4. The combination, with a water-supply nozzle, of a case surrounding its end and forming an air-chamber about said end, which case is provided with an aperture in line with the nozzle for the escape of water and with an aperture adjacent to the end of the nozzle for outflowing air, and an aperture behind the end of the nozzle for inflowing air, a mask adapted to cover the nose of the user, and tubes connecting said mask with said air-apertures, whereby a circulation of air is maintained, substantially as described.

In testimony that I claim the foregoing invention as my own I affix my signature in the presence of two witnesses.

WILLIAM FRANCIS MERRYMAN.

Witnesses:

JOHN H. DENISON,

GEO. W. WILSON.