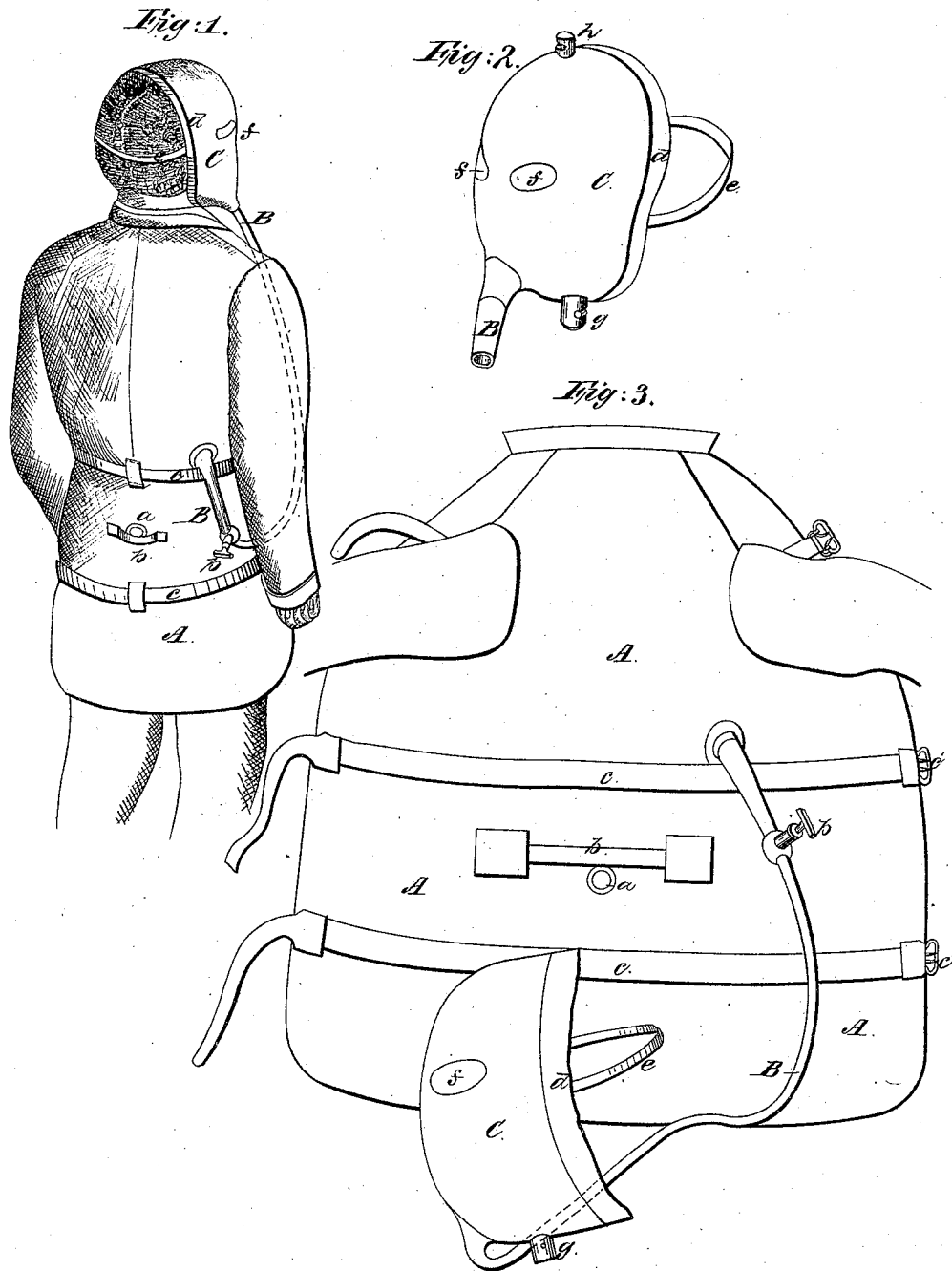


B. I. Lane,
Inhaler.

N^o 46,477.

Patented Feb. 21, 1865.



UNITED STATES PATENT OFFICE.

BENJAMIN I. LANE, OF SOUTH FRAMINGHAM, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR INHALING PURE AIR.

Specification forming part of Letters Patent No. 46,477, dated February 21, 1865.

To all whom it may concern:

Be it known that I, BENJAMIN I. LANE, of South Framingham, Middlesex county, State of Massachusetts, have invented an Improved Respiring or Inhaling Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view showing the application of my improved apparatus to the person and the mode of using it. Fig. 2 is a front view of the mask. Fig. 3 is a view of the apparatus complete.

Similar letters of reference indicate corresponding parts in the three figures.

The object of my invention is to furnish a supply of pure air to persons desiring to enter rooms or other places where the surrounding air is destructive to life. The invention is intended more especially for enabling firemen to remain for a short space of time in apartments of burning buildings which are filled with smoke.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the accompanying drawings I have represented the reservoir which is to contain pure air, made in the form of a coat, as this will be a very convenient manner of applying it to the body, so as to render it portable and admit of a free use of the arms of the wearer. This coat is made of india-rubber or other suitable substance and furnished with an india-rubber bag disposed in the skirt of the coat, or, if desirable, this coat may be made double, or of two thicknesses of india-rubber, and thus of itself constitute a bag or reservoir for containing air. In the back of this coat I introduce a valve, *a*, which is so constructed that it will admit air to enter the reservoir *A*, but will not allow it to escape therefrom, and in conjunction with this filling-valve *a*, I apply two straps or handles to the coat, one of which, *b*, is represented in Figs. 1 and 2, the other being directly opposite. One of these straps is secured to one side of the air-bag *A*, and the other to the opposite side thereof, so that by grasping them in the hands and drawing the two sides of the bag or coat from each other air will rush through the valve *a* and fill the vacuum thus produced. By means of

this valve and the handles *b*, applied to the bag or coat as above stated, a very simple air-pump is obtained for condensing a large quantity of air in the reservoir.

In Figs. 1 and 2 I have represented straps *c c* applied across the back part of the skirt of the coat and furnished with buckles *c' c'*. These straps are made of india-rubber, and are intended to serve as compressors for the bag of air, to force the air through the supply-tube *B* to the mask *C* when said bag is strapped to the body. By strapping the coat tighter around the body when the pressure of air becomes diminished the contraction of the elastic straps *c c* upon the air-bag will increase the pressure, and thus all the air which was pumped into the coat-bag can be consumed before it is necessary to refill it. The supply-tube *B* leads from the bag or air-reservoir in the coat to the mouth of the mask *C*, so that when this mask is applied to the head, as represented in Fig. 1, the air in said reservoir can be freely respired. The mask *C* may also be made of india-rubber and furnished with elastic straps *d e*, for securing it tightly over the face. The glasses *f f* are intended to serve as windows through which the person whose face is covered with the mask can clearly see, and yet have his eyes protected. Just under the chin of the mask *C* is applied an escape-valve, *g*, through which the respired air is allowed to escape from the mask. This valve should be allowed to open outward, and it should be otherwise so constructed that the external air cannot enter through it. At the upper portion of the mask I have applied another valve, or a device which will admit of the introduction of air into the mask when the latter is applied over the face, when it is not desired to consume the air contained in the reservoir around the body. By means of this valve, which is lettered *h* in Fig. 2, a person can breathe freely with the mask on his face without the necessity of using the air in the reservoir, and when this air is cut off by means of the cock *p* in the supply-tube *B*. When the surrounding air is impure, it will of course be necessary to close the valve *h* and to open the cock *p*.

I do not desire to limit my invention to the use of a coat or covering for the upper portion of the body, as an ordinary india-rubber air-bag strapped around the body with elastic straps

will answer every purpose of supplying air for respiration. I prefer to use an air-coat, for the reason that it will protect the person from water, and it is so quickly applied to the body and removed when not in use.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The construction of the reservoir A with a valve, *a*, and hand-straps *b*, substantially in the manner and for the purpose described.

2. The combination of adjustable elastic straps with the air-reservoir A and valve *a*, substantially in the manner and for the purpose described, whether the straps be the means of attachment to the body or other means for this purpose be employed.

3. The combination of the mask C, furnished with the three contrivances B *g h*, or their equivalents, with the cock *p* and reservoir A,

furnished with the valve *a*, all substantially in the manner and for the purpose described.

4. The device *h* for allowing the wearer of the apparatus to inhale fresh external air when it is safe to do so, in combination with an air-reservoir which has its air under control of a cock, *p*, substantially as and for the purposes set forth.

5. The use of one or more elastic straps, *cc*, applied to the flexible reservoir A, for attaching the latter to the body, and also for keeping up the supply of air to the respiratory organs, substantially as described.

Witness my hand in matter of my application for a patent for improved respiring apparatus.

BENJN. I. LANE.

Witnesses:

R. T. CAMPBELL,
E. SCHAFER.