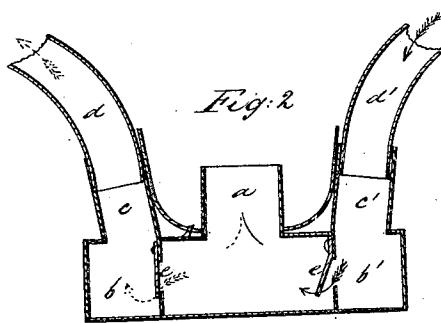
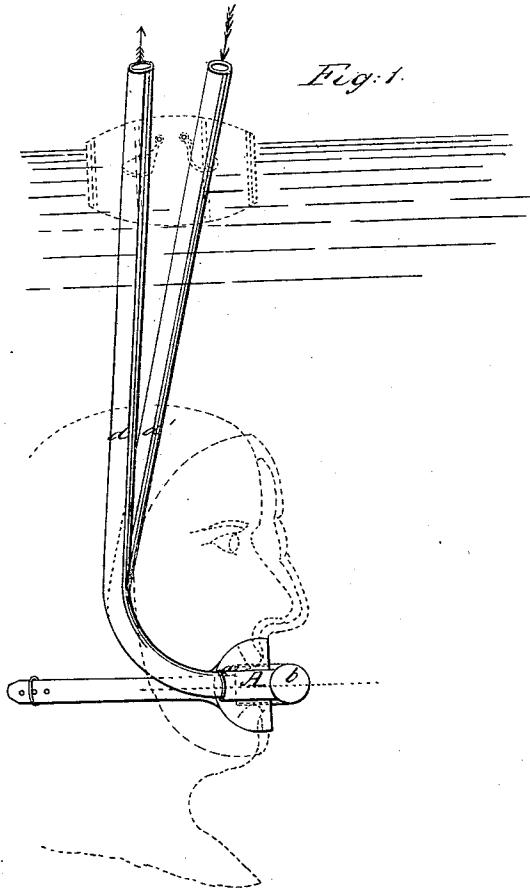


J. Hawkins.

Diving Armor.

No 46,902.

Patented Mar. 21, 1865.



Witnesses

W<sup>h</sup> Prewn  
L<sup>l</sup> Tappell

Inventor  
James Hawkins  
per Mumt & Co  
Attorneys

# UNITED STATES PATENT OFFICE.

JAMES HAWKINS, OF BRADDOCK'S FIELD, PENNSYLVANIA.

## IMPROVED SUBMARINE SAFETY MOUTH-PIECE.

Specification forming part of Letters Patent No. 46,962, dated March 21, 1865.

*To all whom it may concern:*

Be it known that I, JAMES HAWKINS, of Braddock's Field, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Submarine Safety Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of my invention, showing its application to the face of a person under water. Fig. 2 is a longitudinal central section of the same, detached and in a larger scale than the previous figure.

Similar letters of reference indicate corresponding parts.

This invention relates to the application of air exhaust and supply valves, in combination with a mouth-piece fitted to a mask which is applied to the face of the diver, and with two pipes leading to the surface of the water in such a manner that the inhaling and the exhaling of the breath is regulated and the diver is supplied with the requisite quantity of pure air to enable him to live under water for any desired length of time.

A represents a T-shaped pipe, the middle arm, *a*, of which forms the mouth-piece, while its two lateral arms *b b'* connect by means of sockets *c c'* with flexible tubes *d d'*, as clearly shown in Fig. 2 of the drawings. Said tubes are made of gutta-percha or other similar material impervious to water, and they are intended to form a communication between the mouth of the diver and the open air. The

passage of the air from or to the mouth and to or from the tubes *d d'* is regulated by two valves, *e e'*, one of which opens out and the other inward. The spent air which escapes from the mouth in exhaling passes off through the valve *e* and tube *d*, and in inhaling the valve *e* closes, and the requisite quantity of air is drawn in through the tube *d'* and valve *e'*.

The T-shaped piece *A* is intended to be secured to a mask of glass or other transparent material, which is secured to the face of the diver, as indicated in Fig. 1 of the drawings, and the flexible tubes *d d'* extend up and are held above the water-line by a float of any desirable form or shape. Said tubes are to be made with suitable joints, so that they can be lengthened or shortened to suit the depth to which the diver descends. The mask must be made so that it will fit water-tight to the face, and it may be provided by some elastic band or fastening, so that it can be readily drawn over the head.

By means of this device, when the same is properly fastened and rigged up, a diver is enabled to go to a considerable depth below the surface of the water, and to stay and work there for a long time without inconvenience from the want of fresh air.

I claim as new and desire to secure by Letters Patent—

The T-shaped piece *A*, provided with a mouth-piece, *a*, flexible tubes *d d'*, and valves *e e'*, and applied to the face of a diver, substantially as and for the purpose set forth.

JAMES HAWKINS.

Witnesses:

JAMES McCLEARY,  
G. H. YOUNG.