April 23, 1968 B. J. BLEACH 3,379,195

AIRCRAFT-MOUNTED EMERGENCY OXYGEN MASKS AND HOLDER

Filed Jan. 21, 1965

Fig. 1.

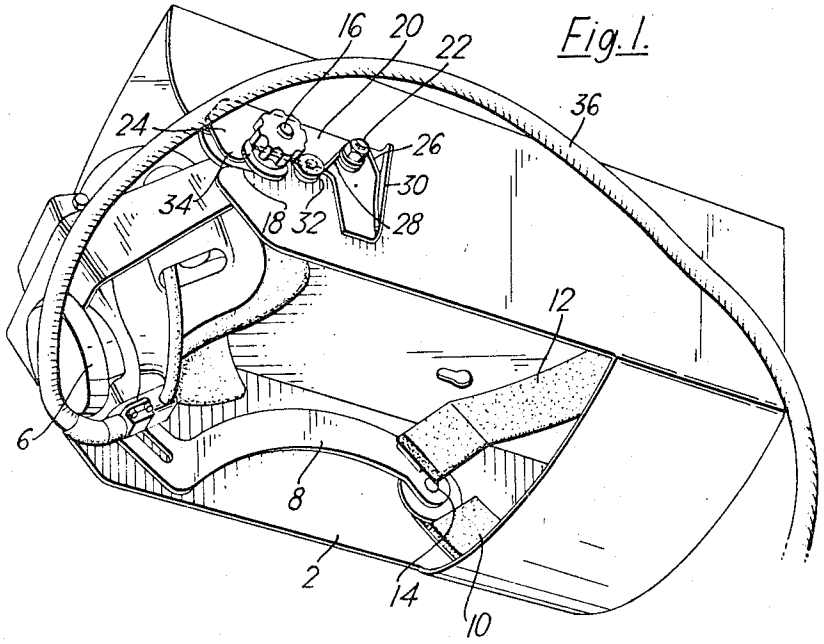
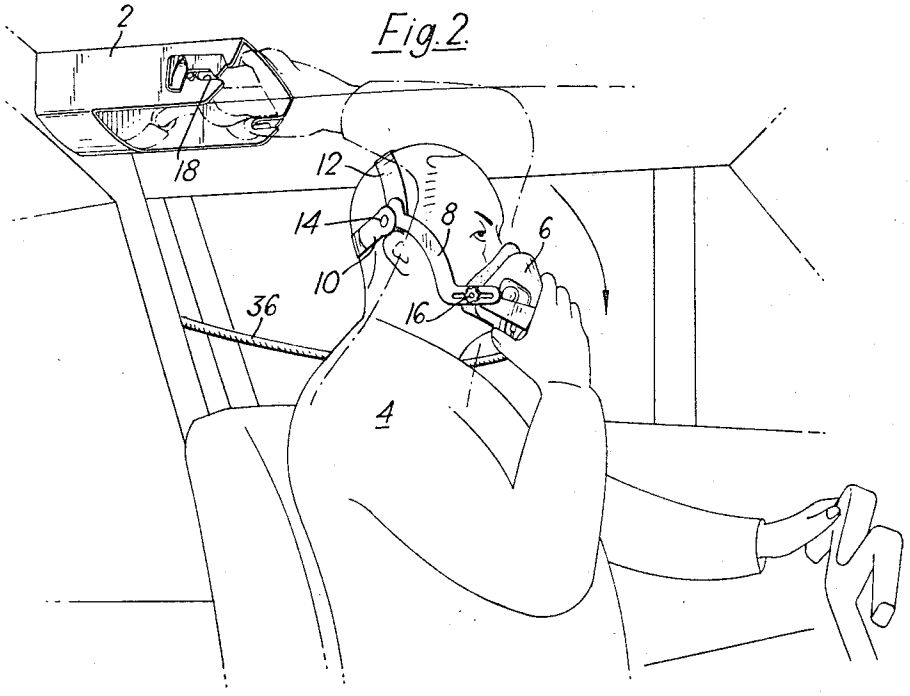


Fig. 2.



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United States Patent Office

3,379,195

Patented Apr. 23, 1968

3,379,195

AIRCRAFT-MOUNTED EMERGENCY OXYGEN MASKS AND HOLDER

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Filed Jan. 21, 1965, Ser. No. 426,925
Claims priority, application Great Britain, Jan. 24, 1964, 3,220/64
8 Claims. (Cl. 128—146.3)

ABSTRACT OF THE DISCLOSURE

An oxygen mask is housed above a seat in an airplane in a holder having an open front end and provided with means releasably engaging opposite sides of the mask so that the mask can be pulled directly from the holder for use in an emergency.

This invention is concerned with oxygen mask units suitable for use by air crew on the flight deck of an aircraft. The space in the flight deck is limited, so it is necessary for the mask unit to be as compact as possible and yet for the mask to be easy and quick to put on in an emergency such as pressurisation failure.

According to the present invention a unit consisting of an oxygen mask and holder is mounted in a position near a crew member's head, with the mask in approximately the orientation which it will have on the crew member's head. The mask consists of a mouthpiece and a harness by which the mouthpiece is secured in position during use. The holder engages the sides of the mask releasably so that the mask can be pulled bodily from the holder when needed.

A mask according to this invention is quick and easy to apply in one movement. If the holder is mounted immediately behind and slightly above a pilot's head, he can conveniently grasp the mask with either hand, pull it away from the holder, fit it over his head and pull down until the harness, on reaching full engagement with his head, locates the mouthpiece in the correct breathing position.

A preferred example of an oxygen mask unit according to this invention is shown in the accompanying drawings.

In these drawings:

FIGURE 1 is a perspective view of the unit from underneath and from one side; and

FIGURE 2 is a perspective view from the other side, showing the unit in an aircraft cockpit.

The mask holder is in the form of a container **2** which is mounted above and slightly behind the head of the wearer **4**. The mask itself consists of a mouthpiece **6** and a harness by which the mouthpiece is secured in front of the wearer's mouth and nose during use. The harness is formed by side members **8** which extend from the mouthpiece to just above the wearer's ears, and two straps **10** and **12** connected across the upper ends of the side pieces **8**, the strap **10** extending around the back of the wearer's head and the strap **12** extending over the top of the wearer's head.

The straps **10** and **12** are both of a fairly rigid construction. Accordingly, for the sake of compactness, the back strap **10** is pivoted to the ends of the side members so that it can be swung upwards towards the strap **12** when the harness is inserted into the container, as shown in FIGURE 1. Springs (not shown) act at the back strap pivots **14** to swing the back strap downwards into the operative position when the mask is pulled out of the container. It will be seen that, in the operative position, the back strap is at approximately 90° to the top strap **12**.

The mouthpiece **6** of the mask is pivotally connected to the side members **8** of the harness by screw-threaded pins **16**. These pins also serve to support the mouthpiece in the container by sliding into horizontal slots **18** in the side walls of the container. Each side wall carries a spring catch device consisting of a hook-shaped plate **20** which is pivotally mounted on the side wall by means of a bolt **22**, with a torsion spring which surrounds the bolt and urges the forward end **24** of the plate downwards. The spring has arms **26** and **28** which engage respectively an outwardly bent part **30** of the plate and a stop **32** secured to the wall of the container. The forward end **24** of each plate has a hook portion **34** which holds the pin **16** releasably in the slot. When the mask is pulled firmly in a forwardly direction, the pins **16** lift the hook portions **34** of the plates by a cam action so that the mask can be withdrawn from the container and can be placed quickly and conveniently over the wearer's head as illustrated in FIGURE 2.

A tube **36** runs from the mouthpiece to a suitable connection point in the cockpit and contains an oxygen pipe and electrical wires for a microphone (not shown) located in the mouthpiece.

Instead of the spring catch arrangements, the side walls of the container may be made resilient to grip the mask resiliently, or they may include resilient panels for the same purpose. Alternatively the container may be rigid, and the resilience for a firm push fit may be in the harness of the mask.

I claim:

1. In an aircraft having a seat for a crew member and an oxygen supply adjacent to the seat, an oxygen mask unit comprising a holder mounted near the crew member's head position, and a mask comprising a mouthpiece and a harness by which the mouthpiece is secured in position during use by the crew member, the holder including support means releasably engaging opposite sides of the mask and mounting the mask in approximately the orientation which it will have on the wearer's head, the mask including an oxygen supply pipe connected to the said oxygen supply of the aircraft.

2. An aircraft according to claim **1** in which the mask unit is mounted immediately behind and slightly above the wearer's head position.

3. An aircraft having an oxygen mask unit mounted above an air crew member's seat, near the head position, the unit comprising a mask holder and a mask, which mask has a mouthpiece and a head harness by which the mouthpiece is secured in position during use of the mask by the crew member, which mask is held by the holder in a position in which the mouthpiece is in front of the harness and faces rearwardly and the mouthpiece and harness lie on a line extending generally in the direction of the fore and aft axis of the aircraft so that the mask is held in approximately the orientation which it will have on the crew member's head, which holder includes means releasably engaging opposite sides of the mask said holder being open towards the front thereof so that the mask can at all times be pulled bodily directly from the holder, and means for connecting the mouthpiece to a source of oxygen, said means engaging the sides of the mask being releasable by the exertion of a pull on the mask.

4. An aircraft according to claim **3** in which the holder has opposite sides and a slot in each of the opposite sides, a lateral pin at each side of the mask, each of said slots receiving one of said lateral pins, said means engaging the sides of the mask comprising spring catch device mounted with the holder and adapted to hold the pins releasably in the slots.

5. An aircraft according to claim **4** in which the spring catch devices are in the form of hook-shaped plates which

are pivotally mounted on the opposite sides of the holder, spring means which load the plates so that the hook parts of the plates hold the pins of the mask in the slots, the hook parts being so shaped that they are displaced from the slots by a cam action by the pins when the mask is pulled firmly away from the holder.

6. For use in an aircraft, an oxygen mask unit comprising a mask, which mask has a mouthpiece and a head harness by which the mouthpiece is secured in position during use of the mask, a holder having an opening through which the mask can pass, which mask is held by the holder with the mouthhpiece nearer to said opening than the harness and with the mouthpiece facing towards the harness, said holder having means releasably engaging opposite sides of the mask so that the mask can at all times be pulled bodily directly from the holder through the opening, said means engaging the sides of the mask being releasable by the exertion of a pull on the mask, the holder having opposite sides and a slot in each of the opposite sides, a lateral pin at each side of the mask, each of which slots receives one of said lateral pins, and said means engaging the sides of the mask including spring catch devices mounted with the holder and adapted to hold the pins releasably in the slots.

7. An oxygen mask unit according to claim 6 in which the spring catch devices are in the form of hook-shaped plates which are pivotally mounted on the opposite sides of the holder spring means which load the plates so that the hook parts of the plates hold the pins of the mask in the slots, the hook parts being so shaped that they are displaced from the slots by a cam action by the pins when the mask is pulled firmly away from the holder.

8. An aircraft having an oxygen mask unit mounted above an air crew member's seat, near the head position, the unit comprising a mask holder and a mask, which mask has a mouthpiece and a head harness by which the mouthpiece is secured in position during use of the mask by the crew member, which mask is held by the holder in a position in which the mouthpiece is in front of the harness and faces rearwardly and the mouthpiece and harness lie on a line extending generally in the direction of the fore and aft axis of the aircraft so that the mask is held in approximately the position it will have on the crew member's head, which holder comprises means releasably engaging the mask so that the mask can at all times be pulled bodily directly from the holder, and means connecting the mouthpiece to a source of oxygen, said means releasably engaging the mask being releasable by the exertion of a pull on the mask.

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