

ELECTRO-MECHANICAL FISH GILLS

The present invention comprehends self-contained breathing apparatus of the type which releasing oxygen to prepare it for inhalation. More particularly the present invention seeks to provide self-contained breathing apparatus of the closed-circuit breather type in which an improved strategy for generation of the oxygen is adopted. It relates to a device to be used under water which generates oxygen by complex mechanism. Still particularly, this invention elates to a device of generating oxygen underwater in a portable device which is connected to the nose of the underwater explorer or diver who can cause the device to generate sufficient oxygen for his, top breath without the aid of bulky oxygen cylinders. Underwater breathing techniques have changed very little since the early days of underwater exploration. it is well known to provide



Electromechanical Fish Gills

divers with self-contained underwater breathing apparatus in order to prolong the time for which they can remain below the surface of the water.

The most widely used self-contained breathing apparatus comprises a rigid container within which is housed a supply of compressed air which is allowed out of the container via high pressure or first stage regulator and directed through a supple house to a mouthpiece containing a demand valve including a second stage regulator which acts automatically to open and close as the diver inhales and exhales. Such system beer as open-circuit breathing apparatus because exhaled gas is allowed to pass directly out into the marine environment so that a stream of bubbles is emitted upon each exhalation. If the compressed gas breathed from the gas container is air a large proportion of the exhaled gas will constitute nitrogen which is present in air in an approximate ratio 4:1 with oxygen as is well known. In other words 80% of the air which is breathed by the diver, and therefore 80% of the content of the compressed air container, or air bottle, comprises little more than a vehicle for the oxygen some of which is converted to carbon dioxide during its residence in the lung. Thus 80% of the breathed gas is not really needed by the body except to dilute the oxygen. It is not possible to breathe pure oxygen below 10m since at higher pressure oxygen is toxic.



The conventional method of carrying oxygen cylinder clasped to the back of the underwater explorer remains the only viable option of surviving underwater. Using such oxygen cylinder clasped on the underwater explorer's back form the basics of underwater survival and breathing. But carrying the bulky

oxygen cylinder which can be as heavy as 30 kilograms can be very restrictive to the activity of exploration for which the explorer has gone underwater in the first place.

Many underwater explorers have experimented with alternate underwater breathing techniques such as



carrying lighter oxygen cylinders, inserting oneself in a oxygenated capsule (like a small glass cabin) or to connect the underwater explorer with a tube which connects him with the vessels floating on the surface of the water. Thus, shallow underwater explorations could be undertaken without the aid of oxygen cylinder clasped on the person of the underwater explore by providing the underwater explorer with a tube which connects him with the floating vessels on the surface of water. Such tube provides uninterrupted supply of the underwater explorer with the aid of the tube which is connected to the oxygen cylinder on the vessel and the nose of the underwater explore. Thus in all the alternative underwater breathing techniques, there are problems of limited oxygen capacity, limited mobility due to the tube connection, limited underwater time due to the oxygen limitation thereby curtailing the underwater exploration. Proposals have in the past been made for so called closed

circuit or "re-breather". Apparatus in which the carbon dioxide content of exhaled air is removed from the exhaled air outside the body, fresh oxygen is introduced to replace that consumed. Thus reconditioned air returns to the diver for re-breathing. In this way it is necessary for the diver to carry two or three lungful of nitrogen needs more freedom to dive to more isolated spots or wants to remain underwater for prolonged time period.

Although the problems are rapidly becoming more acute, they have been acknowledge by divers/underwater explorers for many years. The underwater exploration therefore needs to find alternative solution to breathe underwater and also to provide safety, mobility and security to the underwater explorer. It is envisaged that the Electro-Mechanical Fish Gills would change the face of the underwater exploration in the coming years. It is light weight, portable, could be clasped around the nose and mouth area like a snorkels and has battery back-up to provide the underwater explorer with long lasting oxygen supply, the same device is made by Mr. Uday S. Ghatage. Thus it brings virtual reality in to practical reality.

2. The present newly application of Electro-Mechanical Fish Gills unit are such that they get situated in BMW 7 series car to protect car from genetic terrorisms attacks. This car is fully with safety devices, hence our electro-mechanical fish gills unit can also placed in this car which is safer than any other device. No failure chances. It takes out water from the car radiator and uses it to produce oxygen. Hence no any detector can use in the car to detect it for harmful chemical, genetics or radioactive constituents. Only if we locate cerpit bio technology or bio terrorism detector to detect harmful substitutes in water, it is sufficient. Doesn't require use of B.T. 550 j.r.d. chemical detective, which is expensive and not user friendly.

Many helmet respirators, gas mask are used by people to guard themselves from harmful gases, alpha and beta rays, but they have a very limited time of their operation. The helmet respirators made by

Trion Environmental corp. have time period of 2 hours 2 min. Hence electro-mechanical fish gills can be used as a chemical and biological defender for prolonged time.

Advantages:

1. No need of oxygen cylinder while under water.
2. Beneficial in polluted areas.
3. Sudden oxygen producing unit.
4. Oxygen controlling unit.
5. Muscular energy is sufficient to produce oxygen.
6. 0% failure chances.
7. No ill effects on human body.
8. Can be stayed underwater for prolong time.
9. Battery back-up system.

