

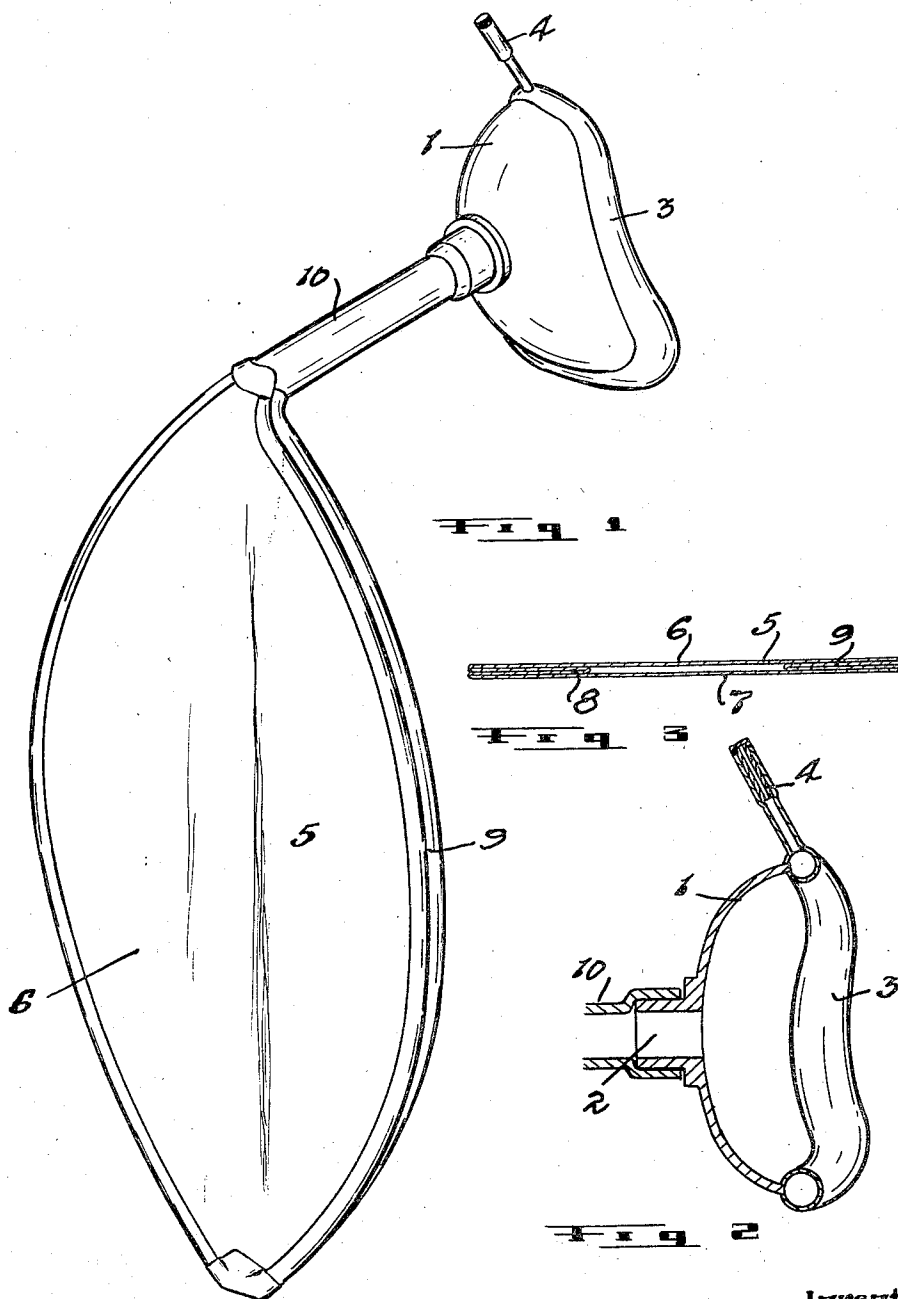
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SELF ADMINISTERING CARBON DIOXIDE APPARATUS

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[Signature]

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SELF-ADMINISTERING CARBON DIOXIDE APPARATUS

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1 Claim. (Cl. 128—27)

The invention relates to improvements in self administering carbon dioxide apparatus and an object of the invention is to provide a device which when used will substitute for ordinary air breathed into the lungs and exhaled into the apparatus, air with a greatly increased carbon dioxide content.

A further object of the invention is to provide a device which will exercise all the lung cells and encourage deep breathing.

A further object of the invention is to provide a device having a hood completely enclosing the nose and mouth and an expansible and collapsible receiver connected to the hood, the arrangement being such that when one inhales air and then applies the hood to his nose and mouth and retains it there, he is compelled to exhale into the receiver and inhale therefrom, the receiver in the meantime alternately expanding and collapsing.

A further object is to provide an expansible receiver which is normally collapsed so that the air is excluded and a still further object is to provide the hood with an inflatable cushioning tube.

A still further object is to construct the whole device in a simple, durable and inexpensive manner so that it can be readily stored or transported.

With the above more important objects in view, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawing, in which:—

Fig. 1 is a perspective view of the complete device showing the receiver collapsed.

Fig. 2 is a vertical sectional view through the hood.

Fig. 3 is a horizontal cross sectional view through the receiver or bag.

In the drawing like characters of reference indicate corresponding parts in the several figures.

The hood 1 is of the well known type such as is used extensively in hospitals for the administration of anaesthesia and so shaped that when applied to the face, it completely encloses the nose and mouth so that all respiration is directed into this device.

Located centrally in the dome section of the hood which is usually made of bakelite or phenolic condensation product, is a short outlet duct 2 and the edge of the domed section of the hood is supplied with a pneumatic cushion 3 encircling the same, thus serving to exclude air from

the hood when it is placed and held against the face. An inflating valve 4 of any well known type is utilized for inflating the pneumatic tube 3.

The receiver 5 is expansible and contractible and is normally collapsed so that air is excluded from the interior thereof. I have found that a rubber bag having flat faces 6 and 7 and folding sides 8 and 9 is most satisfactory. The bag in its collapsed configuration is of the general shape shown in Figure 1 and it is supplied at one end with a short rubber tube 10 connected to the short outlet duct 2.

In order to put the device into use, the cushion 3 is inflated if necessary although usually it is maintained in this condition after which the operator inspires deeply, thus taking into the lungs ordinary air which is composed of mainly oxygen and nitrogen and in addition, other substances in small amounts, the most important of which in the present instance is carbon dioxide. He now places the hood over the nose and mouth and exhales into the bag.

This operation is repeated as many times as may be necessary to fill the bag and to prevent the air in the bag from escaping while inhaling air into the lungs, it has been found most satisfactory to squeeze the tube 10 between the fingers until ready to place the hood over the nose and mouth again and exhale the contents of the lungs into the bag.

The bag is finally filled with air by this method and when this state has been reached, the operator keeps the hood against the nose and mouth and proceeds to breathe deeply in and out. The air in the receiver when this respiration process is commenced is substantially atmospheric air but as the process continues, the amount of oxygen decreases through being absorbed through the lung cells into the blood and is replaced by an increasing content of CO₂ extruded by the lungs into the bag. Thus, after several minutes of this respiratory action, the contents of the receiver contain a very large percentage of CO₂.

From the foregoing, it will be clearly discerned that as the respiratory action continues, the CO₂ in the receiver is being constantly breathed into the lungs and out again into the bag and that each exhalation increases the content of CO₂ within the bag.

This carbon dioxide is well known in the medical profession to be a very valuable therapeutic agent and is in constant use in hospitals, sanatoria, etc. It has a tendency to balance the metabolism and increases the input of blood into the heart by stimulating the venous circulation

and increases the output of blood from the heart by stimulating the heart muscles as well as the muscles in all the artery walls, thus improving the function of the whole cardio-vascular system.

5 The respiratory nerve centres in the brain are also stimulated by the action of CO₂ and this has the effect of increasing the action of the involuntary respiratory muscles. Thus the systematic use of my invention causes the whole
10 of the lung tissue to be exercised resulting in the expansion and increased cubic capacity of the lungs as well as the improvement in general health resulting from the stimulating effect upon the whole system.

15 Since various modifications can be made in the above invention, and many apparently widely different embodiments of same, made within the scope of the claim without departing from the spirit and scope thereof, it is intended that all

matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as are specifically expressed in the accompanying claim.

What I claim as my invention is:—

Self administering carbon dioxide apparatus designed to co-operate with the human pulmonary system comprising a hood-like member adapted to enclose the nose and mouth from outside air, 10 a tubular portion attached to a circular flange upon said hood and an expansible and contractible receiver opening into and connected to that end of said tubular member which is remote from
15 said hood, said receiver being otherwise impermeable, said device being for the purpose described.

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