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SUPEROXYGENATED AIR INHALING DEVICE

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Fig. 1

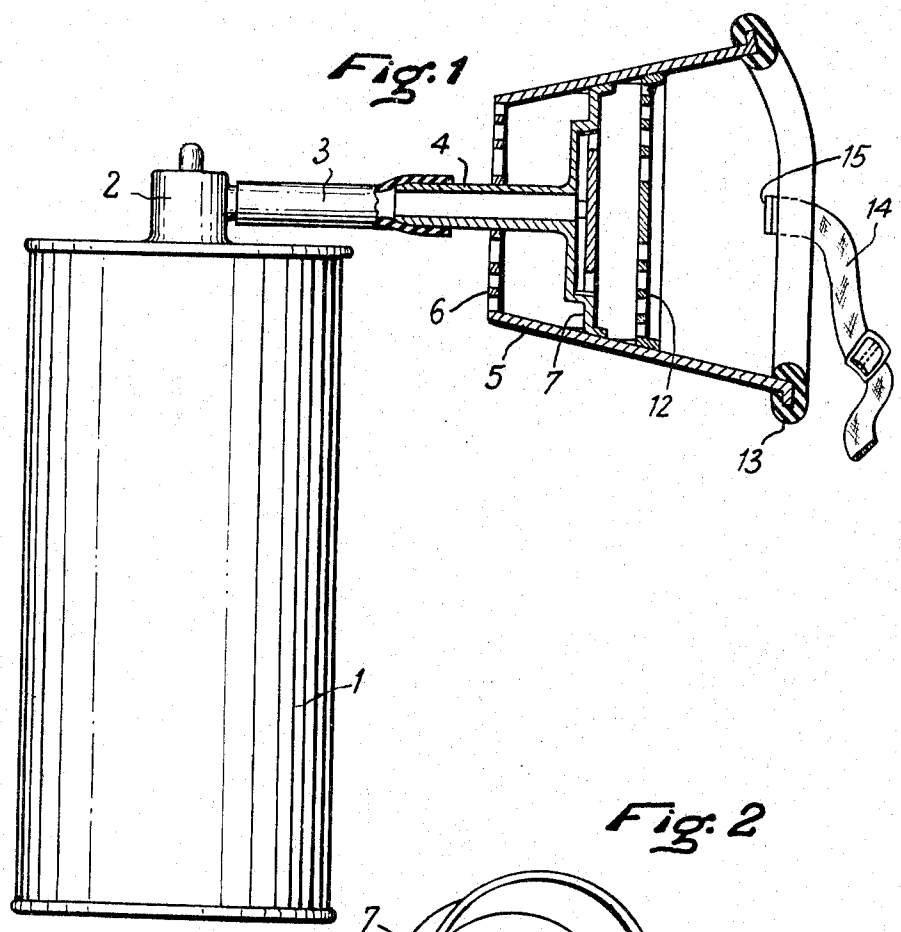
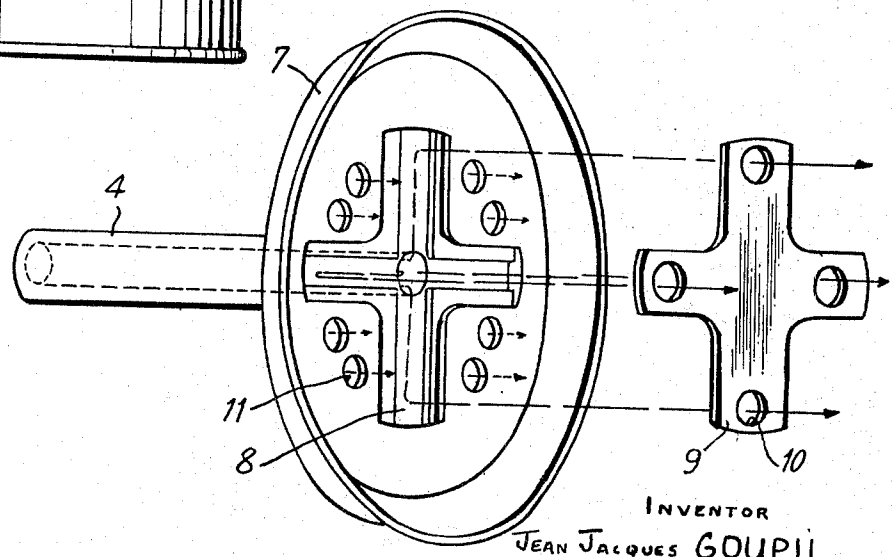


Fig. 2



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SUPEROXYGENATED AIR INHALING DEVICE

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3 Claims. (Cl. 128—205)

Oxygen, the cellular combustion agent, is an element which is indispensable to life. Bodily requirements are very considerable, since there is about 1 litre of oxygen per 5 litres of blood in the human body.

This oxygen is in two different states in the blood:

(a) Oxygen combined with haemoglobin, representing the most considerable proportion.

(b) Oxygen in solution, in small quantity but playing the principal part, since this is the immediate agent of respiratory combustion, representing the reserve oxygen, renewed by dissociation of oxyhaemoglobin.

It is a factor in survival in the event of poisoning by foul air, more particularly by carbon monoxide.

This dissolved oxygen can be increased by increasing the oxygen pressure in the inhaled air.

City-dwellers, leading a sedentary life, living in an under-oxygenated atmosphere which is also polluted (CO, CO_2, SO_3, unburned hydrocarbons, the menace of tobacco smoke in confined atmospheres) tend no longer to be able to satisfy the oxygen requirements which they require physically.

In order to provide a remedy for the physiological disadvantages which result therefrom, apparatus have been constructed which enable people to breathe a super-oxygenated atmosphere, but these installations are generally very bulky, heavy and stationary, which reduces their possibility of being used for serious cases without permitting individual oxygenotherapy.

The present invention relates to a device which enables the city-dweller, whether adult, adolescent or child, to inhale superoxygenated air frequently and preferably daily at home.

The device according to the invention is constituted by the combination of a portable container of the spray-flask type provided with a valve, filled with oxygen under pressure, with an inhaler mounted on the discharge orifice of the flask and adapted to form a mixture of the flask oxygen with the ambient air under the influence of the inhalation of the user and the negative pressure created by the current of oxygen.

The device according to the invention is more particularly characterised in that it comprises:

A flask provided with an appropriate expansion system, provided with an outlet tube debouching centrally of a cruciform cavity situated in an inhaler comprising an air admission chamber situated about the tube through which the oxygen arrives, upstream of the cruciform cavity, and the bottom of which is provided with apertures for the entry of air, a mixing chamber the bottom of which is provided with orifices uniformly distributed over a circumference, situated in part at the ends of the arms of the cruciform cavity and in part in the intervals between the arms, communicating with the air admission chamber, this mixing chamber being followed by an inhalation chamber proper by way of a partition in the form of a grid, formed of concentric circles and radial elements, which is intended to ensure that the gases are mixed in a more uniform manner; the opening of the inhalation chamber is preferably fitted with a rubber mask fasciliating adhesion to the face, the assembly being provided with a rubber band forming a head grip intended to maintain the inhaler against the user's face.

The dimensions, forms, and numbers of the orifices for

the introduction of oxygen and for inspiring air are preferably so chosen in their relationship to one another as to supply a mixture containing one third oxygen to two thirds air.

In order to facilitate the understanding of the description, the invention will be described hereinafter with reference to the accompanying drawings wherein:

FIGURE 1 shows a general view, partly in section, of a device according to the invention.

FIGURE 2 shows in detail the arrangement at the bottom of the mixing chamber of the air and oxygen admission orifices of the device of FIGURE 1.

Referring now to FIGURE 1, **1** is a flask containing oxygen under pressure, and provided with a manually controlled expansion system **2**, whose outlet tube **3** supports and supplies oxygen to the inhaler proper. The body **5** of this inhaler is frusto-conical in form, provided with a grid **6** in its narrow section for ensuring the centering of the tube **4** and permitting the arrival of air. The opening on the inhaler, intended to be applied against the face, is provided with a ring or a mask **13** made of rubber and can be given a form adapted to facilitate adhesion to the face.

Furthermore, the body **5** is perforated laterally with two apertures **15** intended for the fixing of rubber bands **14** for holding the mask against the head.

Between the grid **6** and the opening of the inhaler there are situated two parts, the grid **12** and the part **7**, which are secured by adhesive substances within the body **5**.

The grid **12** is circular, with solid concentric circles and radial elements, and is intended to promote a turbulent flow which makes the mixture of gases more uniform.

The part **7** comprises at its end a cruciform recess **8** into which debouches centrally the tube **4**. A cross-shaped part **9** adhesively secured in the recess **8** is provided with four orifices **10** situated at the end of the arms of the cross and distributed over a circle. Situated on the same circle are eight orifices **11** which are intended for the passage of the air through the part **7**, so that each orifice **10** is framed by two orifices **11**.

The oxygen arriving through the tube **4** into the recess **8** is distributed between the four arms of the recess and issues through the orifices **10**.

The air arriving through the grid **6** flows through the orifices **11**.

The proportion of oxygen in the inhaled air is determined by the relative size of the orifices **10** and **11** and the pressure of the oxygen determined by the expansion system **2**; it is preferably of the order of two thirds air to one third oxygen.

The assembly constituting the subject of the invention is portable and is of small bulk and weight, which enables it to be carried about and used at home.

When a flask is empty, it is easily replaced by a full flask on which the inhaler is re-fitted.

I claim:

1. A device for permitting inhalation of super-oxygenated air from a container filled with oxygen under pressure comprising a tubular inhaler having an open end adapted to be fitted over the user's face, a first grid at the opposite end of said inhaler having perforations therethrough for the inflow of air, an interior wall extending across said tubular inhaler between said grid and the open end of said inhaler, means defining a plurality of substantially radially extending ducts adjacent said wall each terminating in an opening directed toward the open end of said inhaler, an oxygen supply tube extending through said grid and said interior wall into communication with each of said ducts, said wall having at least one opening between adjacent radially extending ducts for the flow of air from the grid side of the wall to the open end, and a second grid spaced from said interior wall toward the open end of said inhaler and defining a mixing chamber in said inhaler between said

interior wall and said second grid, said second grid having an opening therethrough for the passage of the intermixed air and oxygen to the user at the open end.

2. A device according to claim 1, wherein said means defining a plurality of substantially radially extending ducts comprises a recess formed in said wall of cruciform configuration, and a cruciform plate having radially extending arms each of which has an opening adjacent the end thereof, and wherein said second grid has a plurality of openings for the passage of the mixture of air and oxygen therethrough.

3. A device according to claim 1, wherein said tubular inhaler is provided with a rubber mask surrounding the

open end for facilitating adhesion to the face and band means for securing the inhaler to a person's face.

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