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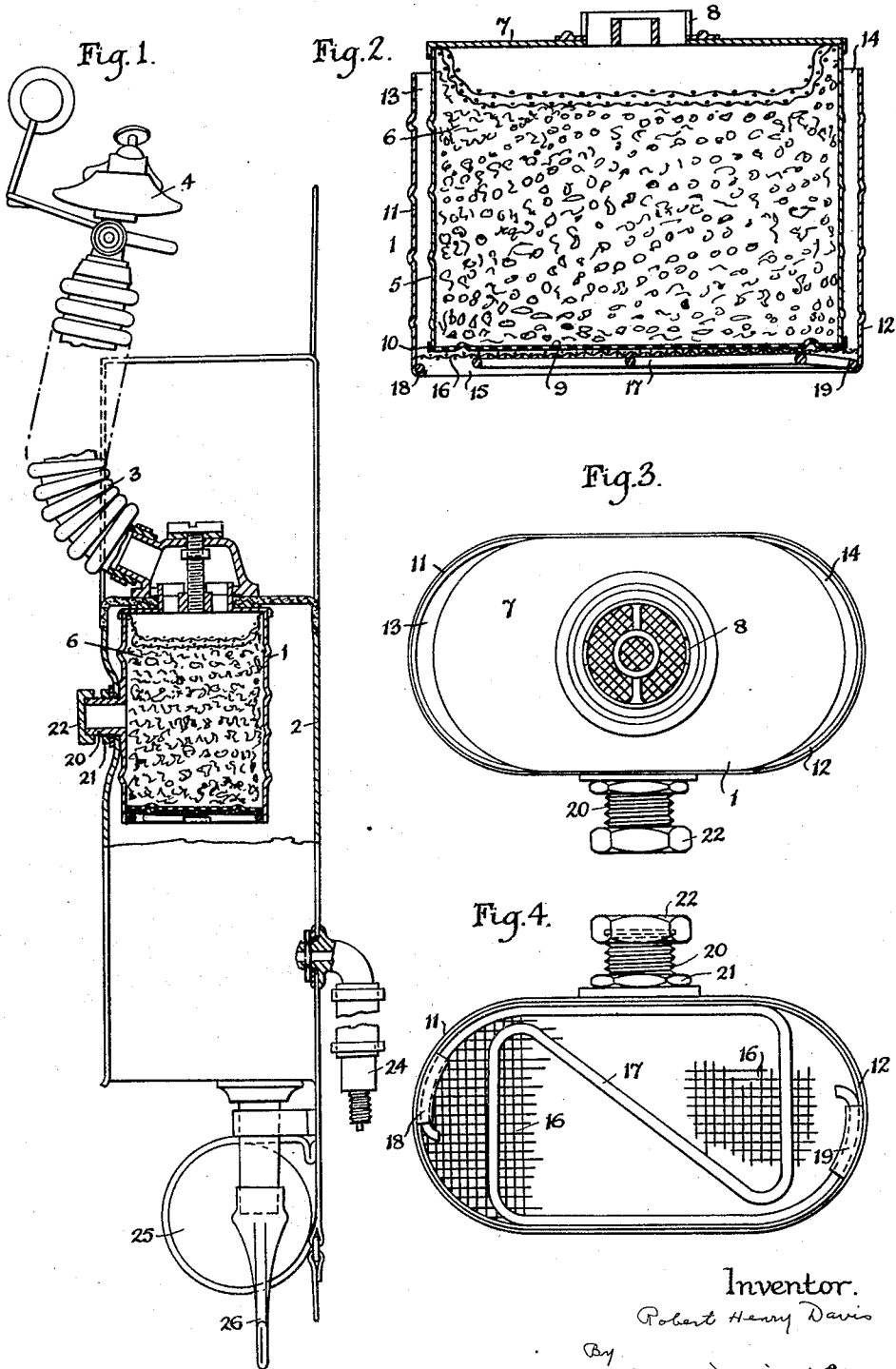
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1,889,015

PURIFYING CANISTER FOR BREATHING APPARATUS

Filed June 25, 1930

2 Sheets-Sheet 1



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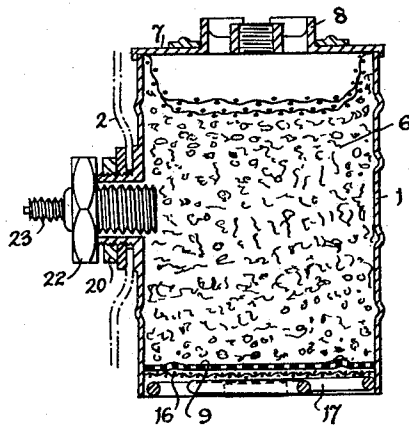
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Fig. 5.



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PURIFYING CANISTER FOR BREATHING APPARATUS

Application filed June 25, 1930, Serial No. 463,616, and in Great Britain July 19, 1929.

This invention relates to purifying canisters for self-contained breathing apparatus.

A self-contained breathing apparatus of the type referred to comprises a collapsible breathing bag, a mouthpiece connected to the bag, and a breath purifying canister located within the breathing bag which communicates with the mouth-piece and with the interior of the breathing bag.

The canister is arranged to contain a chemical substance or substances, for example, soda lime or caustic soda, which is or are employed to absorb the carbon dioxide exhaled by the user of the apparatus. Preferably the canister is provided with a piece of wire gauze or the like arranged to maintain the chemical substances in position within the chamber and at the same time allow the user to freely inhale and exhale.

Purifying canisters have been constructed with the end, opposite to that which is arranged to be connected to the mouthpiece, open. It is found, however, that when in use it is possible when the canister is employed in connection with a self-contained breathing apparatus, for the wall of the flexible breathing bag to come into contact with the open end of the canister and cover the same, so impeding the breathing of the wearer, and one object of this invention is to overcome this disadvantage.

According to the invention there is provided a purifying canister for breathing apparatus having at least one channel provided in the wall thereof, one end of which is arranged to communicate with the open end of the canister at a point below the lower level of the chemical substances in the canister, the other end of said channel being open and arranged above the lower edge of the canister.

In a suitable arrangement for carrying the invention into effect, the canister is constructed of tubular form, of flat-sided oval cross-section. The lower open end of the chamber is furnished with a perforated metal base and with a removable piece of wire gauze screen.

Exterior to the semicircular walls of the canister are arranged similarly shaped walls

which provide two open ended channels for the purpose hereinbefore referred to, such channels being of crescent form in plan view. The lower ends of the said additional walls are provided with lugs arranged to receive the ends of a bent wire spring which serves to hold the removable perforated metal base and wire gauze screen in position upon the bottom of the canister.

One side of the canister is furnished with the opening for filling or discharging purposes, the said opening being extended in the form of a short tube screw-threaded exteriorly to receive a removable cap which may have combined therewith a non-return valve to allow the breathing bag to be charged with oxygen.

The top of the canister is provided with an opening arranged to be connected to a flexible tube constituting a communication between the mouthpiece of the breathing apparatus and the canister.

It will be observed that if necessary the canister may be either charged or emptied through the opening provided in the side thereof, or the canister may be charged or emptied by removing the gauze base which enables the whole interior of the canister to be thoroughly cleaned.

In order that the invention may be clearly understood, reference is directed to the accompanying drawings, wherein:—

Figure 1 is a sectional elevation of a purifying canister constructed in accordance with the invention and shown associated with a flexible breathing bag.

Figure 2 is a section of a purifying canister constructed in accordance with the invention and drawn at right-angles to the canister illustrated in Figure 1, said figure being on an enlarged scale.

Figure 3 is a plan view of Figure 2.

Figure 4 is an under side view of the canister shown in Figure 2, and

Figure 5 is a sectional elevation of a modified form of purifying canister constructed in accordance with the invention.

Referring to the drawings there is illustrated a purifying canister for breathing apparatus comprising a canister 1 supported

within a breathing bag 2 and connected by means of a flexible conduit 3 to the mouth-piece 4 of the breathing apparatus in the usual manner. The purifying canister 1 comprises a container 5 for a chemical substance 6 the upper end of which is provided with a cap 7 having a nozzle 8 arranged to be connected to the flexible conduit 3 in the known manner. The lower open end of the container 5 is provided with a perforated metal base 9 which is flanged as indicated at 10 so as to engage the lower peripheral edge of the container 5.

The container 5 is provided with a pair of additional walls 11 and 12 which conform to the configuration of the container 5 and are spaced apart therefrom so as to provide a pair of passages 13 and 14 of crescent shape in cross-section. The outer walls of the canister 1 thus formed, is arranged to extend below the base member 9 so as to provide a recess 15 within which is fitted a wire gauze screen 16, secured in position by means of a bent wire spring 17 the ends of which are arranged to engage lugs 18 and 19, formed in the lower edges of the additional walls 11 and 12.

The canister 1 is connected to the breathing bag 2 by means of a tubular extension 20 secured to the said canister and arranged to extend through one of the walls of the breathing bag, and to be locked thereto by means of a nut 21. The outer end of the tubular extension 20 is provided with a cap 22 which may be removed in order to empty or refill the container 5 with a chemical substance.

It will be appreciated that in shaking out the chemical substances within the container 5, the perforated metal base 9 is prevented from falling within the container by reason of the flange 10 which engages the lower edge of the said container 5.

Referring more particularly to Figure 5 which illustrates a modification of the invention wherein the cap 22 is provided with a valve member 23 which serves not only as a closure to the tubular extension 20 but as a means of admitting oxygen from an exterior source to the breathing bag.

In the construction illustrated in Figure 1, oxygen is admitted to the breathing bag 2 from an exterior source by way of a valve 24. It will be appreciated that the canister may be employed in conjunction with a cylinder of oxygen 25, and with a non-return valve 26, in the known manner.

What I claim is:—

1. In or for a self-contained breathing apparatus, a breath purifying device comprising a canister, to contain a chemical purifying reagent, having a perforated bottom wall and a breath opening in the top wall, means for coupling the said opening to a breathing tube of the apparatus, and an open ended air channel extending down the exterior of the

wall of the canister from a point located below the said top wall thereof to a point located below the bottom wall where said channel communicates with an open-bottomed space provided beneath the perforated bottom wall of the canister.

2. In or for a self-contained breathing apparatus a breath purifying device comprising a canister to contain a chemical purifying reagent, having a perforated bottom wall and a breath opening in the top wall, means for coupling the said opening to a breathing tube of the apparatus, an open-ended air channel extending down the exterior of the wall of the canister from a point located below the said top wall thereof to a point located below the bottom wall where said channel communicates with an open-bottomed space provided beneath the perforated bottom wall of the canister, and a wire gauze screen held against the underside of the perforated bottom wall of the canister by a spring clip.

3. In or for a self-contained breathing apparatus a breath purifying device comprising a canister, to contain a chemical purifying reagent, having a perforated bottom wall and a breath opening in the top wall, means for coupling the said opening to a breathing tube of the apparatus, and open-ended air channels extending down the exterior of those walls of the canister which face towards the side walls of the breathing bag from a point located below the said top wall thereof to a point located below the bottom wall where said channels communicate with an open-bottomed space provided beneath the perforated bottom wall of the canister.

4. In or for a self-contained breathing apparatus, a breath purifying device comprising a canister, to contain a chemical purifying reagent, having a perforated bottom wall and a breath opening in the top wall, means for coupling the said opening to a breathing tube of the apparatus, open-ended air channels extending down the exterior of those walls of the canister which face towards the side walls of the breathing bag from a point located below said top wall thereof to a point located below the bottom wall where said channels communicate with an open-bottomed space provided beneath the perforated bottom wall of the canister, an externally screw-threaded tubular extension provided on at least one wall of the canister and in communication with the exterior thereof, a nut adapted to secure a breathing bag to the said tubular extension and detachable closure means for the said tubular extension.

5. In or for a self-contained breathing apparatus a breath purifying device comprising a canister, to contain a chemical purifying reagent, having a perforated bottom wall and a breath opening in the top wall, means for coupling the said opening to a breathing tube of the apparatus, open-ended air chan-

nels extending down the exterior of those
walls of the canister which face towards the
side walls of the breathing bag from a point
located below said top wall thereof to a point
located below the bottom wall where said
5 channels communicate with an open-bot-
tomed space provided beneath the perforated
bottom wall of the canister, an externally
screw-threaded tubular extension provided
10 on at least one wall of the canister and in
communication with the exterior thereof, a
nut adapted to secure a breathing bag to the
said tubular extension and detachable clo-
15 sure means comprising a non-return valve
screwed upon said extension for the purpose
described.

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