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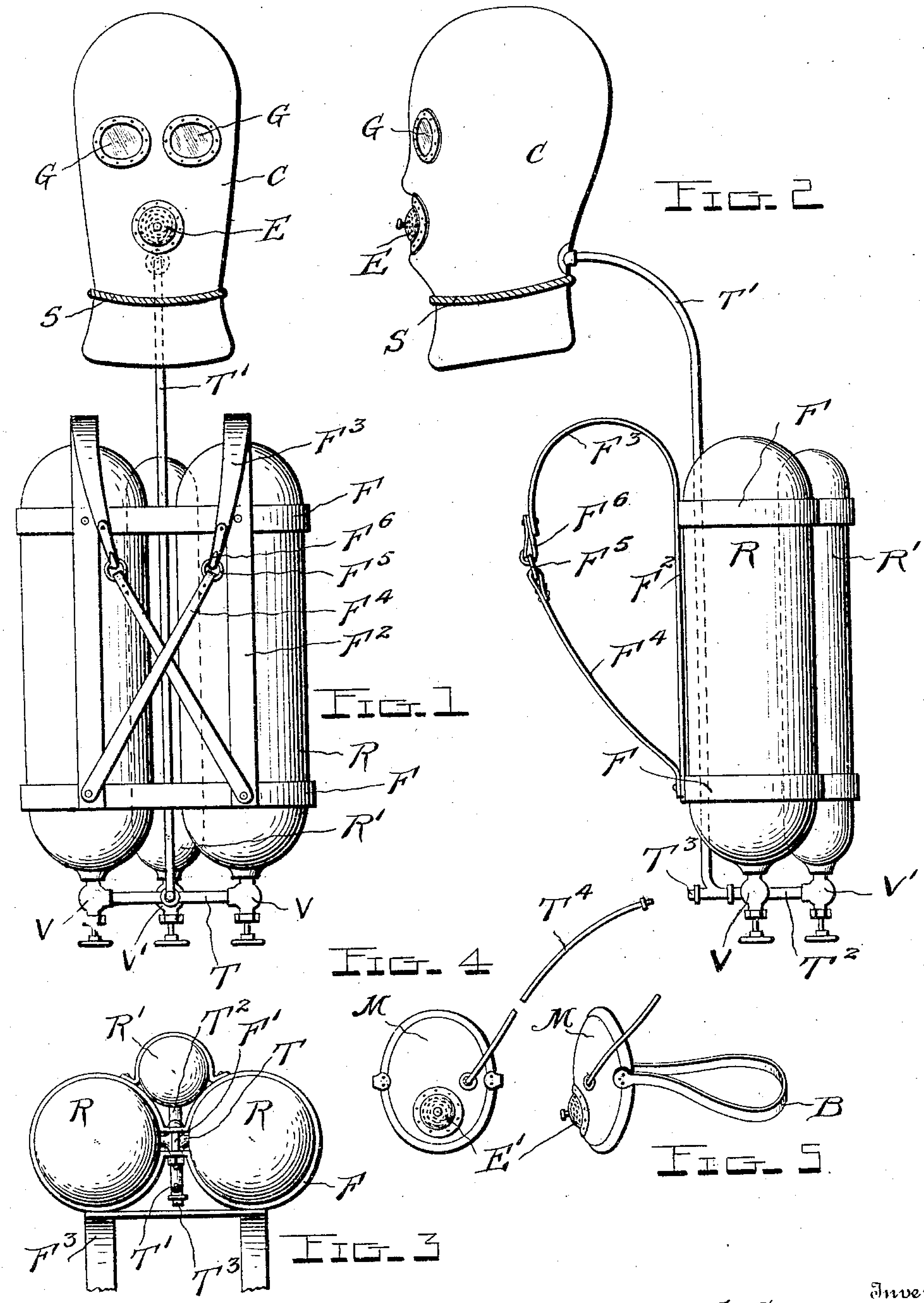
C. E. CHAPIN & A. A. SHERMAN.

RESPIRATORY APPARATUS FOR FIREMEN OR OTHERS.

APPLICATION FILED AUG. 13, 1903.

MODEL.



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UNITED STATES PATENT OFFICE.

CHARLES EDGAR CHAPIN AND ARTHUR ANSON SHERMAN, OF BERKELEY, CALIFORNIA.

RESPIRATORY APPARATUS FOR FIREMEN OR OTHERS.

SPECIFICATION forming part of Letters Patent No. 764,709, dated July 12, 1904.

Application filed August 13, 1903. Serial No. 169,403. (No model.)

To all whom it may concern:

Be it known that we, CHARLES EDGAR CHAPIN and ARTHUR ANSON SHERMAN, citizens of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Respiratory Apparatus for Firemen or Others; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention is an improved respiratory apparatus for use by firemen and others to enable them to enter buildings, mines, holds of vessels, and other places which may be filled with smoke, foul air, or noxious gases; and it consists in the construction and combination of devices hereinafter described and claimed.

The object of our invention is to provide a light, cheap, simple, and efficient apparatus of this character which may be carried by a fireman or other person to enable him to enter a burning building, mine, hold of a vessel, or other place which may be filled with smoke, foul air, or noxious gases and to remain for some time and to work therein and which will not in any manner impede his movements or the use of his hands and arms.

In the accompanying drawings, Figure 1 is a front elevation of our improved respiratory apparatus. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view of the reservoirs. Fig. 4 is a detail front elevation of the auxiliary mask. Fig. 5 is a side elevation of the same.

In the embodiment of our invention we provide a hood or mask C, which is adapted to be placed over the head of the wearer, is made of suitable air-tight and fireproof fabric, and is provided with a depending neck portion which is adapted to be closely gathered around the neck of the wearer, a band S being here shown for this purpose. The said hood or mask is provided with side openings G, which have glass closures, as shown. The hood or cap is also provided, preferably opposite the mouth of the wearer, with a valve E, which closes against the entrance of air from without, but opens for the discharge of exhaled air which has been breathed by the wearer. This valve may be opened manually and readily held in open position by the wearer to enable him to breathe freely in places where the air is pure.

Reservoirs R, which are adapted to contain compressed air, oxygen, or other gases or substances for generating the same capable of sustaining life, are connected together by straps F, which pass transversely around them and are connected together at points between the said reservoirs by means of tightening-bolts F′. The front sides of the straps F are connected together by vertically-disposed straps F^2, which are formed with hooks F^3 at their upper ends, adapted to pass over the shoulders of the wearer, so as to sling the reservoirs on his back and sustain the same. Breast-straps F^4 have their lower ends attached to the lower ends of the straps F^2. The said breast-straps are adapted to be crossed on the breast of the wearer, as shown in Fig. 1, and have eye-rings F^5 at their upper ends, which are adapted to engage catches F^6, with which the shoulder-hooks F^3 are provided. The lower ends of the reservoirs R are provided with valves V, which may be readily manipulated by the wearer to regulate the discharge of the compressed air, oxygen, or gases from the reservoir. The latter are also connected together by a pipe T, to which is attached the lower end of a flexible tube T′, which is made of rubber or similar material and the upper end of which is connected to the cap or hood C, preferably at the back, as shown. Hence the compressed air, oxygen, or gas may be readily supplied from the reservoirs to the interior of the hood or cap, to be breathed by the wearer, as will be understood. It will be understood that the valves V enable compressed air, oxygen, or gas to be used from the reservoirs R either successively or simultaneously, so that one of said reservoirs may be emptied before the contents of the other is used or they may be both drawn from at the same time, at will.

A reservoir R′ is disposed in rear of and between the reservoirs R, is provided with a valve V′, similar to the valves V, and has a pipe T^2, which connects with the pipe T. Said pipe T is provided with a nipple T^3 to permit of the attachment of a flexible tube T^4, which connects with an auxiliary mask M to be worn by another person rescued by the wearer of the cap or hood C and to enable the rescued person to be kept alive until he can be taken out of the place. This auxiliary mask is provided with a flexible band B, by means of which it may be readily secured in place, and is also provided with a valve E′, which is similar to the valve E of the cap or hood C.

The two larger reservoirs R contain the working supply of air, both the cap C and the auxiliary mask M taking their supply under ordinary circumstances from these two larger reservoirs. The third or smaller reservoir R′ is used exclusively as an emergency supply, to be drawn on only after the supply in the other two has been exhausted, thus acting as a gage as to the supply and at the same time serving to supply the wearer with air for several minutes to enable him to get into pure air again. The nipple T^3 is used both for recharging all the reservoirs and also for the attachment of the tube T^4. Said nipple has a small valve, similar to those used on bicycle-tires, which serves to check the escape of air from the tube T when the tube T^4 is not attached. When the said tube T^4 is attached, the said valve is pushed in and off its seat to allow free passage for the air to the mask M.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A respiratory apparatus having a plurality of reservoirs, and means to successively discharge the contents of the reservoirs, substantially as described.

2. In apparatus of the class described, a plurality of reservoirs, a common discharge-conductor therefor, and valves to enable the contents of the reservoirs to be discharged therefrom, through the conductor, either simultaneously or successively, at will, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

CHARLES EDGAR CHAPIN.
ARTHUR ANSON SHERMAN.

Witnesses:
THOS. B. WRIGHT,
BARTON O. CAMPBELL.