

No. 682,455.

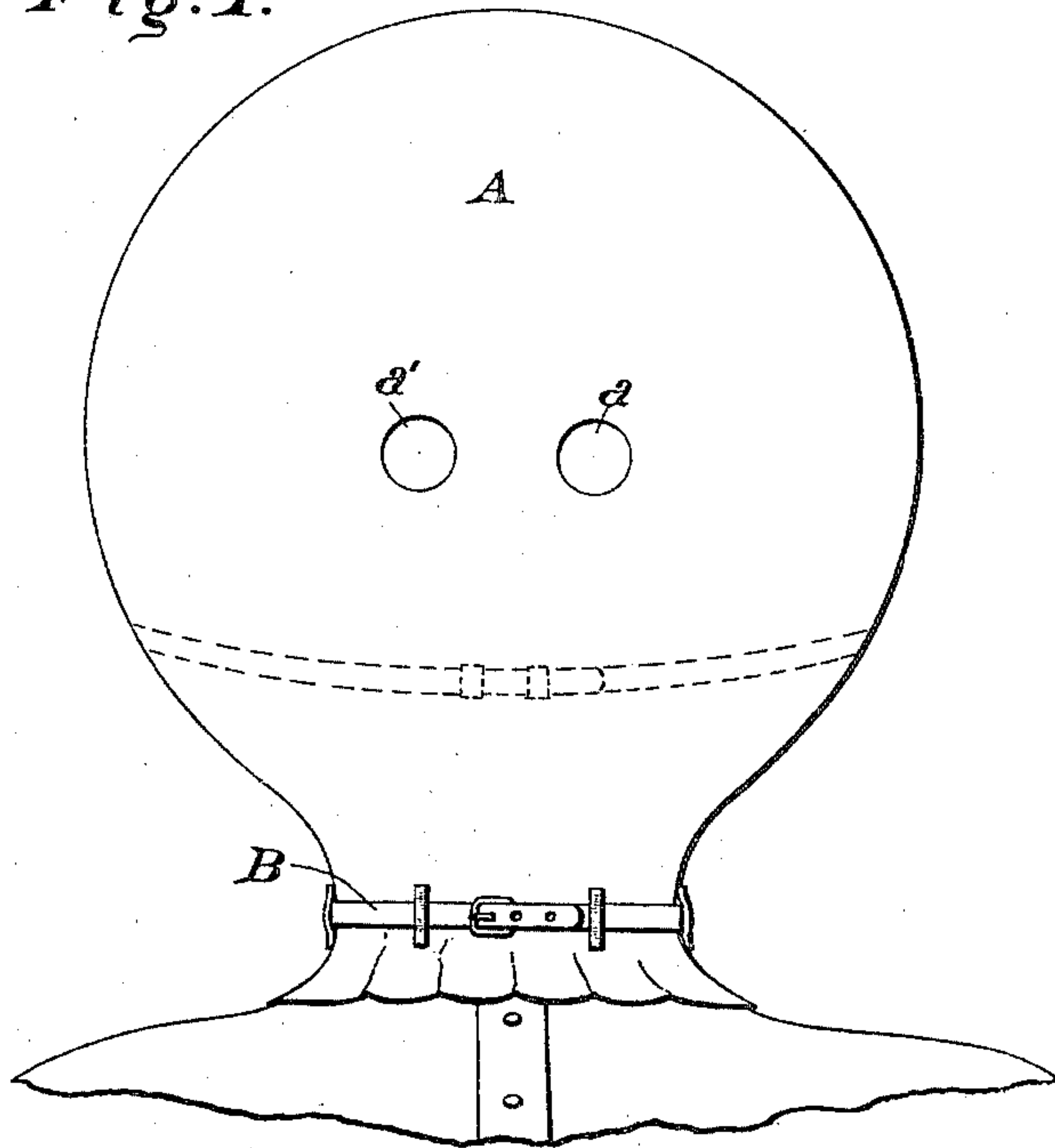
Patented Sept. 10, 1901.

G. A. COOPER.  
RESPIRATORY HOOD.

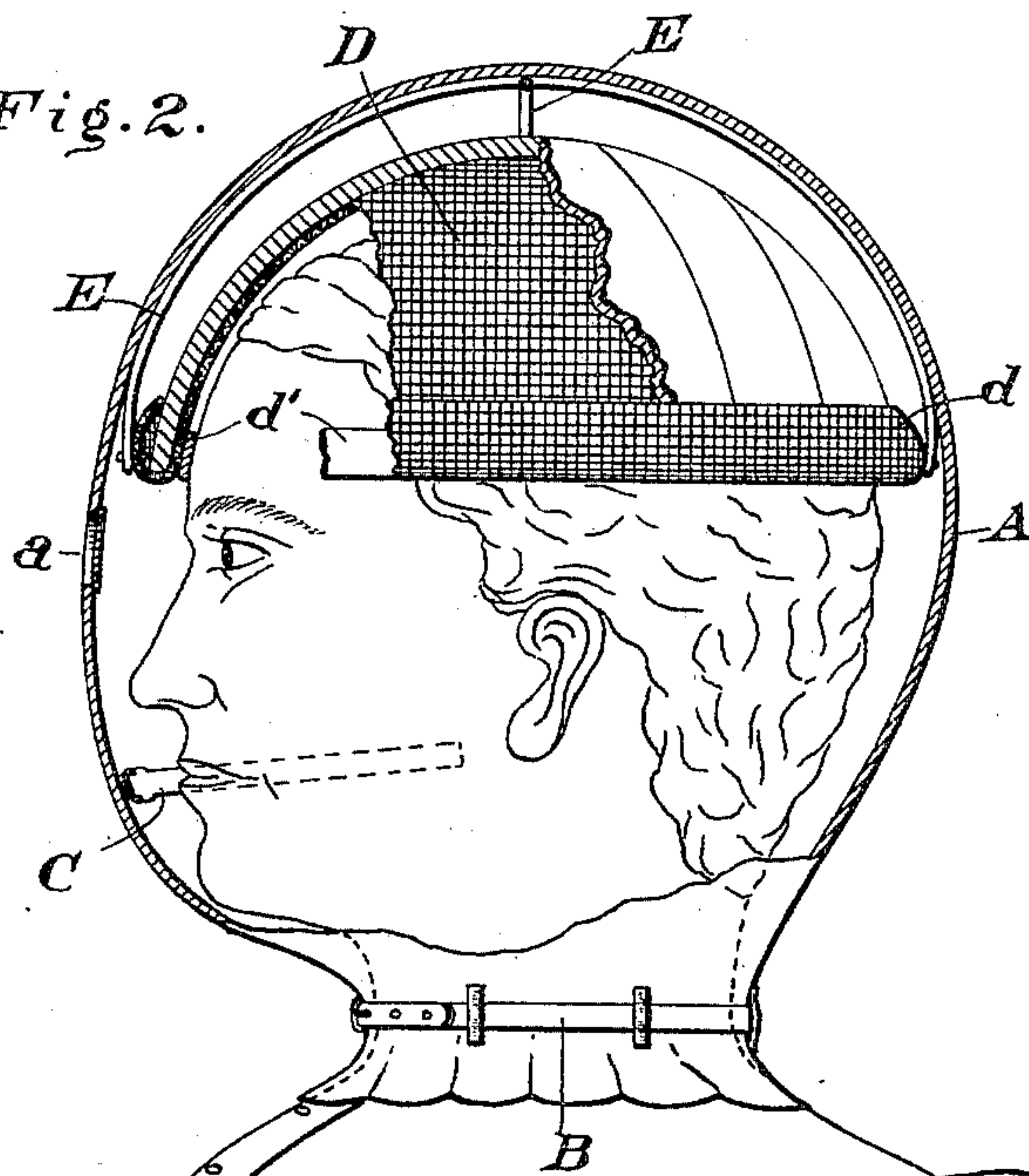
(Application filed Jan. 9, 1901.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE A. COOPER, OF PITTSTON, PENNSYLVANIA.

## RESPIRATORY HOOD.

SPECIFICATION forming part of Letters Patent No. 682,455, dated September 10, 1901.

Application filed January 9, 1901. Serial No. 42,567. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. COOPER, a citizen of the United States, residing at Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Respiratory Hoods; and I 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to respiratory hoods or similar head-coverings for the special use of firemen or miners when it becomes necessary for the former to enter a burning building wherein the atmosphere is sufficiently contaminated by smoke and other products of combustion to render the air unfit to breathe or for the latter to pass into subterranean chambers in mines which are filled to a greater or less extent with noxious gases.

One object of my invention is to produce a hood cheap in construction and simple enough to be applied quickly in case of necessity in which the air contained in suitable spaces may be breathed by the wearer and then acted upon by a chemical, with the result that the carbonic-acid gas exhaled is deprived of its carbon, which unites with the regenerating chemical, setting free the oxygen to be breathed again and again, depending upon the amount and efficacy of the chemical.

A further object of my invention is to provide within the hood means for supporting and retaining the chemical.

It is advisable that each miner or other employee whose duties are wholly or practically continuous below ground should carry with him a hood for emergency uses in which a charge of chemical sufficient for several hours active service is stored. Hence it will be understood that the device must necessarily be of the cheapest and least bulky character, as well as of the simplest structure, in order that the manner of its application may be at once apparent and call for no particular instructions or directions or necessity for training each person supplied with my invention.

Each constituent element of my invention is described in detail and its individual office, together with the mode of operation of the whole, fully explained hereinbelow.

Of the accompanying drawings, in which like letters designate like parts throughout, Figure 1 represents a front view of my invention; and Fig. 2 a side view, partly in section.

Considering the drawings, letter A marks the hood or bag, of any suitable light and not readily inflammable material, such as one or more of the fabrics containing asbestos fibers. The two eyepieces are lettered *a* and *a'*. To the neck of the bag is secured the strap B, by which the hood is closed about the neck of the wearer. I do not limit myself to the two eyepieces and strap closure, but may modify both features within the scope of my invention. The eyepieces may be of either mica or glass suitably secured to the hood.

Letter C marks an adjustable steel band, the office of which is to hold the fabric away from the lips of the wearer, allowing space for circulation of air. It is simply a light strip of any ordinary stiff metal having its length extensible and its ends secured to the fabric. It has a permanent bow or bend outwardly and holds the hood some distance before the face. The band C is not essential and may be omitted. It is, however, a convenience and renders the hood easier and more comfortable to wear.

Letter D designates a crown or helmet, of perforated metal or wire-gauze, having a lower edge *d* turned up to hold cakes or other pieces of the chemical. It is believed to be within the scope of my invention to divide the exterior of the helmet into suitable compartments of gauze or perforated metal to contain a suitable dry chemical.

Letter *d'* marks the hat-band, of leather or equivalent, which rests directly around against the head in the usual manner.

Different sizes of helmets are intended to be manufactured.

To afford an air-space above the head and chemical and likewise to the front, sides, and back of the head, wire risers or ribs E E are introduced. These wires hold the top of the hood in a spherical form, and the air-spaces between the top of the hood and helmet may



be obviously varied in different hoods. It is ordinarily sufficient to allow two inches air-space.

Hood A, as already described herein, consists of suitable light fabric readily folded, and a convenient mode of arranging the hood to be stored or carried is to fold the fabric about and into the wire crown or helmet. In this manner a comparatively light and small package may be made of it.

It is my purpose to employ as a regenerator in my invention the peroxid of sodium. This chemical has been recently studied with reference to its action when exposed to the moist carbonic dioxid gas expelled from the lungs, and it is believed to be peculiarly adapted for the purpose. Any other material possessing like affinity for carbon and capable of being stored as herein contemplated might be employed in my invention. The cakes or pieces of chemical shown in Fig. 2, partly covering the gauze helmet D, are marked G.

I am aware that diving-armor has been constructed in which this oxygen-releasing chemical has been employed, and I do not claim such armor. There are some makes of diving-armor already known in the headpiece of which my invention could readily be worn,

thus securing all the benefits due to the action of peroxid of sodium without expensively modifying or reconstructing such armor.

What I claim, and seek to protect by Letters Patent of the United States, is—

In a respiratory hood, the combination of a head-covering of suitable fabric and provided with transparent eyepieces, the said head-covering possessing a single opening or mouth, devices for drawing and securing the said mouth about the neck of the wearer, a crown or helmet within the said head-covering and provided with receptacles or pockets, a frame secured to the said crown and arranged to hold the covering above the crown and away from the head, the crown forming means for holding a chemical in the receptacles thereof and the said chemical being adapted to combine with the carbon of the products of respiration, thereby setting free the oxygen, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. COOPER.

Witnesses:

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