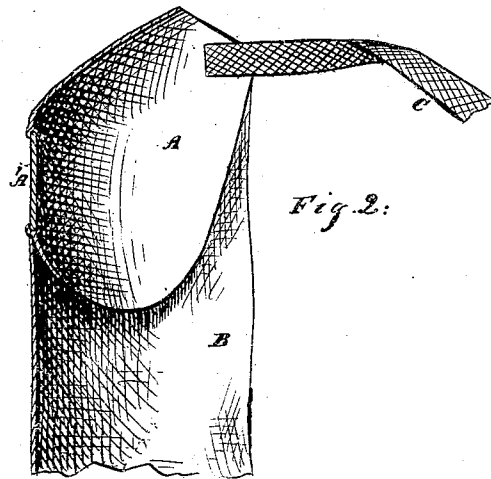
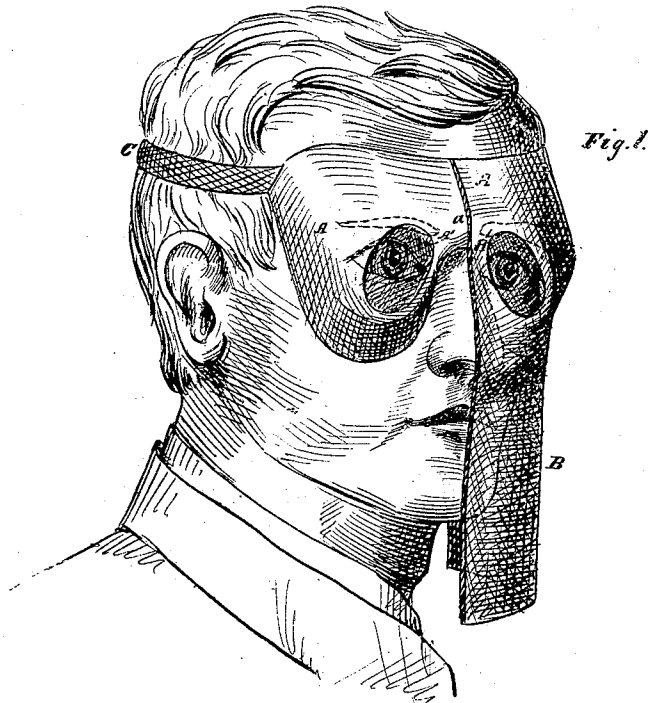


G. A. CROFUTT.
Eye and Lung Protectors.

No. 145,337.

Patented Dec. 9, 1873.



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UNITED STATES PATENT OFFICE.

GEORGE A. CROFUTT, OF NEW YORK, N. Y.

IMPROVEMENT IN EYE AND LUNG PROTECTORS.

Specification forming part of Letters Patent No. **145,337**, dated December 9, 1873; application filed November 5, 1873.

To all whom it may concern:

Be it known that I, GEORGE A. CROFUTT, of the city, county, and State of New York, have invented certain Improvements in Sight and Lung Protectors, of which the following is a specification:

This invention is designed for the use of firemen and others; and comprises a novel means of protecting the eyes and respiratory organs from the effects of smoke, hot gases, &c., exposure to which, without protection to the person, involves danger to the eyesight and liability of injury to the throat and lungs.

Figure 1 is a front view and partial vertical section of a device made according to my invention, and Fig. 2 is a vertical transverse section of the said device.

A is a duplex shell, each of the two portions of which is shaped to fit over one of the eyes of the person using or wearing the device. These lateral parts are concavo-convex in shape, and are so formed that when applied for use their edges fit snugly against the surface of the face adjacent to and around the eyes. They are connected at *a*, (both being preferably made together in a single piece,) and from one end to the other the upper edge fits snugly upon or against the forehead. This duplex shell, therefore, covers and, so to speak, incloses the eyes, but has sufficient space within for their normal movement. The edges of the shell fit so closely against the face as to exclude any passage of vapor, smoke, or the like, under the conditions hereinafter indicated.

In each half of the shell aforesaid is fixed a glass or eye-piece, *A'*, in such position that when the shell is in place, as herein previously set forth, the wearer may see through the said glasses as through a pair of spectacles. The glasses may, however, be plane instead of lens-shaped, and, when desired, may be substituted by plates of transparent mica. They may be affixed in the shell by any suitable means, for which merely mechanical judgment is required. The shell itself may be of hard rubber, *papier-maché*, or any other suitable material.

Upon the front or outer surface of the shell is attached the upper edge of a curtain, *B*, of any appropriate fibrous material, as, for example, loosely-woven woolen cloth. When the

shell is applied over the eyes, as hereinbefore explained, this curtain descends in front of and below the face, covering the mouth and nostrils of the wearer. The shell is held in position by an elastic band, *C*, secured to its lateral edges and passed around the head of the wearer, preferably above the ears.

A person—for example, a fireman—wearing the device, as set forth, will have the eyes effectually protected from smoke, sparks, &c., and, at the same time, be enabled to see perfectly through the glasses or eye-pieces. Moreover, the curtain, if held against the nostrils by the hand, or confined by a band about the neck or lower part of the face, or even, under many circumstances, simply lying against or in front of the mouth and nostrils, will filter or strain the air from smoke particles, &c., and enable respiration to proceed, without difficulty, under conditions where, otherwise, it would be impossible. It will also be understood that, from the snug fitting of the shell around the eyes, the passage upward of moisture from the breath, which otherwise would condense upon the glasses and render them opaque, is wholly prevented. The face being, furthermore, wholly covered, is shielded from excessive heat, as well as from flying sparks, &c.

The device, as thus made and applied, may be used by firemen and others in cases of fire; by miners, under like conditions, in mines; by apiarians in the hiving of bees; and, when the curtain is made with a filling or lining of any material capable of absorbing or neutralizing noxious vapors or gases, in any operation or under any circumstances where danger is apprehended from miasma, or the germs of disease in the atmosphere.

When desired, the two parts of the shell may be made separate from each other; but in such case their adjustment and retention in place will be much more difficult than when both are made in one piece. The two eye-pieces may, if preferred, be substituted by a single piece of transparent material extending across the device, to afford sight from both eyes.

In practice, it will be found most advantageous to wet or moisten the curtain to such a degree that it will adhere closely to the face, thereby avoiding the necessity, in the main, of otherwise confining it in suitable relation with

the mouth and nostrils, its filtering power against smoke being also greatly increased thereby.

What I claim as my invention is—

The duplex shell A, provided with glasses or transparent eye-pieces A, and shaped to fit the face about the eyes, as described, in combination with the curtain B, provided with a

suitable means of securing the same to the head, substantially as and for the purpose set forth.

GEO. A. CROFUTT.

Witnesses:

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