

**G. A. CROFUTT.**  
**Eye and Lung Protectors.**

No. 152,215.

Patented June 23, 1874.

Fig 1

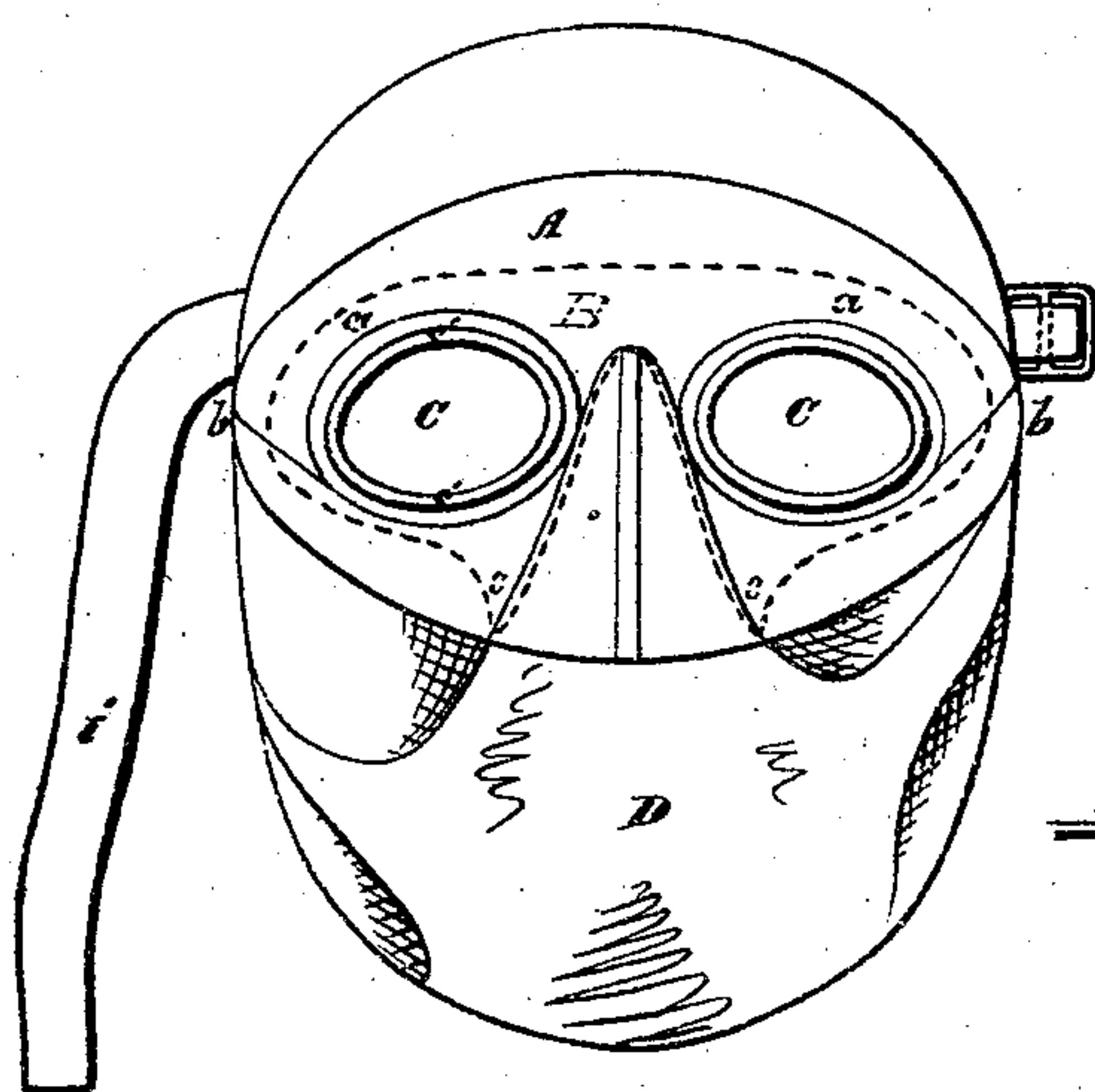


Fig 2.

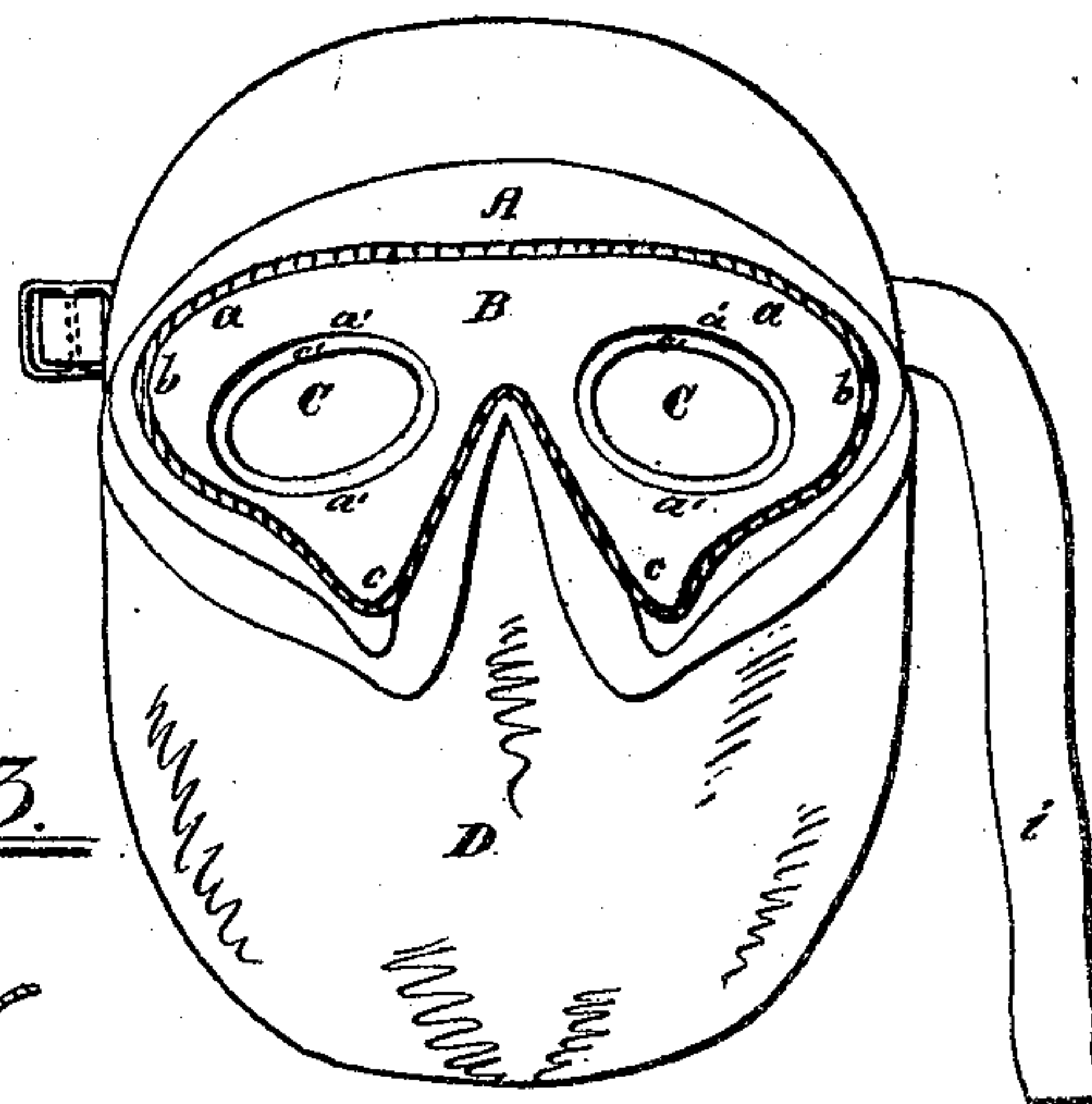
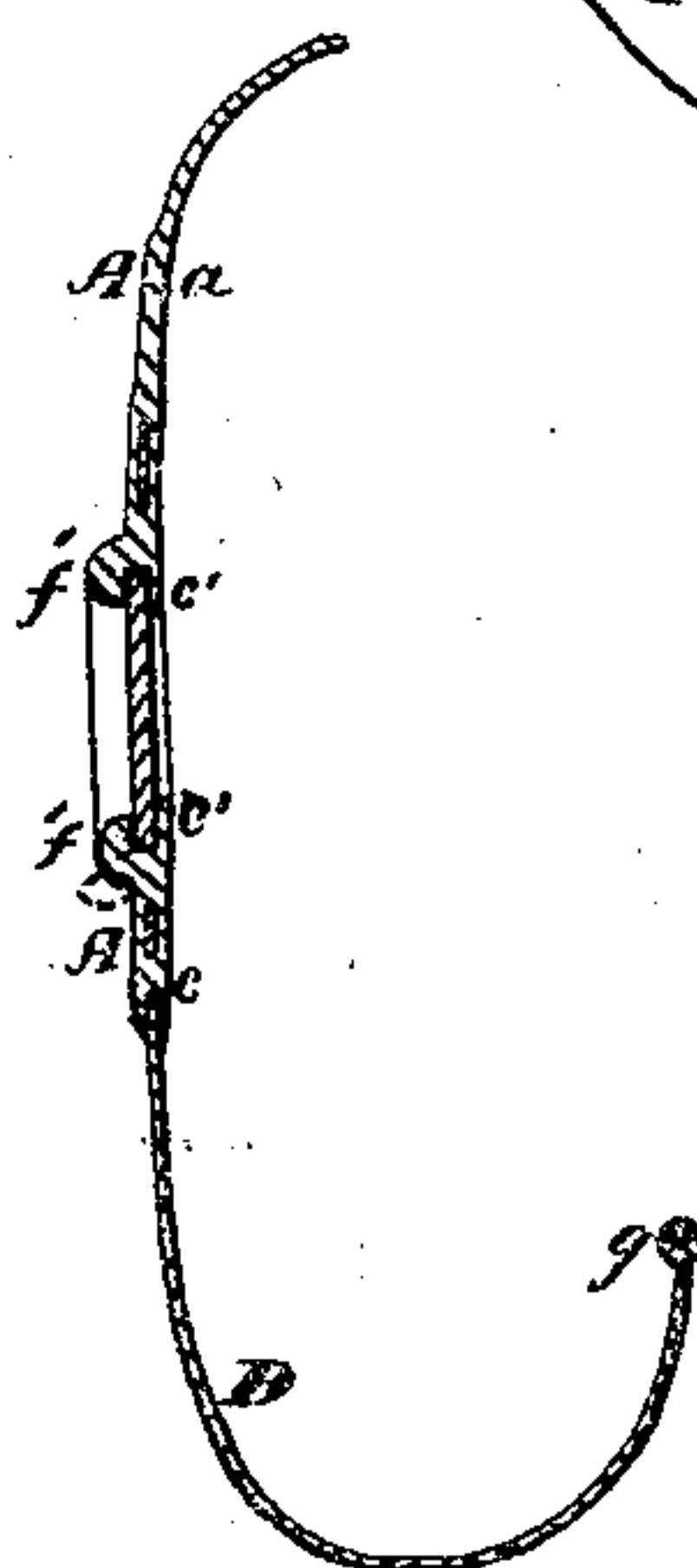


Fig 3.



Witnesses

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*per James A. Whitney*  
*Att'y.*

# 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. **152,215**, dated June 23, 1874; application filed February 2, 1874.

*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 Eye and Lung Protectors, of which the following is a specification:

This invention comprises certain improvements in the eye and lung protector for which Letters Patent were issued to me on the 9th day of December, 1873.

My present invention consists in the combination of a frontal spring with the duplex shell of the protector in such manner that the shell is made to fit more snugly in its place when in use, thereby more effectually shutting off all access of smoke, irritant gases, or the like, from the eyes of the person using the device. The invention further consists in the construction of the aforesaid shell with elastic eye-piece sockets, whereby the transparent eye-pieces of the protector are tightly held in place, and whereby the same may be readily inserted in their places, or, when desired, removed therefrom.

Fig. 1 is a front view of an eye and lung protector, made according to my invention. Fig. 2 is a longitudinal section of the same, as seen from the rear; and Fig. 3 is a vertical transverse section of the same taken in the line *xx* of Figs. 1 and 2.

A is a duplex shell—that is to say, a shell in two connected parts—so arranged as to fit snugly about the eyes of the wearer across the forehead and across the nose, as fully indicated in my patent of December 9, 1873, hereinbefore mentioned. This shell is preferably made of soft or flexible india-rubber molded to the required shape by any of the known appropriate methods practiced in the manufacture of india-rubber goods. Inserted within this shell during the process of making or shaping the same is a spring, B, the circumferential contour of which is shown in Figs. 1 and 2. This spring is made of sheet-steel, or equivalent spring metal, and is so shaped that when the protector is applied to the face the central upper portion *a* will lie across the forehead, the end portions *b* will clasp the temples, and the downwardly-projecting wing-portions *c* will clasp the sides of the nose. By this means the circumferential parts of the shell are made

to fit snugly against the face, the soft rubber extending in a flange-like manner beyond the periphery of the spring, and, by being thus kept in close contact with the face about the eyes, effectually protects the latter from access of smoke, hurtful vapors, irritating gases, and the like, when the protector is used—as, for instance, in burning buildings, in mines, and in localities where noisome vapors, &c., are present.

It is, of course, to be understood that the shell A is furnished with transparent eye-pieces C, which admit of unobstructed vision to the wearer of the protector. To permit the insertion of these eye-pieces holes *a'* are provided in the spring B at suitable places therein, and of a size somewhat greater than that of the eye-pieces themselves. It is important that the eye-pieces C should not only be capable of ready insertion in place, but that they should be so closely fitted in their sockets that nothing hurtful shall pass between them and their bearings in their sockets to the eyes or portions of the countenance sought to be guarded by the protector. To this end the soft rubber, projecting inward from the edges of the holes *a'* in the spring B, is shaped to provide the sockets for the eye-pieces. These sockets comprise each an inner flange, *c'*, against which rests the rear or inner edge of the eye-piece, which it receives, and an elastic roll or bead, *f'*, which bears against the front edge of such eye-piece, the grooves formed between the beads *f'* and flanges *c'* receiving and retaining the circumferential portions of the eye-pieces. These sockets for the eye-pieces are formed during the molding or manufacture of the shell. In order to insert the eye-pieces, it is only necessary to press outward and downward the beads *f'*, as indicated by the dotted outline in Fig. 3, place the eye-pieces in position, and allow the beads, by their own elasticity, to resume their places. The elastic character of the india-rubber keeps it in close contact with the contiguous peripheral surfaces of the eye-pieces, and, by thus making the joints between them and their sockets airtight, prevents, as hereinbefore noted, any leakage or passage of detrimental matter. The shell A is furnished with a depending curtain, D, provided with an elastic cord, *g*, or other



suitable means for confining it about the lower part of the face to protect the mouth and nostrils, and consequently the lungs, from the entrance of smoke, gases, &c., and which curtain should be moistened with water when in use. Furthermore, an elastic strap or a band, of any suitable material, should be provided to the shell A in such manner that, passed around the back of the wearer's head, it may bring the protector snugly against the face, and keep it from falling off.

What I claim as my invention is—

1. The combination of the spring B, constructed and operating as described, with the duplex shell A, substantially as and for the purpose set forth.

2. The duplex shell A, constructed with elastic sockets grooved for the reception of the transparent eye-pieces C, substantially as and for the purpose set forth.

GEO. A. CROFUTT.

Witnesses:

JAMES A. WHITNEY,  
W. M. EDWARD.