

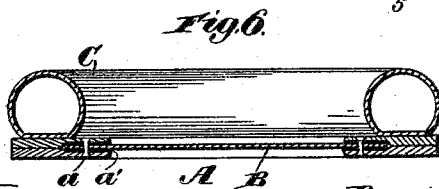
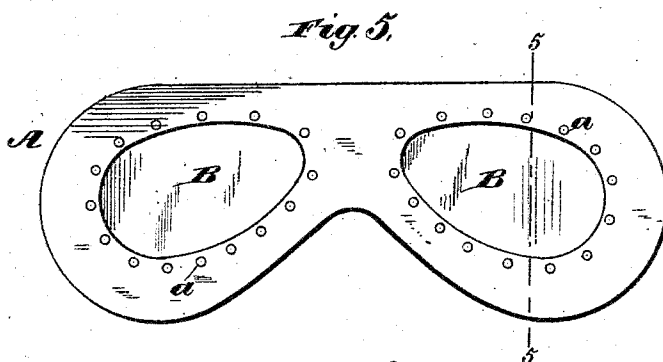
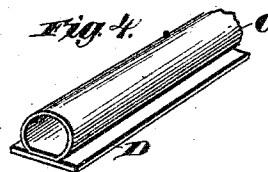
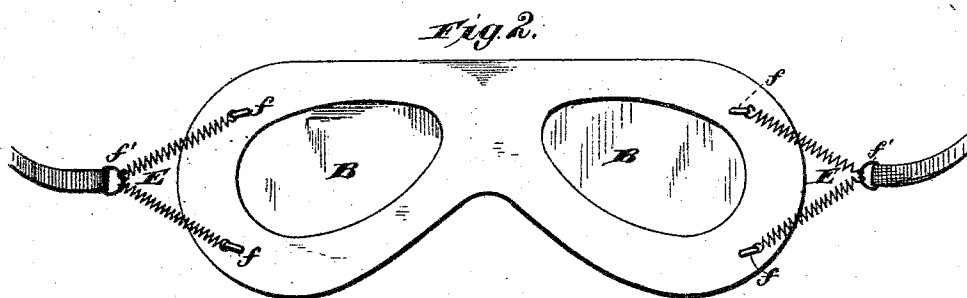
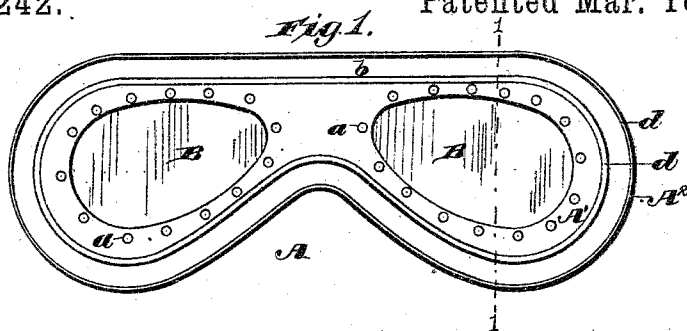
(Model.)

D. GENESE.

FLEXIBLE AIR TIGHT EYE GUARD.

No. 295,242.

Patented Mar. 18, 1884.



Witnesses.

Robert Everett.

J. A. Rutherford

Inventor:

David's Genese

By James L. Norris.
Atty

UNITED STATES PATENT OFFICE.

DAVID GENESE, OF BALTIMORE, MARYLAND.

FLEXIBLE AIR-TIGHT EYE-GUARD.

SPECIFICATION forming part of Letters Patent No. 295,242, dated March 18, 1884.

Application filed July 10, 1883. (Model.)

To all whom it may concern:

Be it known that I, DAVID GENESE, a subject of the Queen of Great Britain, residing at Baltimore, Maryland, have invented new and useful Improvements in Flexible Air-Tight Eye-Guards, of which the following is a specification.

The object of my invention is to provide an eye-guard for firemen and employes of metal-working and chemical manufactories, which shall be practically impervious to smoke, to the fumes of acids, or to noxious vapors of all kinds, as well as an effectual protection against flying particles of metal, grit, or finely-divided matter floating in the atmosphere. This object I accomplish in the manner and by the means hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view showing the inner face of the guard, the elastic margin being removed. Fig. 2 is an elevation showing the outer face of the guard. Fig. 3 is a transverse section upon the line 1 1, Fig. 1. Fig. 4 is a detail perspective, showing the method of constructing the elastic marginal strip. Fig. 5 is a plan view showing a modification in construction. Fig. 6 is a transverse section on the line 5 5, Fig. 5, showing the elastic rim attached.

A in said drawings represents a frame, within which are set the plane lenses B, the latter being made of thin laminae of mica, whereby danger of cracking from heat, or splintering from a sudden blow is avoided, and the requisite flexibility is provided. The frame A is made from thin plates of easily-flexible material—such as lead or copper—and the lenses B having their margins smeared with raw rubber, as shown at *a'* in Fig. 6, are laid between said plates, and a suitable pressure is applied and maintained until the rubber has hardened. Rivets *a* are then inserted at short intervals, around each lens-opening, passing through both plates, and through the mica, and finally soft solder may be applied along the margin of the inner plate. By this construction a perfectly tight joint is formed around each lens, which is absolutely impervious to air. Of the two plates forming the frame the inner one, *A'*, may be so much less in dimensions than

the plate *A*², upon which it lies, as to leave a margin, *b*, between the edges of said plates. These edges may be milled or turned, as shown at *d*, for a purpose presently to be described. 55

Referring to Fig. 4, C represents a portion of an elastic cylindrical body, which may consist of a rubber tube. It is firmly secured to a strip, D, which may be of rubber and cemented to the tube C, or of metal, in which case the parts are vulcanized together. The strip D is of such width that it may be laid between the edges *d d* of the plates *A'* and *A*², and when in place these edges may be turned down upon the margins of said strip, thereby securely fastening the elastic body C to the margin of the frame A, as seen in Fig. 3. When the marginal body C is formed of rubber tubing, a nipple, *e*, may be attached thereto for the purpose of filling the tube with water. The elastic margin C is applied to the inner surface or border of the frame A, and completely surrounds the eyes, being brought into contact with the face at every point. The material of which the frame and the lenses are composed permits the bending of the former to insure perfect contact, as described, at all points, whereby the guard may be made to fit different facial configurations. 75

At each end of the frame A are attached loops *f f*, to receive elastic connections E E, which may consist of flat spiral springs united at their ends by a ring, *f'*, which may engage with a button upon the helmet, or may receive a strap which passes around the head. The tension of these springs, when the parts are properly adjusted, retains the guard in place, and draws it against the face with sufficient force to secure a close contact of the elastic margin C, and consequently an air-tight joint around the eyes. 80

A slight modification of construction is illustrated in Figs. 5 and 6, in which the elastic portion C is connected directly to the metal frame. I prefer, however, the construction shown in Figs. 1 and 3, the latter being more durable. 85

For persons working in chemical factories, foundries, cotton-factories, and metal-working establishments, this invention will be found valuable, since in such manufactures the eyes are dangerously exposed to the action of acrid 90 100

vapors, as well as foreign matters. It may be used with equal advantage by engineers, locomotive drivers, and miners, but is indispensable to firemen who are frequently compelled to enter apartments filled with smoke, which is often mingled with fumes of a most irritating kind. When used in connection with such a respirator as that for which I made application for Letters Patent the 14th day of June, 1883, a fireman may safely enter places which would prove fatal to a person not protected. In those forms of opthalmic disease in which it is necessary to exclude the eyes from contact with the outer air, it may be used with advantage.

When finished, the guard-frame may be japanned or painted with any suitable paint which will not be affected by heat or by acrid vapors.

Having thus described my invention, what I claim is—

1. A flexible air-tight eye-guard consisting of a frame of flexible metal completely surrounding the orbital space, and having plane lenses of mica or other transparent and flexible substance, and an elastic marginal body

secured to said frame, in the manner and for the purpose substantially as described.

2. The combination, with the frame composed of two flexible metallic plates, A and A', of the mica lenses B, the raw rubber *a'*, and the rivets *a*, substantially as described.

3. The combination, with the frame composed of two plates lying one upon the other with the lenses interposed, as described, of an elastic margin secured to a strip which is attached to the frame by bending the edges of the plates over the margins of the strip, substantially as described.

4. The combination, with the frame composed of the plates A' A², having flanged edges *d d*, of the elastic tube C, mounted upon a strip, D, the parts being united, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DAVID GENESE.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.