No. 645,408. Patented Mar. 13, 1900.

W. C. VAJEN.

FIREMAN'S HELMET.

(Application filed Mar. 14, 1898.)

(No Model.)

Fig. 1.

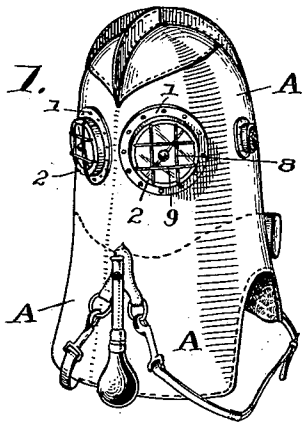


Fig. 2.

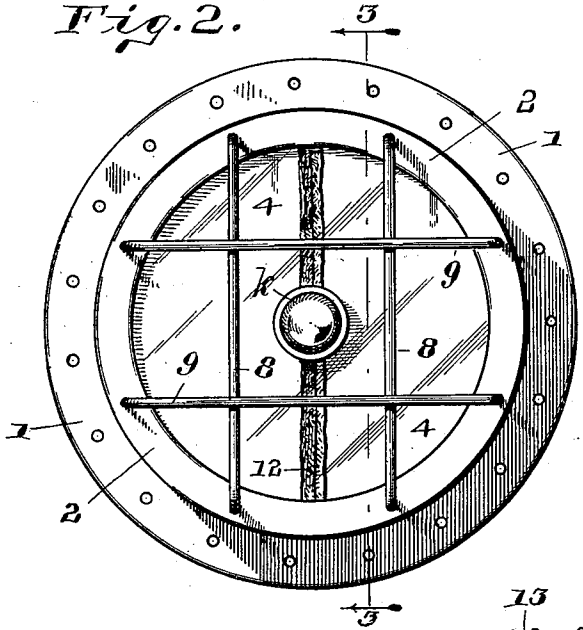


Fig. 3.

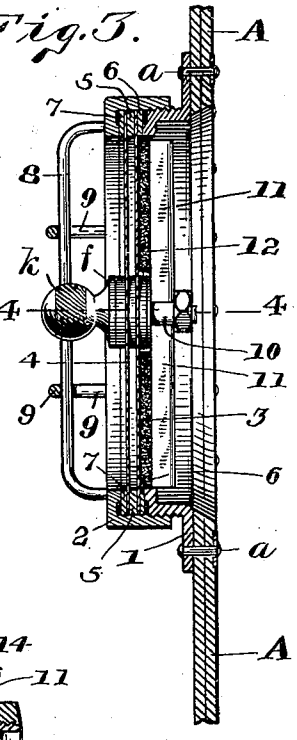


Fig. 5.

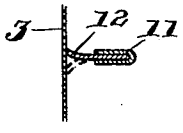
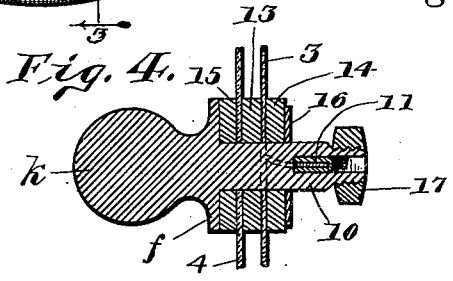


Fig. 4.



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FIREMAN'S HELMET.

SPECIFICATION forming part of Letters Patent No. 645,408, dated March 13, 1900.

Application filed March 14, 1898. Serial No. 673,859. (No model.)

To all whom it may concern:

Be it known that I, WILLIS C. VAJEN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Eyepieces for Head-Shields, of which the following is a specification.

My present invention consists in certain improvements relating to the eyepieces of the device or apparatus forming the subject-matter of my application, Serial No. 602,010, for "Firemen's helmets," filed August 7, 1896. The eyepiece, generally speaking, is of substantially the same construction as that shown and described in said application, but involves certain improvements mainly relating to a revolving cleaner and the means of mounting and applying the same, by means of which the inner surface of the transparent plates may be cleaned by the wearer without removing it from his head.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters and numerals of reference indicate similar parts, Figure 1 is a perspective view of an apparatus for shielding or protecting the heads of firemen and others against smoke and other deleterious gases and vapors, generally known by the appellation of "firemen's smoke-protectors;" Fig. 2, a plan view, full size, of an eyepiece to such a protector; Fig. 3, a sectional view through the same as seen when looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 2; Fig. 4, a detail sectional view through the cleaner-shaft and immediately-adjacent parts, on an exaggerated scale, as seen from the dotted line 4 4 in Fig. 3; and Fig. 5, a detail sectional view across one arm of the revolving cleaner.

I will confine this description mainly to those features of the eyepiece which form the subject-matter of the present application, other features (so far as described at all) being described merely incidentally.

The eyepiece as a whole consists of an annular base or ring 1, which is secured by numerous rivets *a* to the body A of the shield or helmet and the outwardly-extending annular portion of which is screw-threaded upon the outside; an annular ring 2, the interior surface of which is correspondingly screw-threaded and which has a flange, between which and a corresponding flange on the part 1 the transparent material and the washers bearing thereon are secured; preferably two transparent plates 3 and 4, having an annular washer 5 between them, preferably of leather, and corresponding washers 6 and 7 resting upon their outer surfaces, between them and the flanges of the rings 1 and 2, and guard-wires 8 and 9, preferably crossing each other at right angles, which serve to protect the transparent plates 3 and 4.

Those surfaces of the flanges of the parts 1 and 2 which bear against the washers 6 and 7 are shown as projecting somewhat from their general level, so that said contact-surfaces are narrower than the width of the flanges. This is of considerable importance in forming a tight joint, as these comparatively-narrow edges will sink into the washers 6 and 7 to some extent, thus precluding the possibility of any passage of gases at this point.

These eyepieces are provided with rotary cleaners, by which the wearer is enabled to keep the inner side of the transparent plate free from anything which might obstruct the vision. This cleaner is constructed and arranged as follows: Centrally located and extending through suitable perforations in the transparent plates 3 and 4 is a small shaft 10, having a thumb knob or wheel *k* upon the outer end and with its inner end preferably slitted and carrying a transverse bar 11, which bar has a facing 12 of some soft material, which extends in from said bar and bears against the interior surface of the inner transparent plate 3. Between the plates 3 and 4 I place a washer 13, preferably of leather, and on the outside of said plates 3 and 4 I place washers 14 and 15, preferably of felt or some similar soft elastic material. Interposed between the bar 11 and the felt washer 14 is preferably a small metallic washer 16. On the inner end of the shaft 10, which is screw-threaded, is a suitable nut 17, which engages with said end and which bears against the edge of the bar 11 and forces it down to the bottom of the slit in the shaft 10 and against the washer 16, thus holding the several parts together. Below the thumb-knob *k* is a flange *f*, which bears against the outer

side of the felt washer 15. The felt washers 14 and 15 are yielding enough to permit the shaft to be easily revolved, while they are firm enough to, in connection with the leather washer 13, hold it in place with sufficient firmness. In operation the wearer of the head-shield or helmet revolves this shaft by grasping the thumb-knob *k* and revolving it by means of his thumb and finger, which passes the soft material 12, carried by the bar 11, rapidly over the inner surface of the transparent plate 3, thus freeing it of any dirt or moisture which might gather thereon. Passage of any gases around the cleaner-shaft 10 is prevented by the washers 14 and 15, which fit closely around said cleaner-shaft, and at the same time by means of their elasticity permit the easy revolution of said shaft.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an eyepiece for a head-shield or helmet, of a suitable frame-work, stationary transparent plates mounted therein, a shaft mounted to revolve in a central perforation in said plates, a wiper carried on the inner end of said shaft and bearing across the inner surface of the inner plate, whereby by revolving said shaft said wiper is carried around to wipe said surface, substantially as set forth.

2. The combination, in an eyepiece for a head-shield or helmet, of a suitable frame, a transparent plate carried by said frame and having a central perforation therein, a shaft mounted in said perforation having a suitable flange upon one side and a nut upon the other, a bar carried by the inner end of said shaft faced with soft material which comes in contact with the inner side of said transparent plate, and flexible washers interposed between the flange on the shaft and the plate on one side, and between the bar and the plate on the other side, whereby the passage of air or gases is prevented while the revolution of the shaft is permitted, substantially as set forth.

3. The combination, in an eyepiece for head-shields or helmets, of the base or ring 1 secured to the body thereof, the ring 2 provided with the grating-bars 8 and 9 and secured to the ring 1, the interposed transparent plates 3 and 4, the washers 5, 6 and 7, the revolving shaft 10, the bar 11 faced with a soft material 12 and carried by said shaft, the washer 13 interposed between said plates 3 and 4, and the washers 14 and 15 mounted on said shaft outside said plates and in contact therewith.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 5th day of January, A. D. 1898.

WILLIS C. VAJEN. [L. S.]

Witnesses:
CHESTER BRADFORD,
JAMES A. WALSH.