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2,964,038

COVER FOR RESPIRATOR

Filed March 31, 1958

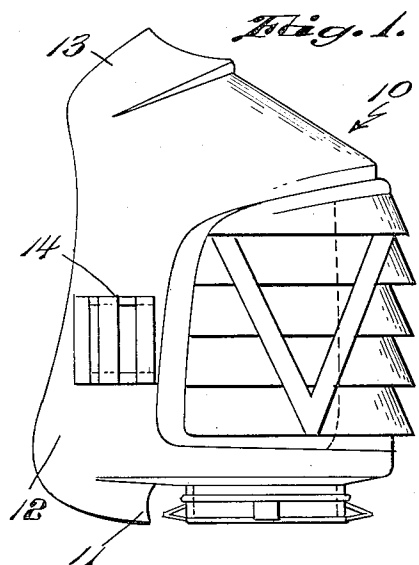
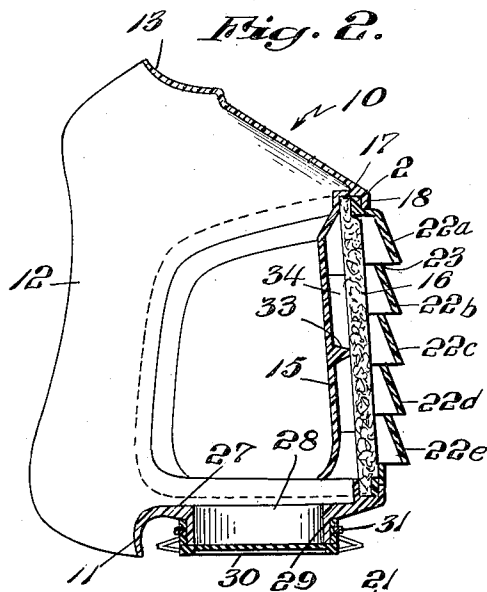


Fig. 3.

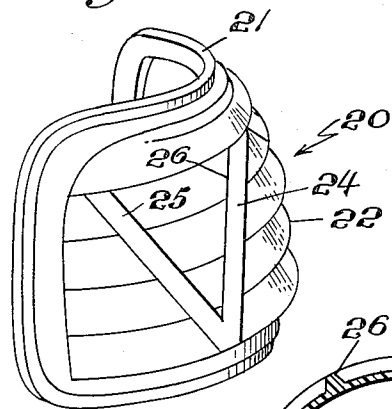


Fig. 4.

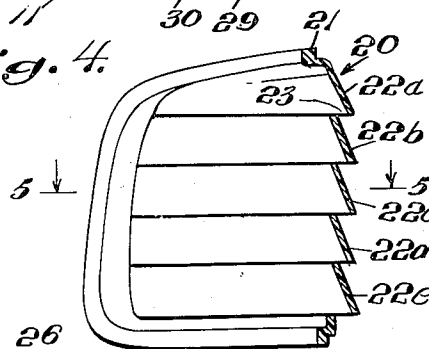
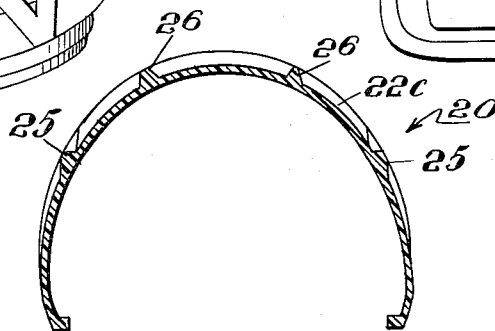


Fig. 5.



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2,964,038

COVER FOR RESPIRATOR

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5 Claims. (Cl. 128—146)

This invention relates to a respirator.

Respirators, as they have been produced on the market, are of widely varying forms. In many instances they include a covering for the nose and mouth and then have air pick up devices built onto this covering and protruding outwardly therefrom, each in an appropriate shape and formation to include some filter medium. The relatively new mask with which this invention is primarily associated comprises a body part which covers the nose and mouth and over an extended area of this body part there is positioned a filter of a felt or paper type or of other various forms and over this filter there is provided a cover which may be removed for removal or replacing of the filter as the same may be exhausted or used up or for the purpose of changing from one type of filter to another for a variety of uses to which the respirator may be put.

This invention has to do primarily with the cover which may be removed and replaced for the interchange of the filter.

One of the objects of this invention is to provide a cover through which air may freely pass and which will at the same time shed or assist in shedding heavy particles of dust with which the air is laden and which is to be separated from the air to be breathed.

Another object of this invention is to provide a cover which by reason of its construction will stand away from the filter and free a large surface area of the filter for the collection of contaminate which is to be separated from the air to be breathed.

Another object of this invention is to provide extended open spaces in the cover for the free upward passage of air and to support the portions which provide these spaces or through which the openings may extend with some sort of a reinforcement to maintain the open portion of the cover in the desired shape relationship.

Another object of the invention is to so curve the cover that the curvature assists in supporting the cover in its desired position.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of the respirator;

Figure 2 is a longitudinal sectional view;

Figure 3 is a perspective view of the cover as separate from the body portion of the respirator;

Figure 4 is a sectional view of this cover taken vertically; and

Figure 5 is a sectional view on substantially line 5—5 of Figure 4 and taken horizontally.

As the invention in this application deals primarily with the cover, the remainder of the respirator will be described only generally to bring out what co-operative relation may exist between the cover and the body part and filter of the respirator. The body portion 10 of the device, although somewhat irregular in contour as may

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be seen because of the necessity for it to fit the face, has a lower portion of its rear edge 11 (see Figures 1 and 2) of a shape and length to extend along the area of the face just below the mouth while the sides 12 extend upwardly therefrom flaring outwardly slightly and are on a curvature to fit along the cheeks of the user at either side of the nose while the upper portion 13 is arched to fit over the nose and engage the forehead. The edges are all very flexible and when drawn against the face by an elastic band secured as at 14, an air-tight seal is provided along the peripheral portions of the body where it contacts the face.

From the peripheral contact with the face, the body arches forwardly and along this arched portion there is a recess or setback area 15 (see Figure 2) which conforms to the general curvature of the remainder of the body but is of a size to receive a filter medium which, for example, may be a piece of felt 16 cut out substantially the shape of the setback area 15. Bordering this recess 15, there is molded into the body a groove 17 which extends completely around the perimeter of the recess encircling the same and providing an overhanging lip 18 which serves a retaining function for holding the felt filter 16 and the cover in position. The filter, however, is of a fluffy nature and is compressed as it is held in place in the groove by the insertion of a cover designated generally 20 and shown by itself in Figures 3, 4 and 5.

This cover is of an arcuate shape generally conforming to the arcuate shape of the body at the recess portion and is provided with a flange 21 around its perimeter which will enter the recess 17 and compress the edge of the filter 16 thus securing the filter and the cover in position by reason of its entering the recess.

Extending horizontally of the cover there are formed a plurality of louvers generally 22 and comprising individually louvers 22a, 22b, 22c, 22d and 22e. These louvers are arranged in echelon relation as seen in the various figures and provide openings or passages 23 between them so that there may be a free passage of air upwardly and inwardly of the cover. Although the arcuate or curved form of each of the louvers provides a rather stiff formation, it is usually desirable to connect the louvers one with the other at spaced points; and I have done so by means of a connection designated generally 24 and in the shape of a W, although it will be appreciated that from the functioning standpoint this shape may take various forms. Here there is a V formed of legs 25 and 26 on each side of the center of the cover (see Figure 5).

By reason of the louvers formed in this manner, if the respirator is used in an atmosphere filled with heavy dust, the inclined position of each of the louvers will tend to shed the dust because of its tendency to settle whereas the air free from the heavy particles only will pass upwardly through the openings 23 between the louvers. The lighter dust particles which move upwardly with the air through passages 23 will be removed by the filter.

The bottom wall 27 of the body 10 is provided with an opening 28 from which there extends downwardly neck 29 and an exhalation valve 30 is telescoped over the outer surface of this neck 29 and held in position by a band 31. No inhalation valve is necessary due to the extended area of the surface of the filter 16. The outer surface of the filter is in spaced relation to the louvers thus affording substantially its entire area except where held in the groove for the collection of contaminate separated from the air which is to pass through the filter. At certain spaced points there are protuberances 33 extending outwardly from the recessed area 15 to support the filter at spaced points and allow a space 34

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back of the filter and between it and the surface of the area 15 for the better passage of the air after passing through the filter for entrance into the inner portion of the body.

I claim:

1. In a respirator, a body to cover the nose and mouth portions of the face for sealing at its periphery with the face, a filter over a portion of said body and a cover over said filter, said cover being of arcuate shape about a vertical axis when in position on the face and provided with a plurality of louvers following said arcuate shape with openings between the louvers for the passage of air to the outer surface of said filter, said louvers being arranged in echelon relation.

2. In a respirator as in claim 1 wherein said cover is spaced from the filter over the majority of its extent over the filter.

3. In a respirator, a body to cover the nose and mouth portions of the face for sealing at its periphery with the face, a filter over a portion of said body and

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a cover over said filter, said cover being provided with a plurality of louvers extending generally horizontally when the respirator is in position on the face with elongated openings between the louvers for the passage of air to the outer surface of said filter and means extending across the openings between louvers at a location intermediate the ends of the openings to support one louver from the other.

4. In a respirator as in claim 3 wherein said louvers are arranged in echelon relation.

5. In a respirator as in claim 3 wherein said cover is spaced from the filter over the majority of its extent over the filter.

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