April 21, 1936. C. PANETTIERE 2,038,310

SURGICAL MASK

Filed July 19, 1934

Fig. 1.

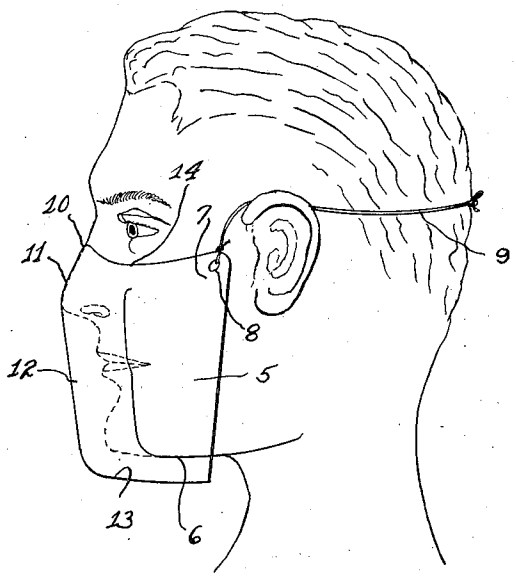


Fig. 3.

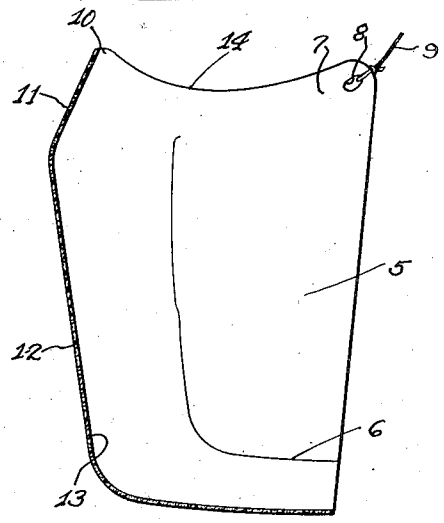


Fig. 2.

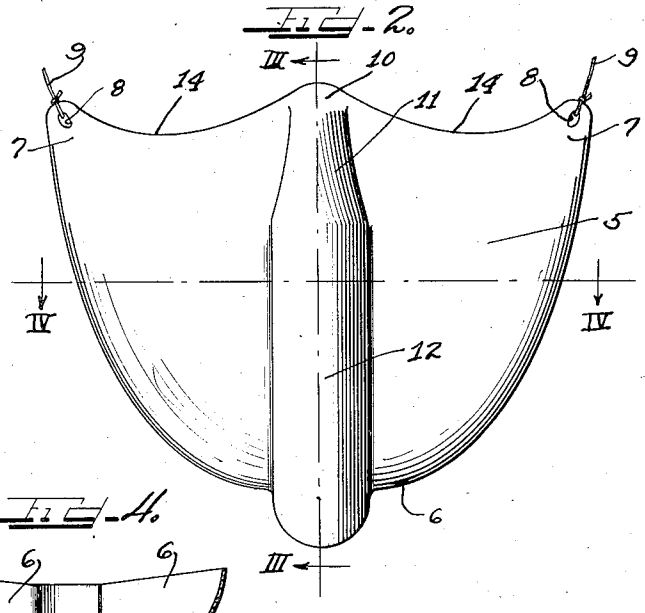
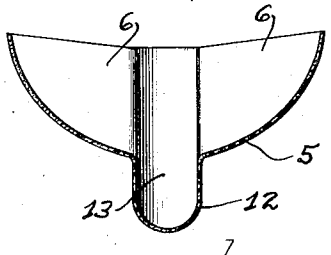


Fig. 4.



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SURGICAL MASK

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Application July 19, 1934, Serial No. 735,983

4 Claims. (Cl. 128—139)

This invention relates to improvements in surgical masks or shields, highly desirable for use by surgeons, physicians and dentists to not only protect the operating or working field from contamination, by nose and throat discharges or perspiration during an operation, but also, in certain circumstances, to protect the operator against similar discharges by the patient, although the invention may have other and various uses and purposes as will be apparent to one skilled in the art.

In the past, many and various types of masks have been developed for use by surgeons, physicians, dentists and the like. These masks have, in many instances, proved objectionable in that they did not afford the protection to the operator or the patient that is necessary, interfered with the wearer's breathing, interfered with the spectacles of the wearer and misfitted to such an extent as to irritate the wearer sufficiently to detract from concentration upon the work at hand, and failed to hold back perspiration of the wearer. Furthermore, these formerly known face masks were in many cases not sufficiently economical to be destroyed after a single usage and not so readily adaptable for sterilization as was found desirable.

With the foregoing in mind, it is an object of this invention to provide a surgical mask shaped to define a free and easy breathing passage for the user, such breathing passage being directed away from the patient.

It is also an object of this invention to provide a surgical mask shaped to fit relatively closely to the face in a comfortable manner and afford free and easy breathing for the wearer, as well as adequate protection for the wearer and the patient.

Another object of this invention is the provision of a surgical mask arranged to conform intimately with the contour of the human face and avoid all interference with the wearer's spectacles, leaving the wearer with full free vision.

It is also an aim of this invention to provide a surgical mask arranged to comfortably fit the wearer's face, resting upon the bridge of the nose in such a manner that the positioning of the mask upon the face aids in maintaining a free breathing passage for the wearer.

A further object of this invention is the provision of a surgical mask sufficiently economical to be discarded after a single usage or, if not discarded, a mask that may be readily sterilized for further usage.

Still a further object of this invention is the provision of a surgical mask arranged to fit intimately substantially the entire face of the wearer below the eyes, the mask being readily adaptable for manufacture in various sizes to fit various faces.

While some of the more salient features, characteristics and advantages of the present invention have been above pointed out, others will become apparent from the following disclosures.

The invention includes these and other features of construction hereinafter described and shown in a preferred form in the drawing, and more particularly indicated by the claims.

On the drawing:

Figure 1 is a side elevational view of a mask embodying principles of the present invention, shown in operative position upon the face of a wearer.

Figure 2 is an enlarged fragmentary front elevational view of the mask itself.

Figure 3 is a fragmentary central vertical sectional view taken substantially as indicated by the line III—III of Figure 2.

Figure 4 is a reduced plan sectional view of the mask taken substantially as indicated by the line IV—IV of Figure 2.

As shown on the drawing:

In the illustrated embodiment of the present invention, there is shown a face mask or shield 5 which may be made of any desirable or suitable fabric or cloth, and which, to meet the exigencies of certain circumstances, may be made of a cellulose derivative, such as cellulose xanthate, nitrate or acetate. If the shield is made of fabric or cloth, it may be starched or stiffened to a reasonable extent in any suitable manner well known in the art of mask-making.

The shield is preferably formed to fit intimately the contour of the cheeks and chin, and, of course, the shield covers practically all of the face below the eyes. The side portions of the shield cover the cheeks and these portions turn inwardly, as indicated at 6, to fit beneath the chin.

In order that the shield may cover practically the entire face of the wearer, the side portions are extended into wings 7 reaching nearly to the ear, each of these wings adjacent its extremity being provided with an aperture 8 for the accommodation of the end of a cord 9 passing over the ears of the wearer and being tied behind the wearer's head.

In the central portion thereof the shield is curved upwardly to provide a seat 10, and immediately below this seat 10 the shield tapers

outwardly and downwardly, as at 11, into a substantially semi-circular conduit-like portion 12 defining an interior breathing passage 13. As shown in the drawing, the conduit 12 defining the breathing passage is integral with the rest of the shield, but it is obvious that the conduit need not be integral but may be stitched to the side portions of the shield, secured thereto in any other desired manner, or even may be defined by a celluloid insert or the equivalent.

As seen more clearly in Figures 1 and 3, the conduit portion 12 extends downwardly over the central part of the nose and mouth, turns inwardly with the chin covering portions 6, and terminates beneath the chin adjacent the neck of the wearer. With the breathing passage so arranged, the wearer is insured of free and easy breathing at all times with no danger of exhalation reaching the operating field. Consequently, the wearer may apply himself very closely to his work in an easy and comfortable manner, the exhalations of the wearer not reaching the operating field, and the inhalations of the wearer not coming from the operating field.

It will be noted that from the mask construction above described, the rounded seat 10 will rest intimately against the upper bridge of the nose, the portion 11 tapering downwardly in accordance with the gradually widening taper of the nose, while the end of the nose will be adjacent the upper end of the conduit 12. Therefore, in the event the shield or mask is made of stiffened fabric and should become wilted from an accidental wetting or from perspiration of the wearer, the nose of the wearer tends to maintain the breathing passage free and open so that respiration will not be interfered with in any degree sufficient to irritate the wearer or cause any distraction from his work.

It will also be noted that due to the intimate fit of the mask with the wearer's face, perspiration will be prevented by this mask from reaching the operating field. That portion of the wearer's face in which perspiration is greatest is opposite the conduit structure 12, so that if this perspiration tends to drip, it will remain within the air passage.

Another feature of the present invention resides in the provision of recesses 14 in the upper portion of the mask on each side of the nose of the wearer. These recesses insure clear and perfact vision at all times and provide ample clearance under the eyes to permit the operator to wear spectacles.

As stated above, the mask is preferably so formed as to intimately fit the contour of the face, and the mask may be made in various sizes to fit various faces. Of course, under certain circumstances it may not be desirable to have the mask fit precisely to the features of the wearer, and in such event a relatively loose fitting mask can be made under the principles of this invention. Of course, some looseness can be obtained by adjustment of the head cord 9, but it is preferable to have the upper region of the mask set in close contact with the features.

From the foregoing, it will be apparent that I have provided a surgical mask or shield highly efficient in operation, and yet exceedingly simple in construction. The shield insures free and easy breathing at all times to the wearer with no danger of the wearer infecting the operating field or acquiring infection from the operating field. Furthermore, the mask may be made sufficiently economically to permit destruction of the mask after each usage, or the mask may be very readily sterilized for reuse. In addition, it will be noted that the mask is pleasing in appearance, comfortable to wear, affords adequate protection, and interferes in no manner with respiration or vision.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. In a mask of the character described, a shield shaped generally to the contour of the face and chin, a central outstanding portion on said shield defining a breathing passage extending from the upper portion of said shield downwardly over the face and beneath the chin into close proximity to the neck of a wearer, and the upper portion of said shield adjacent said outstanding portion being shaped to intimately fit over the bridge of the nose, whereby the nose of a user will tend to maintain said passage open.

2. As an article of manufacture, a surgical mask for disposition over the nose and mouth of the wearer and having a corrugated section for alignment with the nostrils to define a breathing passage in the mask, said mask and passage being curved to extend inwardly under the chin to a point immediately adjacent the neck of the wearer.

3. As an article of manufacture, a surgical mask including a shield shaped to intimately fit over the bridge of the nose, the cheeks and chin of a wearer, said shield having an intermediately disposed corrugation therein providing a fit over the bridge of the nose and forming a breathing passage leading from the nose past the mouth and chin and terminating adjacent the neck of the wearer beneath the chin, the fit of said shield against the face on each side of said corrugation being relatively intimate.

4. In a device of the character described, a shield for disposition over the face and chin, and a central portion on said shield defining a breathing passage extending downwardly over the front of the face and laterally beneath the chin to a point in close proximity to the neck of a user, said central portion being in the form of a corrugation outstanding from the remainder of the shield.

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