

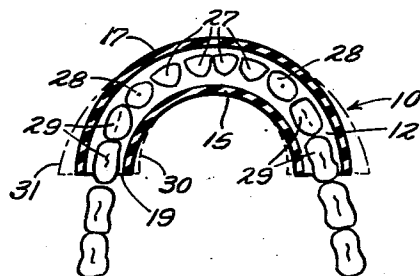
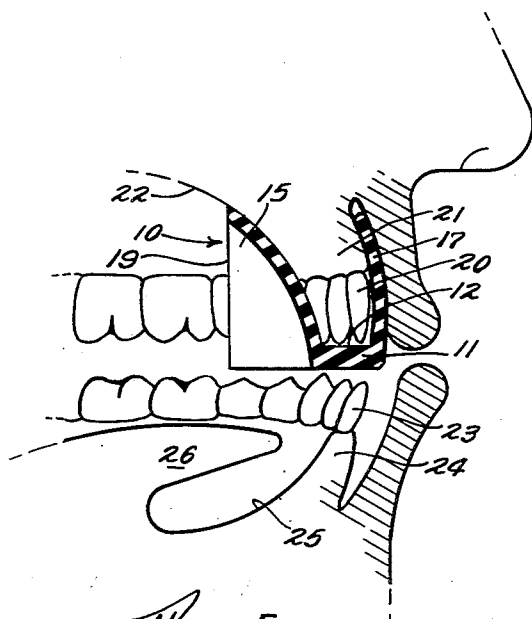
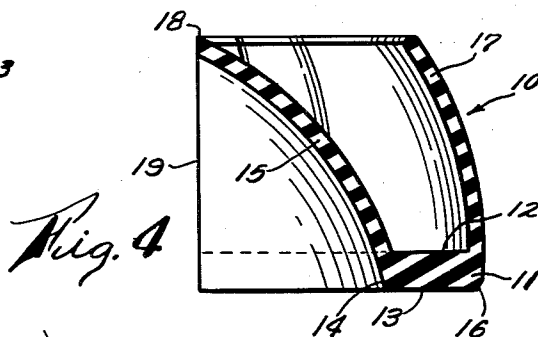
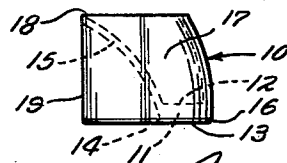
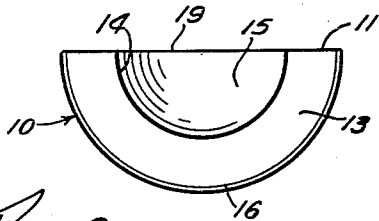
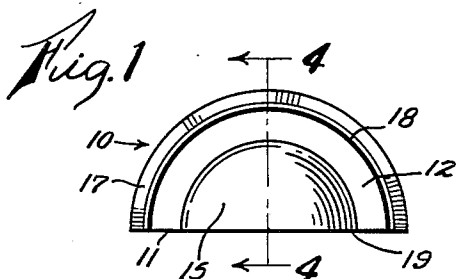
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L. L. GREENBLUM

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MOUTH SHIELD

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INVENTOR.

*Louis L. Greenblum*

BY

*Murray, Sackhoff & Murray*  
ATT'YS

1

2,800,898

## MOUTH SHIELD

Louis L. Greenblum, Cleveland, Ohio

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1 Claim. (Cl. 128—136)

The present invention relates to a mouth shield which is designed for use, to protect both teeth and gums from damaging blows, the embodiment of the invention being useful in the operating rooms of hospitals and clinics, and in dentistry, to protect the teeth against accidental blows from instruments that would otherwise cause breaking, chipping or loss of fillings during dental or surgical procedures carried out in the oral cavity. It is also useful for participants in contact sports such as boxing, football, wrestling, and the like.

The main object of the invention is to provide a mouth shield that will fit or accommodate itself to any size or shape of mouth; may be used interchangeably to protect either the upper or lower teeth; and in every instance will cooperate with the mouth structure for firm placement in teeth and gum protecting positions.

Another object of the invention is to provide a protective mouth piece of improved design which includes a U-shaped, one-piece hard rubber member that has a flexible yet semi-rigid body, which, with the structure of its various parts, securely holds the mouth piece in the wearer's mouth.

Further objects of the invention are to provide a mouth shield that may be sterilized without materially affecting its useful life to thus meet operating room standards; to provide a mouth shield that effectively protects the teeth and gums of its wearer from damaging blows; to provide a durable and rugged shield that will be economical to use and will securely fit a variety of mouth sizes and shapes.

With these and other objects and advantages in view my invention will now be described in conjunction with the accompanying drawings forming a part thereof, and in which:

Fig. 1 is a top plan view of my mouth shield.

Fig. 2 is a bottom plan view of the shield.

Fig. 3 is a side elevation of the shield.

Fig. 4 is an enlarged section taken on line 4—4 of Fig. 1.

Fig. 5 is a sectional view of a user's mouth showing my shield in operative position therein.

Fig. 6 is a top plan view of my shield illustrating the positions taken by a row of teeth when the shield is operatively fitted in a user's mouth.

Referring now in detail to Figs. 1—4 of the drawings the numeral 10 indicates my mouth shield embodied in a unitary, generally U-shaped trough member that is made of flexible, semi-hard rubber. This trough member has a bottom wall 11 provided with a planar inner face 12 and a parallel planar outer face 13. As best shown in Fig. 1 the inner face 12 has the same width throughout its arcuate extent whilst as shown in Fig. 2 the face 13 is somewhat wider than the face 12 and also has the same width throughout its arcuate extent.

The bottom wall 11 has joined to its posterior edge 14 an arched wall 15 that is made considerably more flexible than the said bottom wall by the expedient of

2

constructing said arched wall of relatively thin semi-hard rubber material.

The anterior edge 16 of the bottom wall 11 has a curved wall 17 joined to it along its full extent, said wall 17 being slightly curved anteriorly as it projects beyond the bottom wall. The curved wall 17 is considerably more flexible than the bottom wall because it is made of a relatively thin web of semi-hard rubber. The outer arcuate edge 18 of the curved wall 17 is on a level with the apex of the arched wall 15, whilst the walls 11, 15 and 17 terminate posteriorly in a common edge 19 that lies in a lateral plane normal to the faces 12 and 13 of said bottom wall 11. Thus it will be noted that the relatively thick bottom wall 11 of the semi-hard rubber shield lends considerable resistance to flexure of the shield especially in the planar direction of the flat faces 12 and 13 of said bottom wall, such flexure being opposed by the difficulty of the faces to flex in the said planes. Also by reason of the parallelism of its faces the bottom wall 11 has the same sectional configuration throughout its arcuate extent thereby flexing equally over its entire extent when it is laterally deformed to fit various sizes of mouth structures.

With reference to Fig. 5 it will be noted that when my mouth shield is placed in the wearer's mouth to cover the upper teeth 20 that a comfortable and perfect fit is obtained. Contributing to this end is the relative soft flexibility provided the walls 15 and 17 by their thin web constructions and because curved wall 17 extends above the teeth supporting bony tissue 21 of the mouth while the arched wall 15 is in close contact with the anterior portion only of the hard palate 22. It will also be understood from the showing in Fig. 5 that the shield 10 can, with equal effectiveness and comfort, be fitted over the lower teeth 23, its curved wall 17 in that position extending over the teeth supporting bony tissue 24 of the lower teeth, whilst the arched wall lies snugly against the lower palate 25 anteriorly of the approximate part of the tongue 26.

With particular reference to Fig. 6 it is pointed out that when my shield 10 is in position to protect either the upper or lower teeth the trough member fits over and covers the four central incisor teeth 27, the two opposed canine teeth 28, and the opposed pair of bicuspid teeth 29. Although the shield is illustrated as covering both pairs of bicuspid teeth it need not be so wide, for, in many instances, covering only the anteriorly positioned bicuspid of each pair, or a part thereof, is sufficient protection of the teeth in many oral procedures. In Fig. 6 the common posterior edge 19 of the shield is clearly indicated as lying in a lateral plane that passes through the bicuspid area of the wearer's mouth. The dotted lines 30 and the dot and dash lines 31 indicate how my shield may be flexed laterally to accommodate it to comfortably and securely fit small and large mouths, respectively, it being again mentioned that considerable resistance to such flexure is created in the semi-hard rubber body of the shield by reason of the cross sectional configuration of the bottom wall 11 and the parallel planar faces 12 and 13 thereof, such resistance to flexure aiding in securing my shield structure in the wearer's mouth.

From the foregoing it will be seen that I have provided a mouth shield that is adaptable to various sized mouths, may be fitted over either the upper or the lower teeth in a comfortable and secure manner, and which, though made of rubber, is yet quite rugged and susceptible of sterilization by immersion in boiling water or in standard sterilizing solutions. It should be understood that various changes and modifications may be made in the details of the shield, within the scope of the appended claim, without departing from the spirit of the invention.

3

What is claimed is:

A mouth shield for interchangeable application to the upper and the lower teeth in dental and surgical procedures comprising a unitary, U-shaped trough member formed by a bottom wall having an inner and an outer face lying in parallel planes, and each face having the same width throughout its arcuate extent, by an arched wall along the posterior edge of the bottom wall, and by a curved wall along the anterior edge of the bottom wall, the curved wall being adapted when said shield is applied to the mouth to reach a point beyond the teeth supporting bony tissue, and all of said walls terminating posteriorly

4

in an edge of the shield lying in a lateral plane disposed normal to the faces of the bottom wall and passing through the bicuspidal area of the teeth when the shield is applied to the mouth.

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