G. L. VAN ALLEN.

DENTAL SHELL.

APPLICATION FILED SEPT. 21, 1918.

1,379,063. Patented May 24, 1921.

Fig. 1

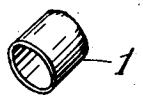


Fig. 2

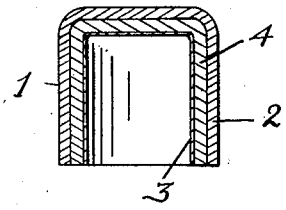


Fig. 3

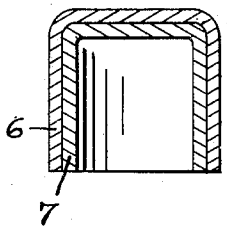


Fig. 4

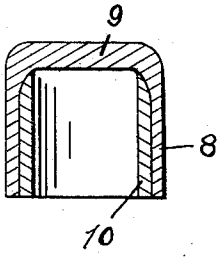
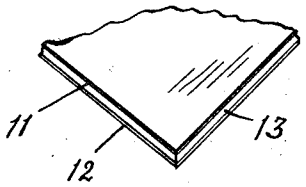


Fig. 5



INVENTOR:

George L. Van Allen,

BY

Russell M. Everett,

ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE L. VAN ALLEN, OF PRINCE BAY, NEW YORK, ASSIGNOR TO BAKER & COMPANY, INC., A CORPORATION OF NEW JERSEY.

DENTAL SHELL.

1,379,063. Specification of Letters Patent. Patented May 24, 1921.

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To all whom it may concern:

Be it known that I, GEORGE L. VAN ALLEN, a citizen of the United States, and a resident of Prince Bay, Staten Island, New York, have invented new and useful Improvements in Dental Shells, of which the following is a specification.

The objects of the invention are to secure in dental shells for crowning teeth an exterior or exposed surface of the desired hardness and color and yet have the article as a whole more workable or malleable than would be possible if it were entirely of a composition having that hardness and color; to thus enable the shell or other piece to be more readily and perfectly fitted to the tooth or shaped to the surface of the mouth; to this end to use upon the unexposed interior of the article a softer metal or alloy, where the color is immaterial; to at the same time preserve the essential and valuable qualities of the stock, such as its proper color where exposed, the resistance to tarnishing and so forth; to secure such stock which can be readily and conveniently manufactured, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views.

Figure 1 is a perspective view of a shell of my improved construction;

Fig. 2 is a central longitudinal section of the same on enlarged scale to show the invention more clearly;

Fig. 3 is a similar section of a modified form of the invention;

Fig. 4 is a similar section of a further modification, and

Fig. 5 illustrates a piece of bridge-work backing on an enlarged scale.

In carrying out my invention, I form a sheet or plate composed of opposite outer layers of gold as commonly employed for this class of work, that is, of 22 carat gold, which is an alloy of gold, silver and copper, and of the dark shade and degree of hardness desired by dentists. Between these two outside layers, however, I employ a middle layer of softer material such as silver or silver and gold, the thickness of this middle layer being preferably considerably greater than that of the outside layers or equal to both of them. All these layers are welded or sweated together by any suitable process, so that they are held firmly together and the sheet can be used as an integral piece to make the various kinds of dental stock as usual.

Dental stock made from sheet material of this sort has its exposed surfaces of the proper and desired color and also possessing the necessary qualities to resist wear and tarnishing. At the same time the entire article is much softer or more malleable than if it were all of the same composition as its sides, and thus it can be more readily shaped to conform to a tooth or to the interior of the mouth. For instance, the shell 1 shown in Figs. 1 and 2 of the drawing can be very readily pressed or shaped to conform to the appearance of a natural tooth and yet when this is done it will look the same as if it were entirely of hard gold and will resist the wear upon it. Obviously the same results and advantages will be secured in all kinds of dental stock which can be made in a similar way, such as backings for bridge-work, plates, and so forth.

In said Figs. 1 and 2, the reference numerals 2 and 3 indicate the hard outer and inner layers of dark shade, respectively and 4 the softer middle layer containing no copper and of a lighter shade than the layers 2 and 3. Obviously, while the entire wall of the shell must be substantially of the usual or standard thickness, the proportion of the different layers to each other can be varied somewhat.

In some kinds of dental stock, where only one surface is ever exposed, as in a shell, I may omit the interior layer similar to the exterior layer and make the shell simply of two layers, as shown in Fig. 3. Here 6 indicates an outer layer of the usual dark shade and wear-resisting qualities, and 7 indicates an inner layer, as of silver, which is much softer and therefore renders the shell more easily shaped. Under some conditions, I may extend the inner layer over only the side portions of the shell, where there is comparatively little wear, and leave the shell for its entire thickness at its closed end composed of the harder outer layer. This is illustrated in Fig. 4, where 8 indicates the outer layer, thick at the closed end of the shell, as at 9, and having an inner soft layer 10 at its sides.

For bridge-work backings, shown in Fig.

5, the two outer layers 11, 12 are about one thousandth of an inch thickness each and the inner layer 13 about two thousandths, and this secures a further advantage in that the middle layer being of lighter shade, or white if pure silver is employed, the cut edge of the sheet is lightened in color, and inasmuch as this shows at the biting edges of the teeth it will be more nearly the color of the teeth and hence not so conspicuous as the usual darker shade.

All kinds of dental stock which can be made of the construction described come within the scope of my invention, and I do not wish to be understood as limiting myself except as required by the following claims when construed in the light of the prior art.

Having thus described the invention, what I claim is:

1. A dental shell having one end closed and side portions with an outer layer and an inner layer for the entire circumference the outer layer being harder than the inner layer and the inner layer being soft enough so that the stock is more malleable than it would be if like the outer layer for its entire thickness.

2. A dental shell with one end closed and side portions having for the entire circumference of the shell a middle layer and other layers on opposite sides of said middle layer which other layers are harder than said middle layer, the middle layer being soft enough so that the stock is more malleable than it would be if like the opposite layers for its entire thickness.

3. A dental shell having one end closed and being composed throughout said end and its side portions of an outer layer and an inner layer, the outer layer being harder than the inner layer and the inner layer being soft enough so that the stock is more malleable than it would be if like the other layer for its entire thickness.

4. A dental shell with one end closed having throughout said end and its side portions a middle layer and other layers on opposite sides of said middle layer which other layers are harder than said middle layer, the middle layer being soft enough so that the stock is more malleable than it would be if like the opposite layers for its entire thickness.

GEORGE L. VAN ALLEN.