The present invention relates to dental instruments and is concerned primarily with a cheek and tongue retractor designed particularly for use when a diamond drill is used on a crown work.

At the present time, it is the common practice in the dental profession to finish off crown work by using a diamond drill. A diamond drill includes a comparatively large abrasive disc that rotates under a high velocity, and practicing dentists have experienced considerable difficulty and inconvenience in keeping the cheek and tongue away from the area of the working operation. A dentist has but two hands. One of these is employed to manipulate and handle the drill, leaving only the other hand free for manipulating a retractor to hold the cheek or tongue away from the working area. With the retractors now available, it has been impractical, if not impossible, to hold both the cheek and tongue in proper position to provide a safe working space.

With the foregoing conditions in mind, the present invention has in view as its foremost objective the provision of a cheek and tongue retractor which will fulfill the requirements above indicated.

More in detail, the invention has as an object the provision of a cheek and tongue retractor which includes a handle on which is mounted a cheek-engaging element. A tongue-engaging element is connected to the cheek-engaging element in properly spaced relation with respect thereto by a bridge. Thus, the cheek-engaging element, the tongue-engaging element, and the bridge cooperate to provide a safe working space for the diamond drill over and about the crown that is being finished.

On many occasions a patient will exhibit a tendency to close his jaws inadvertently and thus bite onto any instrument which might be in his mouth. This is a distinct hazard to the personal welfare of the patient. With this condition in mind, a further object in view is to provide a cheek and tongue retractor of the character aforesaid in which the bridge which joins the cheek- and tongue-engaging elements, respectively, is of a width of an extent sufficient to prevent such a bite that would cause engagement with the drill or other instrument. Thus, that portion of the bridge which spans the line of the teeth should be sufficiently great to prevent the two jaws coming close enough together to cause injury.

Still another object of the invention is to provide a cheek and tongue retractor of the character aforesaid in which the tongue-engaging element is shaped and designed to present the most favorable angle for engagement with the tongue. The cheek-engaging element, the bridge, and the tongue-engaging element are integrally formed from a single piece of an appropriate material which is of such a nature as to readily lend itself to being cast or molded into the required shape. This unit is in turn secured to the handle in any appropriate manner.

Various other more detailed objects and advantages of the invention, such as arise in carrying out the above-noted ideas in a practical embodiment, will in part become apparent and in part be hereinafter stated as the description of the invention proceeds.

The invention therefore comprises a cheek and tongue retractor designed for use in conjunction with a diamond drill in providing a safe working space over a crown and which retractor consists essentially of a handle and a retractor unit secured thereto comprising a cheek-engaging element, a bridge integrally joined thereto, and a tongue-engaging element integrally joined to the bridge, with the bridge being shaped to span the teeth and provide a sufficient extent in its width to prevent the jaws of a patient coming sufficiently close to cause the teeth to engage the drill or other instrument in the patient's mouth.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawing, wherein:

Figure 1 is a view in side elevation of a cheek and tongue retractor designed in accordance with the precepts of this invention;

Figure 2 is a view in front elevation taken normal to the showing of Figure 1;

Figure 3 is a side elevation looking at the retractor unit; and

Figure 4 is a view looking at a portion of a patient's mouth with the cheek and tongue retractor of this invention in operative position therein and showing the handle in section.

Referring now to the drawing, wherein like reference characters denote corresponding parts, the cheek and tongue retractor of this invention is shown as comprising a handle 10 on which is mounted a retractor unit which is referred to in its entirety by the reference character U. While it might be entirely possible to form the handle 10 and unit U as separate elements which are subsequently assembled to provide a complete instrument, the invention has in mind an integral one-piece affair in which the handle 10 and unit U are integrally formed from any appropriate material. The invention has particularly in mind the use of any of a large number of plastics, and particularly thermosetting plastics. The instrument could also be made of metal such as stainless steel, although it is believed that a plastic is particularly indicated as desirable because of the large bulk required in the unit U and the relative cost of the materials. Moreover, a plastic will not damage the drill if the two should accidentally become engaged.

The handle 10 may be of any appropriate cross-sectional shape such as the flat spatula-like construction illustrated in Figures 1 and 2. Adjacent the unit U the handle 10 should be restricted in its width as indicated at 11, as it is this portion of the instrument which passes over the lips of the patient.

The unit U comprises a cheek-engaging element 12, which has its narrowest dimension at 13 where it is integrally joined to the restricted portion 11 of the handle and from which it gradually widens into the tapered formation depicted at 14 in Figure 2.

A bridge portion of the unit U is designated 15 and is clearly shown in Figures 3 and 4. One end of the bridge 15 is integrally joined to the end of the cheek-engaging element 12 remote from the handle 11. Moreover, the bridge portion 15 extends in a direction away from the handle. This bridge portion 15 is restricted in its width by the curved recesses 16 and 17 on the opposite side edges thereof; and it is intended that this restricted portion extend over the teeth when an instrument is being used as shown in Figure 4. However, there should be sufficient extent between the recesses 16 and 17 to afford ample insurance that the jaws of a patient cannot come sufficiently close to engage a drill or other instrument in the patient's mouth.
The tongue-engaging element is represented at 18. It is integrally joined to the outer end of the bridge 15; and this line of juncture assumes the angle of inclination represented at 19 in Figure 2. From this line of juncture the tongue-engaging element is returned backwardly in the direction of the handle and outwardly. Its free edge, which is depicted at 20, is preferably substantially normal to the axis of the handle 10.

The manner of using the cheek and tongue retractor of this invention is depicted in Figure 4. In this view, the cheek of a patient is represented at 21, the tongue at 22, and a tooth at 23. It will be assumed that the crown of the tooth 23 is to be finished by a diamond drill. To provide a safe working space over and about the tooth 23, the retractor is inserted in the patient's mouth so that the cheek-engaging element 12 engages the cheek 21 while the tongue-engaging element 18 engages the tongue 22 so as to remove these parts of the mouth from close proximity to the tooth 23. In this position the bridge 13 spans the tooth line in the manner depicted in Figure 4.

It will be understood that the particular shape of the cheek-engaging element 12, the bridge 15, and tongue-engaging element 18 may be varied within certain limits and still perform the offices required of them.

The angle of line 19 relative to a normal to the axis of the handle is of importance because it enables the dentist to hold the retractor in effective position for long periods with a minimum of discomfort. This is true regardless of which side of the patient's mouth is being treated because when the right side is being worked upon the dentist will be positioned in front of the patient and the inclination of the line 19 will cause the handle to assume a downwardly slanted position which is the one of maximum comfort to the dentist. When the left side is being treated, the dentist will stand at the rear of the patient and the handle will be tilted upwardly, which is the position of maximum comfort for this side.

While a preferred specific embodiment of the invention is hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact shapes, designs, and materials illustrated and described, because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. A cheek and tongue retractor, a handle, a retractor unit integrally joined to said handle at one end thereof, said handle and unit being made of plastic, said unit comprising a cheek-engaging element of flat tapered formation with the smaller portion thereof being located at the juncture to said handle, a bridge outstanding from and integrally joined to said cheek-engaging element, and a tongue-engaging element integrally joined to the outer end of said bridge along an inclined line with the tongue-engaging element being returned in the direction of said handle and outwardly and away therefrom.

2. In a cheek and tongue retractor, a handle, a retractor unit integrally joined to said handle at one end thereof, said handle and unit being made of plastic, said unit comprising a cheek-engaging element of flat tapered formation with the smaller portion thereof being located at the juncture to said handle, a bridge outstanding from and integrally joined to said cheek-engaging element, and a tongue-engaging element integrally joined to the outer end of said bridge along an inclined line with the tongue-engaging element being returned in the direction of said handle and outwardly and away therefrom, said bridge having side edges defined by inwardly curved lines presenting the narrowest portion of the bridge substantially midway between said cheek- and tongue-engaging elements.

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