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B. J. DAIGLE
DENTAL ISOLATION TRAY FOR USE
WITH AIR ABRASIVE TECHNIQUES
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2,637,107

Fig. 1

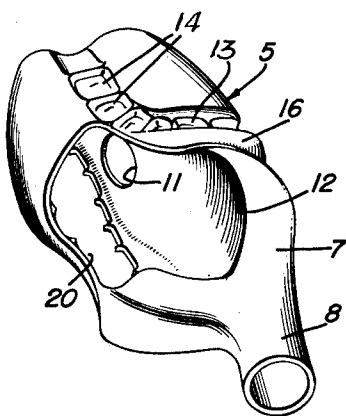


Fig. 4

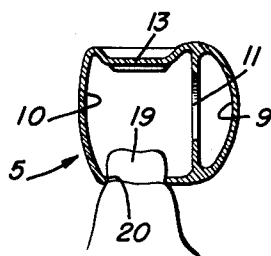


Fig. 2

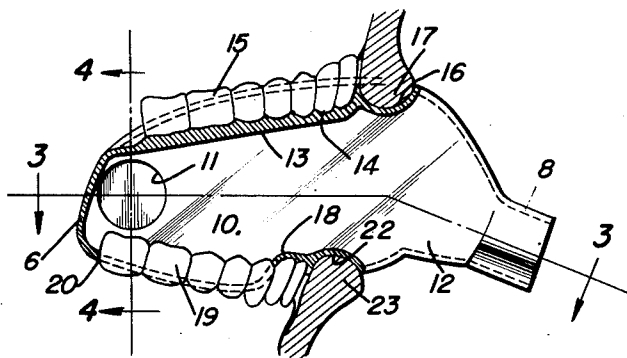
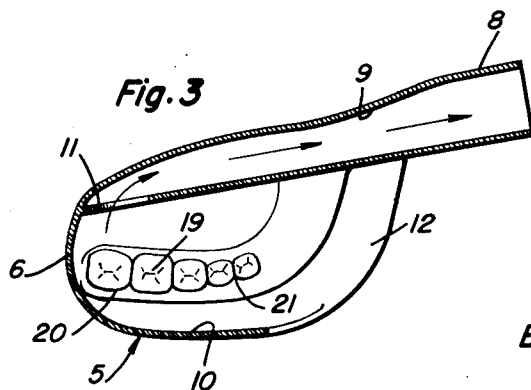


Fig. 3



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DENTAL ISOLATION TRAY FOR USE WITH
AIR ABRASIVE TECHNIQUESBert J. Daigle, Sulphur, La., assignor of one
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9 Claims. (Cl. 32—35)

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The present invention relates to new and useful improvements in trays for isolating one or more teeth while subjecting the same to air abrasive treatment.

An important object of the invention is to provide a dental appliance which creates an isolated field in dental air abrasive technique and serves to prevent aspiration of the abrasive particles; protects the interior of the mouth from harmful or painful effects of the abrasive; and which provides a support for the mandible and maxilla when in place in the mouth.

Another object is to provide a dental isolation tray capable of being constructed for use in isolating any tooth or group of teeth while subjecting the isolated tooth to an air abrasive and providing the tray with a connection for suction means to remove the used abrasive powder from the tray.

A further object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation of the device as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view;

Figure 2 is a longitudinal sectional view;

Figure 3 is a longitudinal sectional view, taken on a line 3—3 of Figure 2; and

Figure 4 is a vertical sectional view taken on a line 4—4 of Figure 2.

Referring now to the accompanying drawings in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of my invention, the numeral 5 designates the tray generally and which comprises a hollow body of substantially ovate shape and constructed of plastic or other suitable material.

One end 6 of the tray is closed and constitutes the inner or posterior end, while the outer or anterior end 7 terminates in a neck 8 adapted for attaching a suction hose (not shown) thereto. Neck 8 is formed at the outer end of a passage 9 which extends longitudinally at one side of the tray and the inner end of the passage communicates with the main chamber 10 of the tray by means of an opening 11. Main chamber 10 is accessible by means of an entrance opening 12 at the anterior or outer end of the tray.

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The upper exterior surface of the tray body is formed with a groove 13 which is anatomically depressed or recessed, as shown at 14, and shaped to receive the occlusal surface of an upper set of teeth 15. A second groove 16 is formed in the upper surface of the tray body adjacent groove 13 to accommodate the upper lip of a person.

The lower surface or bottom of the tray body is likewise formed with a groove 17 which is also anatomically depressed or recessed and shaped to receive the occlusal surface of a lower set of teeth 18, and one of the grooves, in the present instance groove 13, is provided with an opening 20 to receive one or more of the teeth in a position to project into the tray. The opening 20 is anatomically shaped as shown at 21, to fit closely to the lingual, buccal, mesial or distal surfaces of the tooth or teeth contained in the opening. A second groove 22 is also formed in the lower surface of the tray adjacent groove 13 to accommodate the lower lip 23.

In the operation of the device, the tray is placed in the mouth, as shown in Figure 2, and with the tooth or teeth to be isolated placed in the opening 20. Neck 8 is connected to a suitable suction device (not shown) and the usual nozzle (not shown) of an air abrasive device may then be inserted into the chamber 10 of the tray through opening 12 to treat the isolated tooth or teeth. The abrasive particles and substances removed from the isolated tooth are removed from the tray by way of opening 11 and passage 9.

The tray may be constructed of various sizes for use with adults or children and is adaptable to all sections of the mouth, namely, upper, lower, right, left, anterior, posterior and one or more teeth by rearrangement of the anatomical features on the surfaces of the body of the tray.

The interior of the tray may be polished or mirrored to eliminate use of a separate mouth mirror.

Having described the invention, what is claimed as new is:

1. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an opening in a wall of the body adapted to receive a tooth in a position projecting into the body and isolated from the remaining teeth, an entrance for the body providing access to the isolated tooth, and an exhaust opening in the body.

2. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an opening in a wall of the body adapted to receive a tooth in a position projecting into the body and isolated from the remaining

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teeth, an entrance for the body providing access to the isolated tooth, and an exhaust passage leading forwardly from the rear portion of the body.

3. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an opening in a wall of the body adapted to receive a tooth in a position projecting into the body and isolated from the remaining teeth, an entrance for the body providing access to the isolated tooth, an exhaust passage extending forwardly from the rear portion of the body, and a discharge neck at the front of the passage.

4. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an entrance at its anterior portion, and grooves in the upper and lower surfaces of the body adapted to receive the upper and lower teeth, at least one of said grooves having an opening through which at least one of the teeth projects into the body to isolate said one tooth from the remaining teeth.

5. The combination of claim 4, wherein said opening is anatomically shaped to the tooth received therein.

6. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an extension at its anterior portion, grooves in the upper and lower surfaces of the body adapted to receive the upper and lower teeth, at least one of said grooves having an opening through which at least one of the teeth projects into the body to isolate said one tooth from the remaining teeth, and anatomical depressions in said grooves for the teeth received therein.

7. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an entrance at its anterior portion, and grooves in the upper and lower surfaces of the body adapted to receive the upper and lower teeth, at least one of said grooves having an open-

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ing through which at least one of the teeth projects into the body to isolate said one tooth from the remaining teeth, and an exhaust passage leading from the posterior to the anterior portion of the body.

8. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an entrance at its anterior portion, and grooves in the upper and lower surfaces of the body adapted to receive the upper and lower teeth, at least one of said grooves having an opening through which at least one of the teeth projects into the body to isolate said one tooth from the remaining teeth, and a second lower groove in the surface of the body outwardly with respect to the respective first named upper and lower grooves and adapted to accommodate the upper and lower lips of the person.

9. A tooth isolation tray comprising a hollow body adapted for placing in the mouth of a person and having an entrance at its anterior portion, upper and lower anatomically shaped recesses in the surface of the body adapted to receive the upper and lower teeth, an anatomically shaped opening in the body adapted to receive at least one of the teeth in a position to project into the body to isolate said one tooth from the remaining teeth, an exhaust passage in the body having an inner end opening in the posterior portion of the body, and a neck at the outer end of the passage adapted for attaching disposal means thereto for substances accumulated in the body.

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