

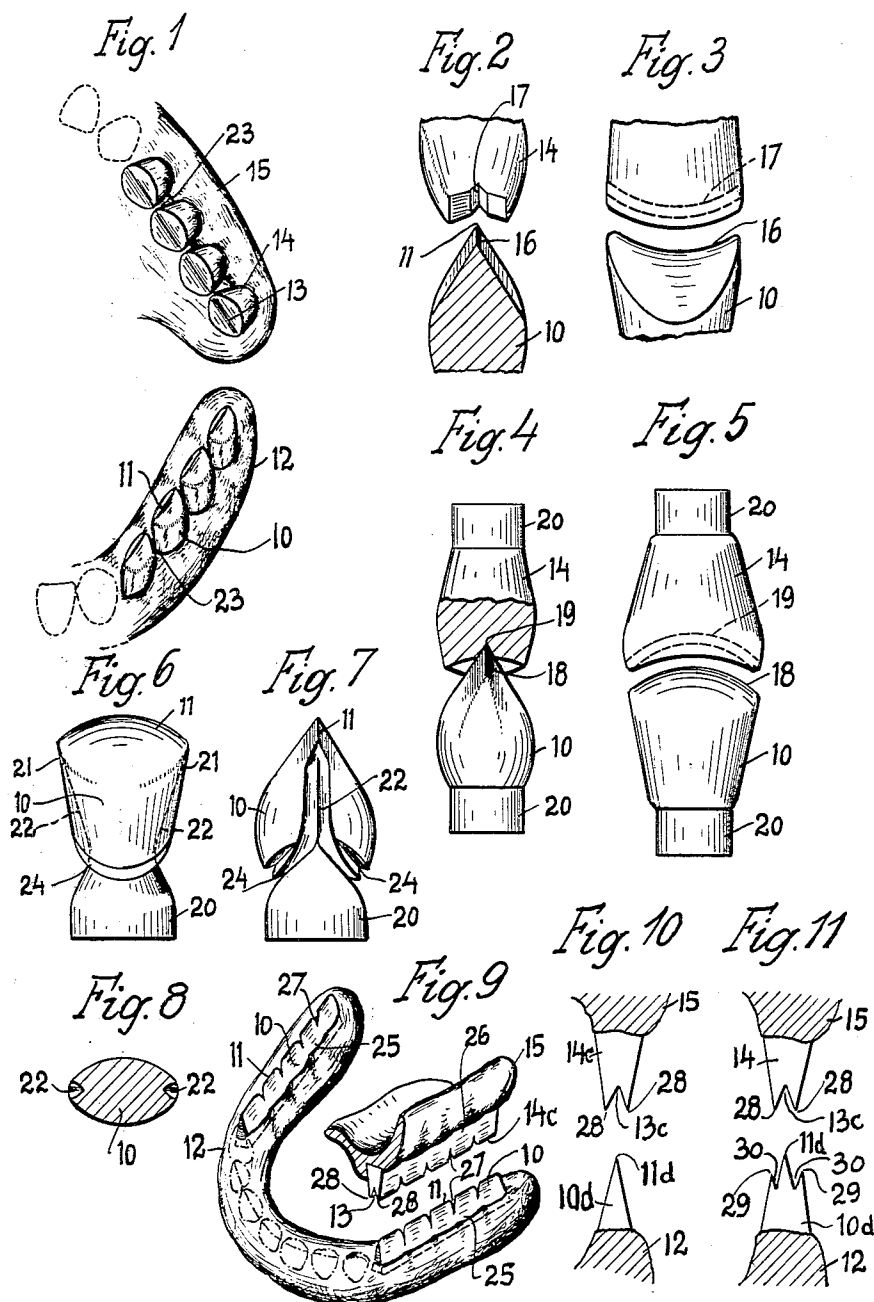
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ARTIFICIAL BACK TEETH

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ARTIFICIAL BACK TEETH

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This invention relates to artificial back teeth, including molars and cuspids, and to the process for the manufacture of dental plates provided with artificial back teeth.

Heretofore artificial back teeth were made to conform to the shape of natural teeth. It was found in actual practice, however, that such artificial teeth which follow the anatomic form, carry out a crushing effect only, with the result that considerable effort is necessary for the comminution of solid or tough foods. The high mastication pressure required for the comminution of solid food has an extremely detrimental effect upon the alveolar members. The result is that the jaw elements needed for holding the denture and for proper operation of the plates are worn out too rapidly. In the course of the comminution of foods, the user of a dental plate is required to carry out forceful jaw movements, including sideward movements of the jaw, which cause lifting of the denture and again affect the denture detrimentally. Furthermore, the joint ligaments are being stretched and this often results in a tottery jaw.

An object of the present invention is the provision of dentures which will effectively diminish the mastication procedure.

Yet another object of the invention is to diminish the denture pressure required for mastication of food.

Still another object is to diminish the pressure required for the use of dentures, by providing them with a cutting or a chisel-like effect.

Another object of the invention is to eliminate the above-described damages brought about by present art dentures, through the provision of artificial back teeth which have an entirely different shape.

Yet another object is to facilitate the task of manufacturing dentures by eliminating the wearisome precision filing which is necessary for dentures of present art.

Still another object is the provision of artificial teeth which call only for slight filing treatment after they have been manufactured, thus eliminating the extensive filing operations presently necessary.

Another object is the provision of a novel and advantageous manner of attaching the artificial teeth to the denture.

Still another object is the provision of a novel and effective method of manufacturing dentures with artificial back teeth having a novel and most effective shape.

Other objects of the present invention will become apparent in the course of the following specification.

In accomplishing the objects of the present invention it was found necessary to shape a back tooth of a denture in the form of a chisel which fits into a recess provided in an opposed tooth of the other plate, said opposed tooth having preferably the shape of a double chisel and engaging the first-mentioned tooth.

Thus, in accordance with the present invention the teeth have essentially a triangular or wedge-like form. This has the advantage that more space is available for the tongue and the mastication pressure is considerably reduced due to the increased cutting and chiseling effect.

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Consequently, the pressure upon the alveolar elements is diminished, fitting of the denture is improved due to elimination of filing operations, and the alveolar elements are less exposed to strain.

According to another feature of the present invention the chisel-like back tooth has a convex ridge which engages in a concave depression of the opposed tooth, or vice versa.

It is also advantageous, in accordance with the present invention, to shape the teeth uniformly lingually, palatally, as well as buccally; this facilitates placing the teeth at any desired location of the denture.

The invention will appear more clearly from the following detailed description when taken in conjunction with the accompanying drawing showing, by way of example, preferred embodiments of the inventive idea.

In the drawing:

Figure 1 is a diagrammatic perspective view illustrating opposed dental plates in the open position, such plates being provided with teeth constructed in accordance with the present invention.

Figure 2 is partly a perspective view and partly a section through two opposed teeth, seen from the end.

Figure 3 is a side view of the teeth shown in Figure 2.

Figure 4 shows, in end view, two somewhat differently shaped opposed teeth in locking engagement.

Figure 5 is a side view of the teeth shown in Figure 4.

Figure 6 is a side view of a somewhat differently constructed tooth.

Figure 7 is an end view of the tooth shown in Figure 6.

Figure 8 is a transverse section through the tooth shown in Figures 6 and 7.

Figure 9 illustrates, diagrammatically and in perspective, partly in section, a lower dental plate and a portion of a cooperating upper dental plate, the two plates being provided with teeth elements embodying the principles of the present invention.

Figure 10 illustrates, diagrammatically and in section, two opposed teeth elements of the type shown in Figure 9.

Figure 11 is a similar diagram illustrating teeth of a somewhat different form.

The artificial back tooth 10 shown in Figures 1, 2, and 3 may serve as a cuspid or a molar and is essentially characterized by the feature that its form does not resemble that of a natural tooth. As shown more clearly in Figure 2, the tooth 10 has in cross section the form of a triangle or wedge and is provided with a chisel-like cutting edge 11.

As shown in Figure 1, the teeth 10 are mounted upon the dental plate 12 which may be made of any suitable material, such as paladon or other synthetic material. The opposed dental plate 15 carries teeth 14 which cooperate with teeth 10. The teeth 14 have recesses 13 which are of such shapes that the edges 11 conveniently fit into these recesses. Thus the recesses 13 are also triangular in form. Due to this form of the teeth a chisel-like or cutting effect is attained; in other words, the mass to be masticated and located between the teeth is not only crushed but also cut up, similar to the effect obtained by scissors. Furthermore, as a result of this form, the mastication pressure, and therefore the pressure upon the alveolar elements, on which the plates 12 and 15 rest, is effectively diminished.

As shown in Figures 2 and 3 it is of advantage to provide the cutting edge 11 of the chisel-like tooth 10 with a concave recess 16 which fits into a convex depression 17 of the opposed tooth 14.

Figures 4 and 5 show that this arrangement can be reversed, namely, that the chisel-like back tooth 10a may be provided with a portion 18 which fits into a concave recess 19 of the opposed tooth 14a.

For the purposes of the invention it is important that the described back teeth be uniformly shaped lingually,

palatally, as well as buccally. This facilitates the attaching of the teeth at any desired location.

As shown more clearly in Figures 4 and 5, the back teeth are provided with pivots 20 which fit into a dental plate.

In the construction shown in Figures 6 and 7 a back tooth 10b, constructed in accordance with the principles of the present invention, has slanting surfaces 21 which are provided with recesses 22 having the shape of depressions, grooves, furrows, or the like. This facilitates the formation of the papilla 23 (Figure 1) between the teeth and improves the grip.

Figure 7 shows that a pivot 20b of a back tooth may be provided with cuts 24, to improve the connection of the teeth with the dental plate.

The illustrated chisel-like shape, or double-chisel-like shape of the masticating edges of the back teeth has the effect that when masticating hard foods, crusts, toast or the like, such food is broken up because it extends beyond the recess of the opposed tooth and thus is pressed into the recess by the chisel-like edge of the other tooth. Pressure is being exerted in the middle of the opposed tooth only and thus the breaking up of the food is attained.

Figures 9 and 10 show lower and upper dental plates 12 and 15, respectively, which carry knife-like ridges serving as rows of teeth. The lower plate 12 carries elongated ridges 25 which may be made of metal, porcelain, synthetic materials (including artificial resins), or the like. Each of the ridges 25 is provided with cuts or indentations 27 which divide each ridge into a plurality of portions serving as teeth 10c. The cuts 27 facilitate the cutting effect of the teeth and convey the impression of individual teeth. The opposed teeth 14c consist of one or more ridges 26, having a recess 13c, which is adapted to receive the upper edge of the ridge 25. The ridges 26 are also provided with cuts 27.

It is of advantage to manufacture the ridges 25 and 26 in the form of long rods or rails, one meter or several meters long. The dentist can then cut off the required length for the manufacture of each denture.

Reversely, the ridges 25 and 26 may be formed by joining a plurality of teeth which have chisel-like edges or teeth which have recesses for receiving such chisel-like edges of the type described herein. The joining of the teeth may be carried out by any suitable means, depending on whether the teeth are made of metal or of ceramic materials.

Figure 11 illustrates a construction wherein an artificial back tooth 10d is provided with a central cutting ridge 11d and two ridges 29 situated on opposite sides of the central ridge 11d and separated therefrom by grooves or recesses 30. The opposed tooth may have the same shape as the tooth 14c of Figures 9 and 10, which is provided with two ridges 28, separated by a central recess 13c.

In the construction shown in Figure 11, the ridge 11d will fit into the recess 13c while the ridges 28 fit into recesses 30.

It is apparent that in all of the described constructions the arrangement of the teeth may be reversed, namely the chisel-like teeth, or the ridges serving as teeth, may be mounted at will in the lower or upper dental plate, and the opposed teeth or teeth-like ridges will be mounted in the other plate.

Dental plates provided with the described artificial back teeth can be manufactured in the following manner:

The plates are first prepared in the usual manner and then auxiliary tooth, corresponding to the back teeth and made of metal, porcelain or any other material, are inserted either in the upper plate or the lower plate. That part of the teeth which is inserted into the plate is of conical shape so that they can be easily removed.

The artificial alveolars produced after the removal of the auxiliary teeth may receive the described chisel-like teeth, a quick-hardening synthetic material being used for that purpose, after correction of the articulation—whenever necessary.

The described artificial back teeth and the dental plates can be made of any suitable material, such as metal, porcelain, synthetic materials, artificial resins, or the like.

It is apparent that the examples given above have been given solely by way of illustration and not by way of limitation and that they are subject to many variations and modifications within the scope of the present invention. All such variations and modifications are to be included within the scope of the present invention.

What is claimed is:

1. In a denture, the combination of an artificial back tooth having a cutting chisel-shaped ridge with an opposed artificial back tooth having a recessed surface which has a central recess formed therein for receiving said cutting ridge.

2. In a denture, the combination of an artificial back tooth of concave form and having a cutting chisel-shaped ridge with an opposed artificial back tooth having a recess formed therein for receiving said cutting ridge, said opposed back tooth and the recess thereof being of convex form.

3. In a denture, the combination of an artificial back tooth having a cutting chisel-shaped convex ridge with an opposed artificial back tooth having two chisel-shaped ridges and a concave recess formed between the two ridges for receiving the cutting ridge of the first-mentioned tooth.

4. In a denture having two opposed plates, the combination of an artificial back tooth having a pivot fitting into one of said plates and a cutting chisel-shaped ridge, with an opposed artificial back tooth having a pivot fitting into the other one of said plates, and a recessed surface which has a central recess formed therein for receiving the cutting ridge of the first-mentioned tooth, said pivots being undercut to facilitate connection of the teeth with the plates.

5. In a denture, the combination of an artificial back tooth having side surfaces and a cutting chisel-shaped ridge with an opposed artificial back tooth having side surfaces and a recessed surface which has a central recess formed therein for receiving the cutting ridge of the first-mentioned tooth, some of the side surfaces of said teeth having recesses formed therein.

6. In a denture, the combination of a ledge constituting a plurality of adjacent artificial teeth and having a cutting knife-like ridge, with another ledge constituting a plurality of opposed artificial teeth, said other ledge having a recessed surface which has a central recess formed therein for receiving the cutting ridge of the first-mentioned ledge, each of said ledges having recesses formed therein and extending transversely to said ridges to define individual teeth.

7. In a denture, the combination of a ledge constituting a plurality of adjacent artificial teeth and having a cutting knife-like ridge and recesses formed on opposite sides of said ridge, with another ledge constituting a plurality of opposed artificial teeth, said other ledge having two ridges and a central recess formed between the two ridges for receiving the cutting ridge of the first-mentioned ledge, the recesses of the first-mentioned ledge receiving the two ridges of the second-mentioned ledge.

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