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A. N. BROWN
ARTIFICIAL TOOTH
Filed Aug. 29, 1938

2,303,874

Fig. 1

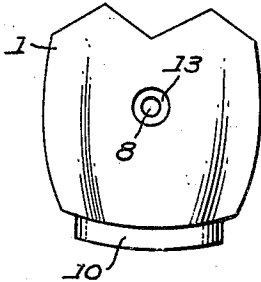


Fig. 2

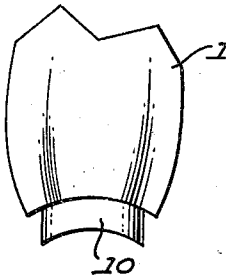


Fig. 3

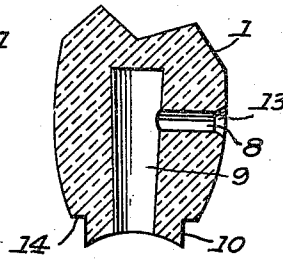


Fig. 4

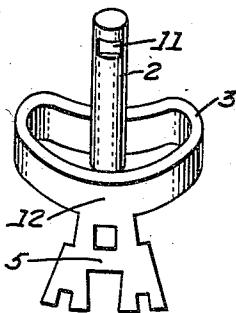


Fig. 5

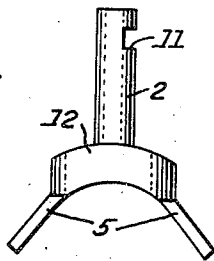


Fig. 6

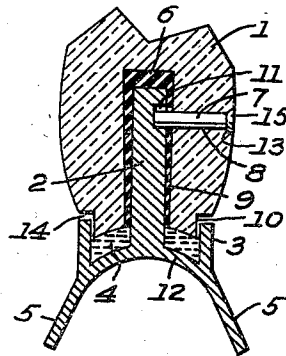


Fig. 7

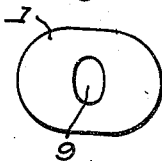


Fig. 8

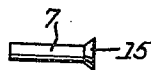
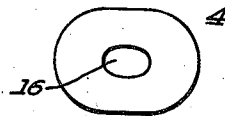


Fig. 9



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UNITED STATES PATENT OFFICE

2,303,874

ARTIFICIAL TOOTH

Arthur Nutter Brown, Boston, Mass.

Application August 29, 1938, Serial No. 227,379

2 Claims. (Cl. 32-9)

This invention deals with the attachment of an interchangeable crown or facing to a base in such a manner as to overcome many of the present hygienic and functional difficulties found in denture work where interchangeable and other type of artificial teeth are used.

Many persons find objections to dentures due to the obnoxious tastes and mouth odors developed often times by the activities of micro-organisms found under crowns, plates and bridges. This objection oftentimes retards and delays the personal adaptation of the wearer to a denture and may cause the complete discouragement of many individuals to the use of artificial teeth. In this invention I have provided a means of overcoming this problem by supplying an antiseptic, germicidal flavoring agent contained within the artificial tooth, which flavoring agent will give the mouth a pleasant taste and the breath an agreeable odor. Rubber-dry-mouth, a condition in which there is a checking of the secretion of saliva is also relieved by medication within the artificial tooth.

One of the chief functional problems of artificial dentures has been their rigidity. Natural teeth in the mouth have a torque or twist with a slight vertical retraction or elastic compressibility in their action and reaction against their adjacent and opposing members. Nature has provided the teeth with the periodontal membrane a thick, tough, fibrous tissue which acts as a shock absorber for the tooth during the act of mastication. Rigid bridge work has produced unusual and unnatural strains on the abutment teeth oftentimes causing loosening and eventual loss of the abutment members. Plate users find a great deal of the efficiency of mastication is lost due to the immovability and non-flexibility of the respective teeth. This need has inspired the conception of a detachable and interchangeable tooth attached to a base which tooth will have some individual movement.

The object of this invention thus is the obtaining of an attachment means between an interchangeable crown and its backing that allows vertical and lateral motion of the said crown upon the backing, reproducing the natural torque and elastic retractability of the natural tooth during the act of mastication. This compression of the crown upon its backing expresses a flavored medication contained within the artificial tooth, which medication promotes mouth asepsis.

This invention has a further object in that by means of this type of attachment the amount of dental base material necessary to retain the

artificial tooth to the denture is materially reduced and the amount of tooth surface in contact with the tongue is thereby increased.

The following detailed description will further explain my invention, reference is made to the accompanying draw which forms a part of the specification and in which—

Fig. 1 is an lingual elevation of a molar tooth constructed according to my invention,

Fig. 2 is a distal elevation of the crown in Fig. 1,

Fig. 3 is a vertical cross section of the crown prepared for association with its backing,

Fig. 4 is a perspective view of the backing,

Fig. 5 is a side view of the backing,

Fig. 6 is a cross section of the crown, backing locking pin, and compressible absorbent disc in their proper associations and relationships,

Fig. 7 is a view of the base of the crown,

Fig. 8 is a perspective view of the motion limiting lock pin,

Fig. 9 is a top view of the compressible absorbent disc.

As shown in Fig. 3 the tooth crown has formed therewithin a vertical hole or bore 9 intersected by a horizontal hole or bore 8, said bore 8 terminating in a counterbore 13 as shown in Fig. 1 and Fig. 3. The tooth also has circumferential recess 10 as shown in Fig. 1 and Fig. 2 which follows the contour of the base of the crown. An individual backing plate 12 as shown in Fig. 4, Fig. 5, and Fig. 6 is adapted to crown 1 and said backing plate 12 having secured thereto an oval post or projection 2 containing a slot 11, said projection 2 to register with bore 9. The end of projection 2 and upper side walls approximate but do not contact the flat seat and upper side walls of the bore 9. The groove or notch 11 on projection or post 2 registers with the motion limiting lock pin 7. The motion limiting lock pin 7 is secured within the bore 8 and the head 15 registers with the counterbore 13. The motion limiting lock pin 7 is secured by cementing the head 15 to the counterbore 13. The backing 12 has a circumferential flange 3 which registers with the circumferential recess 10 in the crown 1 and approximates the seat 14 which forms the upper surface of the recess. The feet 5, flexible projections of the backing 12 as shown in Fig. 4 and Fig. 5, are for the purpose of engaging the dental base material. The compressible absorbent disc is located between the base of the crown and the upper surface of backing 12, said disc impregnated with a fluid alcoholic solution of volatile oils of the type of cloves, caduput, orange, etc., to be determined by the merit of the

case. Fig. 7 shows the base of the crown and the oval bore 9. Fig. 8 shows the motion limited lock pin 1 with its enlarged head 15. Fig. 9 shows the compressible absorbent disc with the oval opening 16 to accommodate the post or projection 2. The oval bore 9 is tapered from its flat seat in the upper third of the crown or facing to its termination in the base to allow for a confined triangular space between the walls of the projection 2 and the corresponding walls of the bore 9.

When the tooth is assembled on a denture, the force of mastication or similar occluding pressures exerted will cause the facing to move downward on the post or projection with a slight torque or twist. The distance of these movements is determined by the length of the notch 11 on post 2 the compressibility of the compressible absorbent disc, which can be regulated to the discretion of the operator depending upon the location of the tooth and the merits of the individual case. The lateral motion is almost imperceptible as it is in case of the natural tooth the bucco-lingual movement being greater than the mesio-distal. The distance of vertical movement is also limited by the flange 3 which approximates and meets the seat 14 of the crown 1 as shown in Fig. 6. By this interaction, I have reproduced some of the functioning movements of a natural tooth during mastication and occlusion by means of an artificial tooth.

The downward compression of the crown on the backing with the normal mouth heat will express the flavored medications contained in the compressible absorbent disc, and a small amount of these materials will be transferred to the mouth in the vicinity of the tooth. The amount of the flavored medication is very slight and will produce a hardly perceptible taste within the mouth, and will not interfere in any way with the normal functioning of the taste organs. The flavoring agents used are selected to suit the individual wearer's taste and will offset any unpleasant or foreign taste produced by the other drugs or chemicals used within the tooth. The compressible absorbent disc acts as a seal for the tooth and excludes the fluid of the mouth from the inside of the artificial tooth.

The pressure necessary to express the flavor and medication approximates the normal masticatory pressure, so that the medicinal ingredients are only expressed during mastication or when desired by the wearer of the denture by forceful occlusion.

The compressible absorbent disc can be made of suitable materials as sponge-gum-rubber or materials which are commercially used for similar purposes. The flavored medication consists of a fluid alcoholic solution of volatile oils of the type of cloves, caduput, orange, lemon, cinnamon, eucalyptus or other volatile oils which fall into this classification as to physical properties and functional characteristics, said oils to be used singularly or in combinations with compatible alcohol soluble oral or gastric medicines as to the therapeutic necessity and to the specific desire of the wearer as to flavor. Dilute alcohol is used as a vehicle only of sufficient concentration for solution of the oil to aid in diffusion. The flavoring agents, the volatile oil or oils, are selected to suit the individual wearer's taste and will offset any unpleasant taste produced by the other materials if and when used within the

tooth. The volatile oils are antiseptic and germicidal.

The backing is a cast of gold or an alloy of the same made to the size and contour of the base of the tooth. The facings or crowns made may be made of any desirable materials, but they are generally constructed of porcelain.

The resilient cushion may be made of rubber or other suitable materials.

This invention is adapted to be used generally whether the crown or facing be molar, incisor, cuspid or bicuspid, and can be used in all denture work either bridge or plates.

This invention has been described in detail in this embodiment, but the important instrumentalities may be varied and by reason of this fact the invention is not limited to these specific details, I therefore, claim any equivalent that may come within the scope and spirit of the claims.

Modification will be necessary to meet conditions found in practice.

I claim as my invention:

1. In an artificial tooth, the combination of a crown or facing having a vertical and a horizontal bore intersecting therewithin and having a basal circumferential recess and a lingual counterbore thereupon, a backing plate having a base supporting an upstanding flange to register with the circumferential recess of said crown or facing and supporting a slotted post to enter the vertical bore approximating the flat seat and upper side walls of the vertical bore of said crown or facing and said backing plate being provided with projections or fingers to engage the dental base material, a motion limiting lock pin secured within the horizontal bore of said crown or facing approximating the upper and lower horizontal faces of the slot of the pin of said backing in such a way as to permit vertical motion of said crown upon the post of said backing, the head of said lock pin registering with the counter bore of said horizontal bore.

2. In an artificial tooth, the combination of a crown or facing having a vertical and a horizontal bore intersecting therewithin and having a basal circumferential recess and a lingual counterbore thereupon, a backing plate having a base supporting an upstanding flange to register with the circumferential recess of said crown or facing and supporting a slotted post to enter the vertical bore approximating the flat seat and upper side walls of the vertical bore of said crown or facing and said backing plate being provided with projections or fingers to engage the dental base material, a motion limiting lock pin secured within the horizontal bore and counterbore of said crown or facing approximating the upper and lower horizontal faces of the slot of the pin of said backing in such a way as to limit the motion of said backing plate, a flattened compressible absorbent disc secured between the base of the crown or facing and the base of the said backing plate impregnated with a fluid alcoholic solution of volatile oils of the type of clove, caduput, orange, lemon, cinnamon, eucalyptus, etc., said oils used singularly or in combination, said medicament adapted to be extracted from the disc by the heat of the mouth, and the pressure produced between the base of said crown or facing and the base of said backing plate during the act of mastication or forceful occlusion, said medication to promote mouth asepsis.

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