Sept. 30, 1952 M. I. COLEMAN 2,611,956

DENTURE

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Fig. 1.

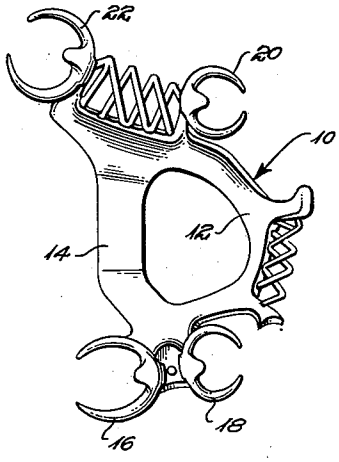


Fig. 2.

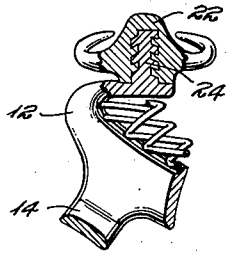
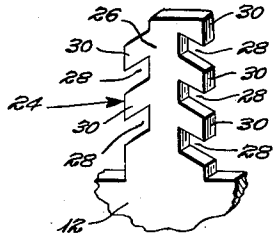


Fig. 3.



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DENTURE

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9 Claims. (Cl. 32—5)

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This invention relates to dentures, particularly partial dentures of the cast metal base variety.

Partial dentures have been produced in a number of forms over the many years that they have been in use. Prior to the present invention, no entirely satisfactory partial denture has been available that would combine the advantages of strong, hard, light weight structural portions and soft yieldable tooth engaging portions. Attempts have been made in the past to solder gold alloy clasps, inlays and other attachments to base defining alloys of stronger and harder materials. It has been found however, that such soldered joints will not withstand the conditions to which they are subjected in normal use for a sufficient length of time to satisfy dentists and their patients.

Partial dentures have also been produced entirely from gold alloy with integral attachments, such as clasps, for engagement with the natural teeth of the user. Such dentures have proved to be excessively heavy and expensive and lacking in strength characteristics. Partial dentures have also been made entirely from chrome alloys, including the clasps or other attachments. Dentures of this type have been unsatisfactory because alloys of these types have been found to be damaging to the natural teeth.

Thus, the chrome alloys are advantageous for construction of the base itself while the gold alloys have been found to be superior for contact with the natural teeth. In recognition of these facts, the present invention has taken advantage of the desirable characteristics of each type of alloy through the use of a joint which mechanically interlocks denture portions composed of dissimilar alloys to produce a composite structure, which for all practical purposes, is unitary.

The partial denture of this invention comprises a structural base member composed of relatively light metal an attachment composed of a dissimilar relatively soft metal, and a projection integral with the structural member and embedded in the attachment. As previously indicated, the projection is not only embedded in the attachment, but also rigidly interlocked therewith. This is achieved by having the projection penetrate the attachment, the projection preferably containing one or more locking recesses or notches about which the attachment is cast to produce a positive mechanical interlocking relationship. The notches formed in the projection may be staggered to avoid unduly weakening the projection, and the notches may be so inclined as to anchor the attachment against separation from the base. By virtue of these relationships, it has become possible to utilize strong, light weight, polish retaining structural alloys to produce the bases of partial dentures, and at the same time to use precious metal alloys for engagement with the natural teeth, to obtain the benefits of these relatively softer materials which are less damaging to the teeth than are the structural, less yieldable chrome alloys customarily employed to produce cast base members.

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A more complete understanding of the invention will follow from a description of the drawings wherein:

Fig. 1 is a plan view of the metallic portions of a partial denture embodying the present invention;

Fig. 2 is a fragmentary elevation, partially in section, of a portion of Fig. 1, shown on an enlarged scale; and

Fig. 3 is a fragmentary perspective view of one of the elements of the present invention, shown on an even further enlarged scale.

The partial denture 10 depicted in Fig. 1 has not yet received the plastic and/or porcelain tooth and gum simulating portions, which have been purposely omitted for purposes of clarification. The partial denture shown in this figure is of the palatal type comprising the usual base portion 12 and palatal bar 14 composed of structural alloys of known types, such as chrome-cobalt alloys commonly used in the products of dental laboratories. A number of attachments in the form of clasps 16, 18, 20 and 22, are secured to the base 12 in a manner typified by the disclosure of Fig. 2 of the drawings, depicting the clasp 22, of precious metal alloy, such as gold alloy, cast about a projection or post 24, upstanding from and integral with the base 12. As shown more clearly in Fig. 3, the post 24 provides a central web 26, notched along its opposite sides with staggered inclined notches 28 between which anchoring lugs 30 are produced.

After the base has been cast with its integral projections or posts 24, the clasp or other attachment is cast about such posts or projections, as by the usual type of centrifugal casting common in this art, producing a rigid interlocked relationship between the dissimilar parts to form a unitary composite structure possessing the best features of its components and at the same time avoiding all of their disadvantages.

Whereas only one specific form of the invention has been depicted and described for purposes of illustration, variations will occur to those skilled

in the art just as they have to the inventor himself, and accordingly, the invention should not be restricted to the form illustrated and described beyond the scope of the appended claims.

I claim:

1. A partial denture comprising a structural base member composed of relatively light metal, an attachment composed of a dissimilar relatively soft metal, and a projection containing angular notches integral with said structural member and embedded in said attachment.

2. A partial denture comprising a structural base member composed of relatively light, chrome-cobalt alloy, an attachment composed of a dissimilar relatively soft metal, and a projection integral with said structural member and similarly composed embedded in said attachment.

3. A partial denture comprising a structural base member composed of relatively light metal, an attachment composed of a dissimilar relatively soft metal, and a projection containing staggered inclined notches integral with said structural member and embedded in said attachment, said notches serving to anchor said attachment against separation from said base.

4. A partial denture comprising a structural base member composed of relatively light metal, said structural member having an exposed portion for contact with oral tissue, a projection integral with said structural member, and an attachment composed of a dissimilar relatively soft metal cast about and rigidly embedding said projection.

5. A partial denture comprising a structural base member composed of relatively light metal, said structural member having an exposed portion for contact with oral tissue, a projection integral with said structural member, and an attachment composed of a dissimilar relatively soft metal cast about and rigidly embedding said projection and interlocked therewith.

6. A partial denture comprising a structural base member composed of relatively light metal, said structural member having an exposed portion for contact with oral tissue, a projection containing a locking recess integral with said structural member, and an attachment composed of a dissimilar relatively soft metal cast about and rigidly embedding said projection and filling said recess.

7. A partial denture comprising a structural base member composed of relatively light metal, a projection integral with said structural member, a tooth embracing clasp composed of a dissimilar relatively soft metal having a base cast about and rigidly embedding said projection.

8. A partial denture comprising a structural base member composed of relatively light metal, said structural member having an exposed portion for contact with oral tissue, a projection defining a head integral with said structural member, and an attachment composed of a dissimilar relatively soft metal surrounding and rigidly embedding said head.

9. A partial denture comprising a structural base member composed of relatively light metal, said structural member having an exposed portion for contact with oral tissue, a projection integral with said structural member, and an attachment composed of a dissimilar relatively soft precious metal alloy cast about and rigidly embedding said projection and interlocked therewith.

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