

Referring to FIG. 6, there is an exemplary illustration shown therein of the addition of a reinforcing member 88 which is embedded within the implant 60 incident to the same being molded within the mold cavity. The reinforcing member 88 is inserted within the mold cavity appropriately prior to the discharge of molten plastic thereinto. Under such conditions, for example, where the roots on the implant are relatively long and slender, reinforcing the same appropriately may be advisable. Under the circumstances, the reinforcing member 88 may be formed from suitable stiff wire, preformed cast metal members of stiff nature, or otherwise, both with respect to method of formation and materials employed. By the selection of a synthetic resin composition of appropriate formulation to provide adequate strength, however, the use of such reinforcing element normally should not be necessary.

From the foregoing, it will be seen that the process or technique, as well as the exemplary apparatus which has been designed for the formation of an artificial implant from synthetic resin material will result in the formation of an exact copy of the hard tissue elements which the artificial implants made in accordance with the invention are to replace within a vital vertebrate animal body. The entire procedure outlined above may be completed well within the critical time limit of between 40 and 45 minutes within which such implants must be installed within the natural cavity which is to receive them and adherence of natural tissues thereto is to be expected.

Further, especially in regard to using the principles of the invention to make artificial tooth implants, it becomes practical to manufacture commercial lines of preformed jacket crowns of precise dimensions and within appropriate size ranges, shapes and hues, for attachment to the crown preparations which are molded on the artificial implant also in accordance with the principles of the invention. As a result, the convenience and lack of trauma to the patient in providing jacket crowns by the process and apparatus of the present invention represents a vast improvement over the conventional dental practice of preparing natural teeth to receive a jacket crown, and also fabricating such jacket crown on a custom basis.

While the invention has been illustrated and described in it several preferred embodiments, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways falling within the scope of the invention as illustrated and described.

We claim:

1. A process for rapidly preparing an artificial implant to be

substituted for a natural hard tissue element or part thereof of a vital vertebrate animal body and comprising the steps of removing a selected hard tissue element or part thereof from such animal body, investing said element or part in elastic mold material capable of setting quickly to form a negative mold thereof, withdrawing said element or part thereof from the elastic mold thus formed, injecting into said mold a synthetic resin of quick-setting characteristics which is biologically acceptable to the vital animal tissue with which it is to unite, curing said resin quickly to form an artificial positive exact reproduction of said hard tissue element or part thereof and implanting said reproduction within the space in such animal body from which the corresponding natural element or part thereof was removed within a period not appreciably in excess of 45 minutes to initiate natural growth between the periodontal membrane in said space and said implant while causing minimum disturbance to the position of said membrane within said space.

2. The process according to claim 1 in which the step of filling said mold with a synthetic resin comprises injecting said resin into said mold.

3. The process according to claim 1 in which the step of filling said mold comprises placing a mixture of liquid and powder resin components in said mold and permitting the same to self-cure.

4. The process according to claim 3 in which said resin is of a cross-linked thermosetting nature.

5. The process according to claim 1 in which said selected hard tissue element comprises a natural tooth and the removing of the same from the animal body comprises extracting said tooth, said process including the additional step of debriding said tooth prior to forming a negative mold thereof.

6. The process according to claim 5 including the further step of separating the crown portion of said extracted tooth from the root portion thereof and forming a negative mold of said root portion per se to form an artificial implant for an artificial crown.

7. The process according to claim 6 including the further step of forming a crown preparation on the end of the implant opposite the root portion thereof, such formation of the crown preparation occurring incident to molding the implant.

8. The process according to claim 6 including the further step of introducing a reinforcing member in the implant prior to the curing of the resin which forms the implant.

9. An artificial tooth implant injection molded by the method of claim 1.

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