

Sept. 16, 1969

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3,466,751

ROOT-PIN FOR MODEL-TEETH

Filed Aug. 7, 1967

Fig. 1

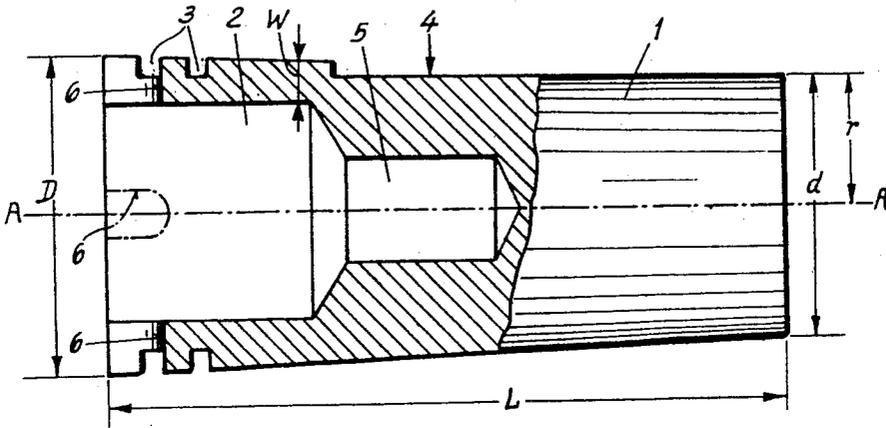


Fig. 2

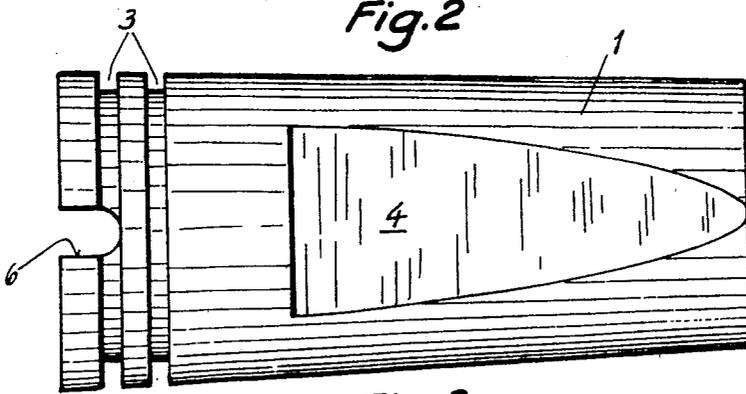
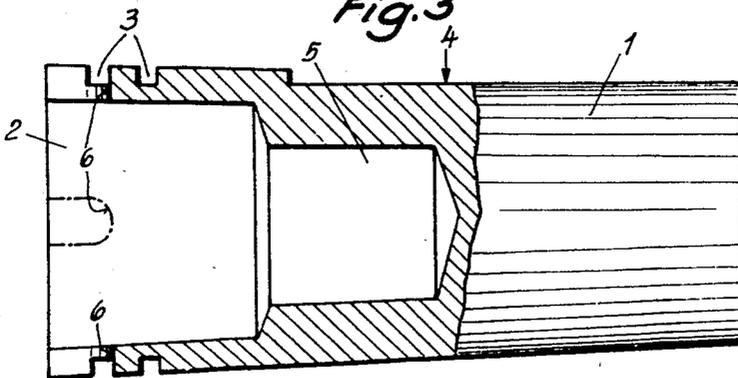


Fig. 3



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**ROOT-PIN FOR MODEL-TEETH**

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Filed Aug. 7, 1967, Ser. No. 658,789

Claims priority, application Switzerland, Aug. 9, 1966,  
11,702/66

Int. Cl. A61c 3/00

U.S. Cl. 32—40

7 Claims

**ABSTRACT OF THE DISCLOSURE**

A root-pin defined by a frustum, a central hollow space and an annular external groove adjacent a large end of the frustum. A flat exterior surface is positioned adjacent the smaller end of the frustum and parallel to an axis thereof.

**BACKGROUND OF THE INVENTION**

Field of the invention

This invention relates to a root-pin for a model-tooth die, which pin can be adopted as a help when making indirect inlays, cast crowns, bridges, cast clamps, etc.

Description of the prior art

Before root-pins became known, a copper-ring molded impression for instance was filled with cement, amalgam or synthetic resin and the artificial root was simply shaped approximately by hand or with instruments. Consequently, there were always slight errors with respect to the fit in the gypsum model. Especially if the root was formed circular, errors in rotation up to 180 degrees often occurred. In addition, the roots shaped by hand were comparatively rough on the surface.

In order to obviate errors in fit and to obtain a smooth surface, root-pins made of synthetic material have recently been created of hollow shape and square shaped. These known root-pins, however, involve the drawback that, when filled with quick-curing synthetic resin, they can be used once only, since the synthetic-resin filling forms an indissoluble combination with the synthetic resin of the root-pin; in the case of this drawback of being able to be used only once, the high cost of the tools (metal dies) required for making the root-pin plays a decisive part. Further, the synthetic root-pin that can be used only once makes it necessary to keep a very big stock.

These drawbacks shall be avoided through the present invention.

**SUMMARY OF THE INVENTION**

Briefly, a root-pin for model-teeth, which forms the object of this invention, is characterized by a metal frustum which, in the neighborhood of the end with the big diameter, has a central hollow space of circular cross-section and also one or several transverse external annular grooves, and is provided on the outside with a flat ground surface parallel to the axis and extending from the end with the small diameter to at least the middle of the length of the frustum, the distance of said surface from the axis of the frustum being at least approximately equal to the small radius of the frustum.

**BRIEF DESCRIPTION OF THE DRAWING**

The accompanying drawing shows by way of example two forms of embodiment incorporating the invention.

FIGURE 1 is a side view, partly in section, of a first embodiment of the present invention;

FIGURE 2 is a top view of the form shown in FIGURE 1; and

FIGURE 3 is a side view, partly in section, of a second embodiment.

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIGURES 1 and 2, the root-pin shown comprises a metal frustum 1, its big diameter being designated D, its small diameter *d*, and its length L. In the neighborhood of the end with the big diameter D, the metal frustum 1 has a central hollow space 2 in the shape of a cylindrical boring, which extends over about one-third of the length L of the frustum. In addition to that, the metal frustum 1 has two external transverse grooves 3 in the neighborhood of the same end; the profile cross-section of said transverse grooves is a square, one side of which runs parallel to the frustum axis A—A. On its outside the metal frustum 1 is provided with a flat-ground surface 4 which is parallel to the axis and extends from the end with the small diameter *d* over about two-thirds of the frustum length L; the distance of said surface 4 from the frustum-axis A—A corresponds to the small radius *r* of the metal frustum 1. After the central hollow space 2 there follows a coaxial cylindrical blind-boring 5, whose diameter is less than that of the central hollow space 2, and whose axial length is less than that of the central hollow space 2.

At the wider front-end of the metal frustum there are provided two grooves 6 similar to screw-slots having for their duty to prevent rotation of the synthetic resin or of the cement in the hollow frustum 1.

Since the frustum 1 is constructed of metal—and brass has been found to be particularly suitable in this case—the advantage of an unchanging fit in the gypsum impression is obtained, so that an accurate modeling is possible especially in conjunction with the flat-ground surface 4, since the distances to the opposite tooth remain always constant and sources of error are practically entirely eliminated.

A further merit of the metal pin is seen in that in the neighborhood of the central hollow space 2, the wall thickness W can be kept much smaller than in the case of a root-pin made of synthetic material, in accordance with the lesser deformability of metal as compared with a synthetic material.

Since the metal of the root-pin does not combine chemically with a synthetic-resin filling, the root-pin may always be used again, so that the amount kept in stock can be considerably reduced.

The outer transverse grooves 3, which may of course have another profile cross-section than that illustrated, permit an appreciably improved holding of the connecting material between copper-ring impression and root-pin.

As apparent from the second form according to FIGURE 3, both the central hollow space 2 and the blind-boring 5 may be made tapering, and then it will be found more suitable to choose the same angle of taper as used for the metal-frustum 1.

What I claim is:

1. A root-pin for a model-tooth die comprising a metal frustum which, in the neighborhood of an end having a larger diameter, has a central hollow space of a circular cross-section, and is provided on the outside with a flat-ground surface parallel to an axis of the frustum and which extends from an end having a smaller diameter to at least the middle of the length of the frustum, the distance of said surface from the axis of the frustum being substantially equal to the small radius of the frustum, the central hollow space extending from the larger end toward the smaller end and terminating short of the smaller end to form a blind opening.

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2. a root-pin as claimed in claim 1, wherein the central hollow space extends over approximately one-third of the length of the frustum.

3. A root-pin as claimed in claim 1, wherein after the central hollow space there follows a coaxial cylindrical blind bore, whose diameter at a place of transition is less than that of the central hollow space, and whose axial length is less than that of the central hollow space.

4. A root-pin as claimed in claim 1, wherein the central hollow space has a cylindrical shape.

5. A root-pin as claimed in claim 3, wherein the blind bore and the central hollow space have a cylindrical shape.

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6. A root-pin as claimed in claim 1, including an outer transverse groove having a square profile cross-section.

7. A root-pin as claimed in claim 1, wherein the metal frustum is constructed of brass.

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