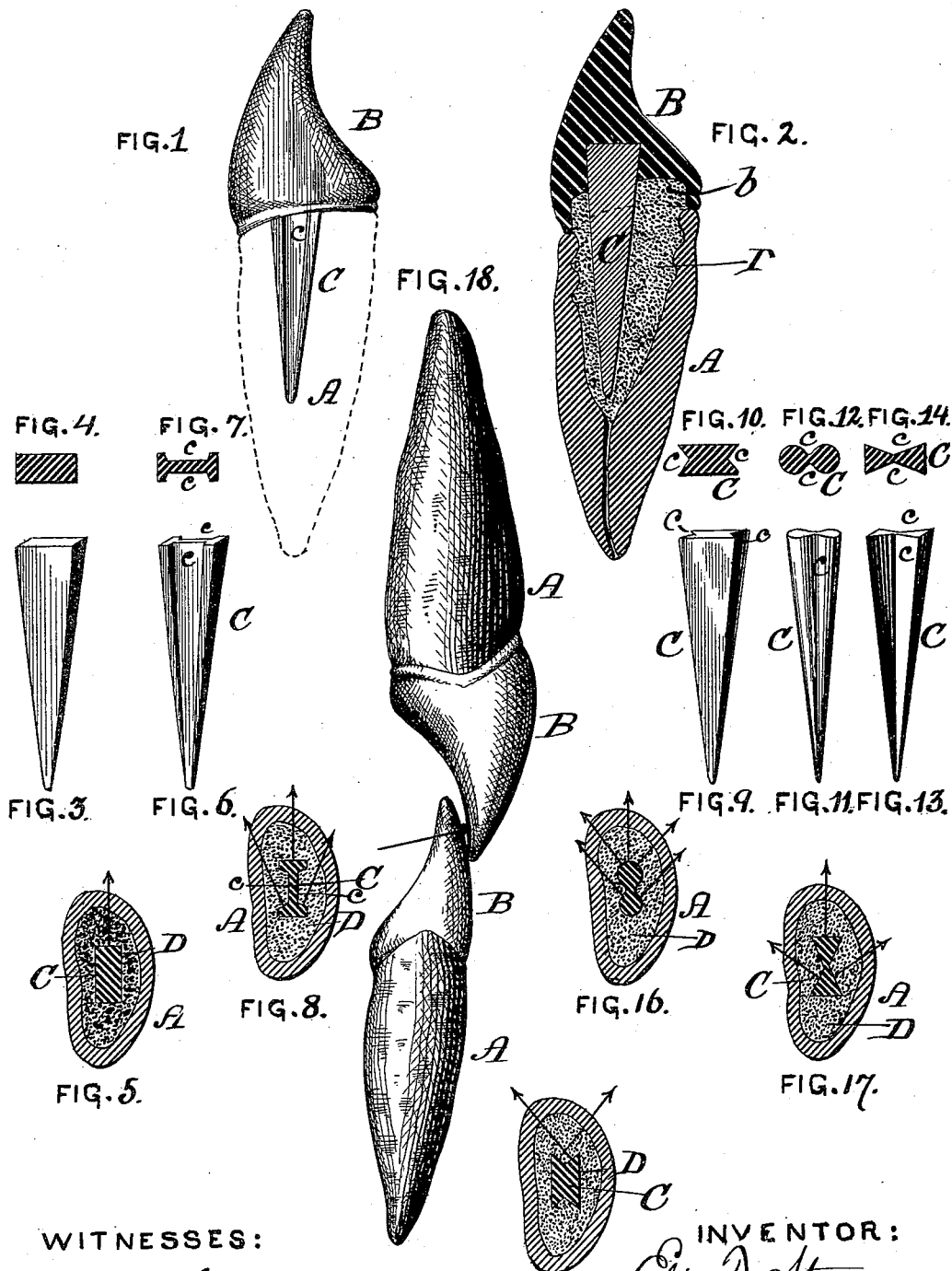


(No Model.)

E. T. STARR.  
ARTIFICIAL TOOTH CROWN.

No. 347,975.

Patented Aug. 24, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ELI T. STARR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF SAME PLACE.

## ARTIFICIAL TOOTH-CROWN.

SPECIFICATION forming part of Letters Patent No. 347,975, dated August 24, 1886.

Application filed July 7, 1886. Serial No. 207,314. (No model.)

*To all whom it may concern:*

Be it known that I, ELI T. STARR, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Artificial Tooth-Crowns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to artificial tooth-crowns, and more particularly to such crowns known as "pivot-crowns," in which a pin or post is baked into the base or neck of the porcelain portion of the crown, and is fitted into the root-canal and secured by some suitable cement or filling therein. Where the pin is round or square, or of other shape in cross-section of uniform diameter, the pin or post has to be made small to allow of its entrance into the opening or canal of the tooth-root, and it is consequently weak, and is very liable to break under the strain of mastication or use at the point of junction with the porcelain body of the crown. If made larger, so as to have the requisite strength, the size of the pin interferes with its fitting the opening in the tooth-root, and if said opening is made large enough to accommodate a pin of the requisite strength, then the walls of the tooth-root are weakened.

To provide a pin of the requisite strength at the point of union with the porcelain body without requiring too large an opening in the root, Dr. C. M. Richmond, of New York city, as I am informed and believe, invented a wedge-shaped or tapered pin of square or other shape, having its basal or enlarged end baked into the porcelain body, with its tapered portion or shank fitted to enter the root opening or canal. Thus a pin of the requisite strength was produced which did not require too large an excavation of the root-canal.

My invention is an improvement on that of Dr. Richmond, and relates to the shape and construction of the anchoring pins or posts of artificial tooth-crowns. With the Richmond tapered-pin crown, as in my invention, the edges of the square or other shaped pins are placed at the front and back of the root, so that

the pins have the most strength to resist the strain, which is always in a line from the palatal to the buccal or labial surfaces. The flat sides of the pins are therefore parallel, and there is but little sidewise or lateral strain. It is a fact that the metal of the pins—usually platina—is of more solidity and strength than the cement filling of the root which anchors the pin and crown together, and hence when the strain comes the only resistance offered to the movement of the pin in the cement is the surface of the filling opposing the edges of the pins. It results, in practice, that the edges of the pins soon compress the filling material, which is always softer than the metal of the pins, and work loose.

The object of my present invention, therefore, is to adhere to the Richmond taper pin for strength, while modifying its construction as to cross-section, to secure greater resistance to the compression of the filling and tendency of the pin to work loose in the root.

To this end my invention consists of a taper pin for artificial tooth-crowns having a depression or depressions in its circumference, whereby an enlarged surface is exposed to bear upon the filling of the tooth-root to resist loosening of the pin in said root.

In the accompanying drawings, which illustrate several forms of tooth-crown pins or posts embodying my invention, Figure 1 is a view in elevation of the improved crown with the root shown in outline by dotted lines and the pin with longitudinal side grooves, and Fig. 2 is a vertical section through the parts shown in Fig. 1. Fig. 3 is a perspective view of the Richmond tapered tooth-crown pin detached. Fig. 4 is a cross-section thereof; and Fig. 5 is a section therethrough as applied to a tooth-root, showing the front and back edges of the pin, and the point of strain thereon being shown by the arrow in said figure. Fig. 6 is a perspective of one form of my improved tapered tooth-crown pin. Fig. 7 is a cross-section therethrough; and Fig. 8 is a cross-section through my improved pin fitted in a tooth, and the arrows showing the points of resistance to and the line of the strain to which the pin is subjected. Fig. 9 is a perspective of a modified form of my improved pin, showing

the edges with V-shaped grooves to resist edge-wise movement of the pin in the cement; and Fig. 10 is a cross-section therethrough. Figs. 11 and 13 are perspective views of other modified forms of my improved tapered tooth-crown pin or post; and Figs. 12 and 14 are transverse sections therethrough, respectively. Figs. 15, 16, and 17 are cross-sections of the pins or posts shown in Figs. 9, 11, and 13, respectively, as fitted in tooth-roots, with arrows showing the enlarged surfaces and points of resistance offered to loosening of said pins in the filling material in said roots. Fig. 18 is a view of two upper and lower or superior and inferior incisor teeth, showing the points of strain to be in a line from front to back.

The root A is excavated and prepared in the usual manner. The crown B may be, and preferably is, of the material known in the dental art as "porcelain, which is usually employed for making artificial teeth and crowns. Said crown B preferably, but not necessarily, has a socket or recess, *b*, at its base, to receive a portion of the cement which unites the crown to the root. A pin or post, C, of tapering or wedge shape has its larger end baked into the porcelain in the usual way. This pin is preferably substantially flat, with its edges pointing to the front and rear sides of the crown; but it may be of various shapes, some of the best forms being shown in the several figures of the drawings.

Instead of having plain sides or edges, as in the previous Richmond pins, my tapered or pointed pins have depressions or recesses in the circumference—or, in other words, in the sides or edges, or both—to enlarge the surface bearing against or coming in contact with the filling material or cement D. These depressions are preferably longitudinal grooves *cc* in the sides or edges of the pin or post C, as clearly shown in the several figures of the drawings.

The cement D may be any of the usual cements or amalgams employed by the dentists. The pins or posts C with the depression or depressions in their surfaces enlarge the surface of the pin, enabling a better hold to be taken of it by the cement, and offering greater resistance to the pressure or strain which tends to loosen the pins in their sockets or seats in the tooth-roots.

I claim as my invention—

A tooth-crown having a tapered anchoring pin or post with a depression or depressions, such as a longitudinal groove or grooves, in its surface, enlarging its surface in contact with the cement or filling in the tooth-root, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELI T. STARR.

Witnesses:

ROBT. E. GORDON,  
S. E. CAMPBELL.