

No. 866,304.

PATENTED SEPT. 17, 1907.

F. E. ROACH.
REMOVABLE ARTIFICIAL DENTURE.
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Fig. 1.

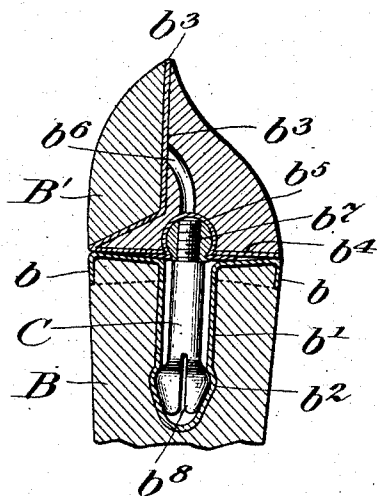
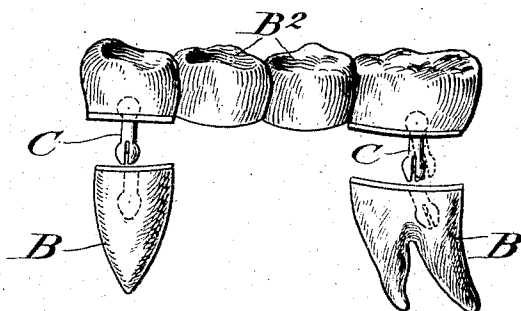


Fig. 2.

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his Atty

UNITED STATES PATENT OFFICE.

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REMOVABLE ARTIFICIAL DENTURE.

No. 866,304.

Specification of Letters Patent.

Patented Sept. 17, 1907.

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To all whom it may concern:

Be it known that I, FINIS E. ROACH, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Removable Artificial Dentures; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to artificial dentures and more particularly to that class of artificial dentures, including partial plates, bridges, crowns and other structures, adapted to be secured or partly secured to the natural teeth or the roots thereof as the case may be.

Heretofore, many attempts, have been made to provide artificial dentures which, though firmly held in place, are capable of being readily removed from the mouth for purposes of cleansing or repair. Such structures are usually connected with the abutment or anchor tooth by means not permitting the denture to adjust itself laterally with respect to the natural tooth, thus exerting constant strain upon the anchor tooth or teeth due to pressure in mastication. It has also been very difficult to install the same for the reason that such mechanical structures are secured to the natural teeth or roots by means making it necessary to secure perfect alinement of said structures to enable the bridge or partial plate to be secured in place.

The object of this invention is to provide removable, artificial dentures of any and all kinds, adapted to be practically self adjusting in the mouth and affording a very strong, though slightly yielding engagement with the abutments, and so connected therewith as to avoid entirely the necessity for arranging the fastenings therefor on the natural teeth or roots in alinement or in parallel relation, as has usually been the case.

It is also an object of the invention to provide means whereby, though the abutments on each side of the artificial denture may converge either inwardly or outwardly, a secure and positive support for the bridge or the like is obtained.

It is a further object of the invention to provide means whereby the frictional engagement of the connection between the artificial and natural tooth may be varied at will, thus enabling any desired or necessary holding stress for the structure to be secured.

The invention embraces many novel details and consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is an enlarged perspective view of a bridge supported upon two natural roots, showing the parts separated. Fig. 2 is an enlarged transverse section of a crown removably attached to a root by means embodying my invention.

As shown in said drawings: My invention embraces

means affording a ball and a socket joint or connection between the artificial and the natural denture and may, of course, assume many different forms dependent upon the nature of the structure to be secured in place the material of which constructed and the character, shape and condition of the abutment or supporting tooth or root to which the artificial denture is to be secured.

B indicates the natural root at the top of which is secured a cope b in the usual manner provided with a central closed sleeve b' provided with a peripheral enlargement b^2 at its lower end which extends downwardly into the nerve canal of the tooth, enlarged for that purpose. In the construction shown the crown comprises a porcelain facing B' connected with the usual metallic or any backing b^3 in the usual or any desired manner and connected with a base b^4 by means of solder or other suitable material which fills up the back of the tooth, said base b^4 is provided with an upwardly extending ball shaped socket b^5 which, when the crown is in position registers with the sleeve b' in the root and which, of course, in the construction shown is entirely surrounded and united with the backing of the tooth by means of the solder filling therefor and is also connected with said backing by means of the usual or any metallic pin b^6 which is bent downwardly and soldered to the top thereof. Secured within said ball shaped socket is a ball b^7 which as shown is provided with an axial threaded aperture therein adapted to receive the upper reduced end of the pin C which is threaded for engagement in said ball and on the outer or lower end of which is an enlarged head b^8 to fit in said sleeve b' and is split for a portion of its length whereby its frictional engagement in said sleeve may be varied by spreading the sides of the head thereof farther apart.

Where bridges are supported on and anchored to natural roots, the ball and socket joint permits the pins to adjust themselves to the root canals of the abutments inasmuch as the outer or free ends of the pins can be swung to any desired angle for insertion into said root canals as shown in dotted lines in Fig. 1 in which a porcelain bridge B^2 is shown thus avoiding the necessity heretofore existing, of making the apertures whereby the bridge is anchored or secured, exactly parallel.

The operation is as follows: The ball and socket connection between the artificial and natural teeth enables the parts to adjust themselves perfectly to the mouth of the wearer, enabling the artificial dentures to be positively supported upon the process or gum while the connection with the abutment, affords a strength and adjustability never before attained. From the construction described, it is obvious that the wearer may, at any time, readily remove the artificial denture by lifting upwardly adjacent ones of the ball and socket connections, thus releasing the dentures. Notwithstanding the facility with which the same may be re-

moved however, the construction firmly holds the denture in place during mastication and insures the denture adapting itself perfectly to the mouth without strain upon the abutments. Should the wear, due to any slight relative movement afforded in the ball and socket joint, cause the denture to become somewhat loose, slightly spreading the head of the pin, enables any desired degree of frictional engagement to be secured.

Obviously, my invention may be applied to dentures in many different ways and it is immaterial how said pins are secured in place in the part with which connected or if the same are secured in the natural or the artificial denture and in the drawings, I have indicated but few of the many methods of embodying my invention, I therefore do not purpose to limit this application otherwise than necessitated by the prior art, as obviously many details of construction and application may be varied without departing from the principles of this invention.

I claim as my invention.

1. In an artificial denture the combination with the natural tooth or part thereof provided with a rounded socket, an artificial denture adapted to fit said tooth and provided with a rounded socket and a pin provided with a rounded head at each end adapted one to engage in the tooth and the other in the artificial denture thereby permitting relative adjustment of the same.

2. In an artificial denture the combination with the natural tooth or part thereof, of an artificial denture adapted to engage the same, rounded sockets in said tooth and artificial denture, a pin provided with a rounded and a cleft head adapted to engage in said sockets and secure the tooth and artificial denture in adjustable engagement.

3. In a device of the class described, a natural denture provided with a tubular socket therein, an artificial denture having a ball shaped socket therein, a pin engaged in the natural denture and a ball in said ball shaped socket having threaded engagement on said pin and affording a swiveled joint therefor.

4. In a removable artificial denture, the combination with a natural denture or part thereof, of an artificial denture adapted to be secured thereto, a sleeve in one of said dentures, a headed pin carried therein, an adjustable ball on said pin and a socket in the other denture adapted to engage said ball and permit yielding engagement between said denture.

5. In a device of the class described, an artificial denture having a socket therein, a natural denture, a pin connecting said dentures, a ball in said socket adjustably engaged on said pin affording a laterally yielding joint.

6. The combination with a natural tooth or root abutment, of an artificial denture, a ball shaped projection thereon, a corresponding tubular socket piece carried on

the abutment, means for varying the frictional engagement of said projection in said socket and a plate on said denture through which said projection passes and having a point thereon adapted to engage said socket piece above said ball shaped projection.

7. In a device of the class described, the combination with a natural denture or part thereof, of an artificial denture adapted to be engaged thereon, a tubular socket in one of said dentures, a pin adjustably engaged at one end therein and means adjustably engaged on the other end of said pin adapted to engage in a complementary socket in the other denture and afford a ball and socket joint.

8. In an artificial denture, connecting means comprising a socket, a pin provided at one end with a cleft head adapted to frictionally engage in said socket and means on the other end of said pin affording a movable point with said denture.

9. In an artificial denture connecting means comprising a ball shaped socket in said denture, a complementary head therein, a pin having threaded engagement with said head, and adapted when screwed inwardly to tighten the head in the socket, said pin affording an adjustable connection with a natural denture.

10. In an artificial denture the combination with a natural tooth or part thereof having a rounded socket therein, an artificial denture adapted to be engaged thereto, a pin pivotally engaged in said artificial denture and provided with a cleft rounded outer end adapted to engage the socket in said tooth.

11. In an artificial denture the combination with a natural tooth or part thereof, an artificial denture therefor and means affording a ball and socket connection in both the tooth and artificial denture.

12. In an artificial denture the combination with a natural tooth or part thereof, of an artificial denture therefor, sockets provided in each, and a pin adapted to engage said tooth and artificial denture in yielding relation and affording a pivotal joint in both the tooth and artificial denture.

13. In an artificial denture the combination with a natural tooth or part thereof, an artificial denture adapted to be engaged thereto, and means engaging the same together and affording a pivotal joint in each thereby adapting the artificial denture to be adjusted in any lateral direction.

14. In an artificial denture the combination with a natural tooth or part thereof of an artificial denture, an elongated slot in one of the same, a pin engaged to the other and provided with a cleft rounded head on its free end and adapted to be inserted into said slot thereby connecting said tooth and artificial denture and adapting the same to be vertically adjusted and means securing said tooth and artificial denture in adjusted position.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

FINIS E. ROACH.

Witnesses:

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W. W. WITHEBURY.