E. H. BALLOU.

ARTIFICIAL TOOTH.

APPLICATION FILED AUG. 13, 1907.

907,949. Patented Dec. 29, 1908.

Fig. 1.

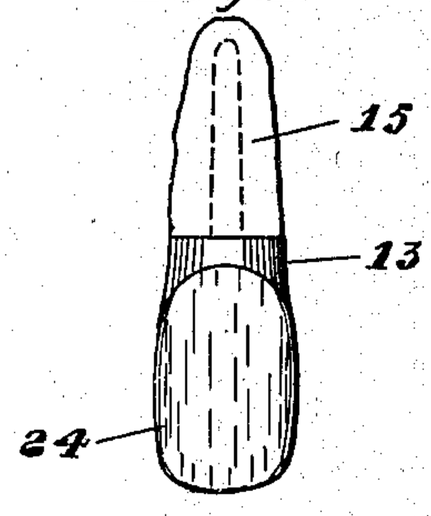

Fig. 2.

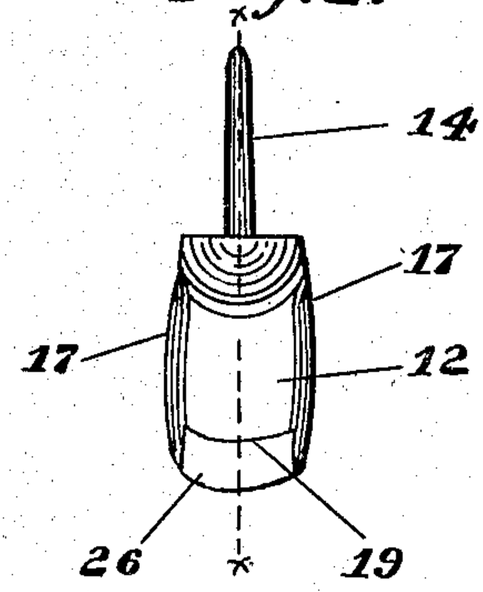

Fig. 3.

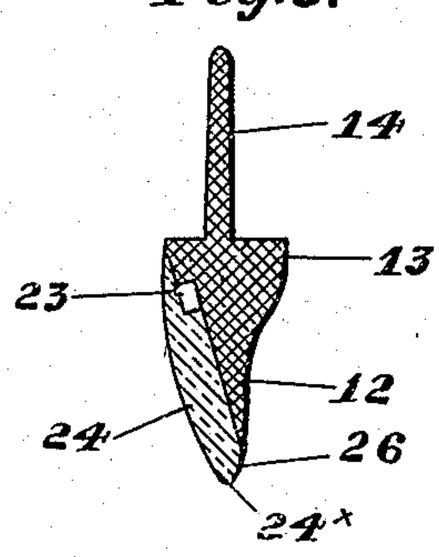

Fig. 4.

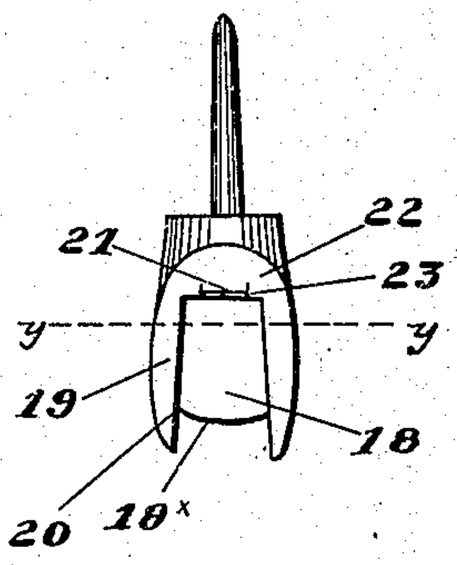

Fig. 5.

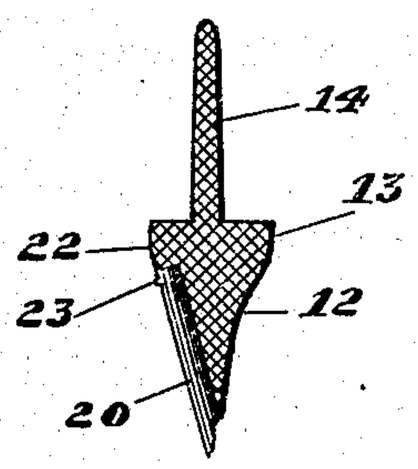

Fig. 6.

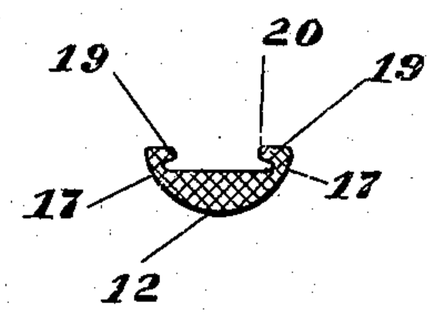

Fig. 7.

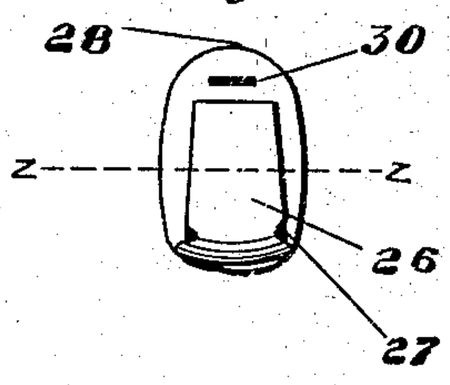

Fig. 8.

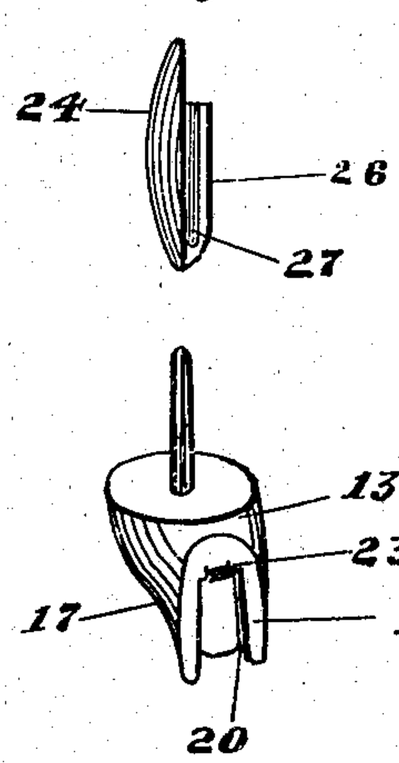

Fig. 9.

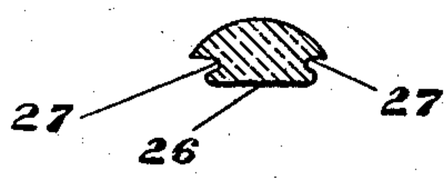

Fig. 10.

Witnesses.

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ARTIFICIAL TOOTH.

No. 907,949. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed August 13, 1907. Serial No. 388,306.

To all whom it may concern:

Be it known that I, EMERY H. BALLOU, a citizen of the United States of America, residing at Dodge City, in the county of Ford and State of Kansas, have invented certain new and useful Improvements in Artificial Teeth; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawing, forming a part of this specification.

The invention relates to improvements in crowns for occlusion with the root of the natural tooth and for bridge work upon artificial or natural teeth.

The invention consists in the novel construction and combination of parts hereinafter fully described and particularly pointed out in the claims.

Referring to the accompanying drawings: Figure 1 is a front view of a tooth embodying the invention. Fig. 2 is a rear view of the tooth as seen in Fig. 1. Fig. 3 is a vertical sectional view taken upon the line *x x* on Fig. 2. Fig. 4 is a front view of the tooth with the facing removed. Fig. 5 is a vertical sectional view of Fig. 4, and Fig. 6 is a transverse view taken upon the line *y, y*, on Fig. 4. Fig. 7 is a detail rear view of one of the detachable facings, and Fig. 8 is a side view of the same. Fig. 9 is a transverse view taken upon the line *z, z*, on Fig. 7. Fig. 10 is an enlarged view in perspective of the backing with the facing removed.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

The main body of the artificial tooth consists of a metal backing, 12, the upper portion of the backing being solid and conforming to the individual proportions, circumferentially, of the natural tooth. With the upper portion, 13, of the solid portion of the backing is connected a small pin, 14, which is inserted in the usual manner within the channel of the tooth root, 15, as seen in Fig. 1, forming an anchorage with the root and an occlusion with the orifices of the root.

The lower and posterior portion of the backing extends downwardly a considerable distance and is curved inwardly and terminates at a point in a vertical line with the vertical axis of the tooth as seen in Fig. 5, the sides 17 of the backing being extended a distance forwardly of said vertical axial line, corresponding to the thickness of the backing, 12. The anterior portion of the backing 12 is recessed or hollowed out, as at 18, and the surface inclined downwardly and inwardly and meeting the posterior portions of the backing at 19, at the vertical axial line of the tooth, the metal at this point being quite thin.

From the sides, 17, of the metal backing extend inwardly thin metal flanges, 19, the lower ends of these flanges extending a short distance below a line horizontal with the lower end, 19, of the posterior of the backing, the vertical inner surfaces, 20, of the flanges being inclined downwardly and outwardly in a slight degree so as to form a wedge shaped opening between the surfaces of the flanges. A yielding plate, 21, extends a short distance downwardly between the upper ends of the flanges, 19, and is connected with the solid portion, 13, of the backing, this plate being separate from the flanges, and a portion of which plate, 21, is bent at right angles and extended outwardly to form a lip, 23.

The facing, 24, of the tooth is made from a solid body of porcelain. The face or labial surface, 25, is made of the proper shape of the required denture. Upon the back or posterior portion of the facing is a wedge shaped projection, 26, extending in the direction of the cervical margin and considerably narrower than the facing, and having slight under cuts or grooves, 27, upon the sides of the projection, this under cut being of a width sufficient to admit enough metal to be of equal or greater strength than the dovetail. The base of the projection, 26, which resembles an inverted keystone, extends downwardly to and forms the lingual surface of the incisal edge, $24^{\times}$, of the tooth facing, 24, this projection 26 being integral with the facing, and the grooved portions being such as to receive the flanges 19 of the backing, 12, and to be held by said flanges with a wedge-like pressure. The upper end of the projection 26 terminates at a point a short distance downwardly from the cervical margin, 28, of the tooth facing 24, the surface of the back of the facing on each side and above the projection 26 being made flat and smooth. Above the upper end of the projection 26, and in the cervical margin of the tooth facing, is a transverse groove or depression, 30, in the porcelain body. The tooth facing, 24, is secured to the backing by the insertion of the projection 26 within the depression 24 of

the backing, the lower ends of the flanges 19 being within the under cuts or grooves, 27, of the facing. Pressure is applied to the lingual surface and incisal edge of the facing and the facing is forced upwardly; the cervical margin comes into contact with the bent portion, 22, of plate 21, slightly depressing the plate and enters the depression 30 in the facing 24, and the facing is secured in position without danger of accidental release, cement being preferably employed to close all orifices.

The backing may be made of gold, platinum or any other metal or combination of metals that will withstand the action of the secretions of the mouth. The facings, which are interchangeable, possess great strength, being one compact body of porcelain, their cutting edge being reinforced where the strain is greatest. If preferred, the inner surfaces of the flanges, 19, may be made substantially parallel and also the grooves 27 in the projection 26 of the facings, the bead 30 serving to retain the facing from removal from the backing.

The invention is applicable to bridge work upon the natural teeth and to metal plates and crown work, in which the facings may be of metal, preferably gold, for the retention of which the soft metal may be manipulated by the hammer or molded to fill the recess in the backing to form the facings, the backings being of a corresponding kind of metal or such other as may be preferred.

Having fully described my invention, what I now claim as new and desire to secure by Letters Patent is:

1. In artificial teeth, a backing having a recess in its anterior portion and a facing having a depression in the cervical margin thereof, a projection upon the posterior portion of the facing within said recess, and sliding connecting devices connecting said facing with said backing and a spring fastener upon the backing which takes into the depression in the cervical margin of the facing.

2. In artificial teeth, the combination with the backing having a recess in its anterior portion of a yielding plate within said recess connected with said backing, a facing and a depression upon its posterior portion adapted to receive said plate, and sliding connecting means connecting said facing with said backing.

3. In artificial teeth, the combination with a backing having inwardly extended flanges and a porcelain facing having a grooved projection upon its posterior portion adapted to receive said flanges, a yielding lip on the said backing, said posterior portion of the facing having a depression adapted to receive said lip.

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Witnesses:
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