To all whom it may concern:

Be it known that we, GUSTAV E. FRITZ and THOMAS G. McMAHON, citizens of the United States, and residents of the city of Chicago, in the county of Cook, State of Illinois, have invented new and useful Improvements in Anchors for Artificial Teeth, of which the following is a specification.

This invention relates broadly to improvements in anchors for artificial teeth and more particularly to baked in pins or anchors adapted especially for the type of porcelain artificial teeth known as facings.

The principal object of the present invention is to provide relatively flat pins comprising improvements on the type of flat anchor pins which are formed from relatively thin flat metallic stock.

More particularly the object of the present invention is the provision of substantially flat pins adaptable to be baked in a porcelain facing in substantial coincidence with the plane bisecting the center of the facing longitudinally, and wherein the pins comprise anchor portions provided with a plurality of protruding members integral with the base portion which forms a common foundation for said members.

Another and especial object of the present invention is to provide pins for the purpose specified, which pins comprise very thin metallic members formed with a base portion upon one thereof and a plurality of protruding members integral with the base portions and extending therefrom so that the protruding members are capable of engaging a suitable backing on each side of the longitudinal median plane of the base to symmetrically and effectively anchor and secure the facing to the suitable backing.

A still further object of the present invention is to provide a pin of the character specified comprising a very thin metallic member having an anchoring base on one end thereof and a plurality of protruding penetrating devices integral with the base portion, and having the penetrating points of said devices arranged to lie adjacent, to enable the pin to easily slide into position upon a suitable backing, and in the preferred form the points may be bent in opposite directions to effectively secure the facing baked upon the base of the pin to a suitable backing.

Another and primary object of this invention is to provide an anchor pin for teeth, which pin may be formed from very thin rolled metal stock, and the pin when formed is symmetrical relative to planes meeting at substantially the longitudinal axis of the tooth.

Other and further objects of this invention will in part be obvious and will in part be pointed out hereinafter in the specification by reference to the drawings forming a part of the said specification and wherein like characters are used to represent like parts throughout the several views thereof.

Figure 1 is a side elevational view showing one form of the improved pin and a portion of a porcelain facing. Fig. 2 is a perspective view of the same form of pin. Fig. 3 is a detail view showing a part of a tooth in section with the pin baked therein and extending therefrom. Fig. 4 is a view similar to Fig. 3 with the addition of a small section of the backing and showing the penetrating members bent to effectively secure a tooth against a proper backing. Fig. 5 is a back view of the construction illustrated in Fig. 3. Fig. 6 is similarly a back view of the construction illustrated in Fig. 4. Fig. 7 is a modification of the present invention on the bilaterally symmetrical pin and shows the modified pin in elevation. Fig. 8 is a section of the modified pin taken on line A—A, Fig. 7. Fig. 9 is a detail view partly in section showing the pin securing a facing to a part of a suitable backing. Fig. 10 is an enlarged perspective view of the said modified construction. Fig. 11 is a perspective view of a second modification.

Flat pins or anchors to which the present invention broadly relates, afford greater strength with less metal than has heretofore been accomplished by the use of the round pins customarily employed prior to the advent of the flat pin. This gain in strength and saving in metal is of great economy from both a practical and from a commercial standpoint, in that a stronger and more effective pin can be produced at a lower cost. While the pin disclosed in Patent No. 1,128,703 previously referred to may be baked in the tooth in any desired manner, it is usual to bake in two pins separated slightly at substantially the middle of the tooth and on each side of the longitudinal center line. While this provides an ample and secure anchor, it necessitates the setting of two pins and doubles the inci-
dental manipulation that would be required to set a single pin.

The present invention contemplates the advantages of the previously specified flat pin and in addition thereto contemplates an anchor adapted to effectively secure the facing in position by the use of a single pin. This single pin is in effect a plurality of flat penetrating and securing members which are integral with a single foundation or base, and is thus constructed to utilize a minimum amount of metal and gain a maximum of strength. The single foundation base enables a plurality of effective securing means to be obtained by a single manipulation of baking in one device in the porcelain facing.

Referring now more particularly to the drawings, the preferred form of our invention comprises an anchor formed from very thin stock and is provided with a base portion 1 which is constructed to securely retain the device within a porcelain facing 2 that may be baked thereupon, and in the present disclosure the sides of the embedded anchoring device are outwardly slanting as at 4 to provide extending portions over which the porcelain is baked, thus preventing withdrawal of the foundational part without a breaking of the porcelain facing. Extending upwardly from the foundational or base portion are a pair of penetrating devices 5 and 6 which preferably are very slightly separated by a space or cut 7 and the upper ends of the penetrating members in the preferred form are slanted as at 8 and 9 in opposite directions thereby forming points 10 and 11 which are adjacent so that when introduced into a small opening in the backing they effectively co-act as a single point to permit the penetrating members to suitably and easily penetrate the said backing, thus facilitating manipulation.

It will be noted by reference to Fig. 1 that the anchoring portion 1 is bonded to the posterior side of the porcelain facing preferably in such manner that the penetrating elements 5 and 6 are in effect substantially separate members.

By reference to Figs. 4 and 6 it will be noted is illustrated the manner in which the penetrating elements may be oppositely turned to effectively secure the facing 2 to a backing 12, of which only a small portion is illustrated.

As has previously been stated, it is the object of our invention to provide a pin formed of relatively flat material wherein the material is conserved in such manner as to secure maximum strength with a minimum amount of metal. We prefer to form our pins of precious metal and therefore the conservation of metal is extremely important. The object of our invention can be effectively carried out in a modified form wherein the major or body portion of the pin is provided with outstanding strengthening ribs. These ribs may be arranged on various parts of the body portion so long as they extend in the direction of the length of the pin to strengthen the same, but preferably the ribs are arranged at the middle of the pin, as is illustrated in Figs. 7 to 10 inclusive, and as there shown, said ribs comprise members 14 and 15. Preferably this form of anchor is relatively short, since the design contemplates a construction wherein the sides of the pin and the top portion of the webs adhere so closely to the opening through the backing that it is not necessary to bend the point to retain the facing in position on the backing 12, while suitable solder as at 16, Fig. 9, is used to permanently secure the pin in position. It is to be noted that in both forms of our invention the device is bilaterally symmetrical and in effect comprises a plurality of inclined members which meet at a common point, and in both cases the penetrating members, or in effect member, are secured to and integral with a single base. It is also to be noted that in both cases our anchor is constructed to be formed from rolled stamped or pressed sheet metal stock which is of considerable importance in the matter of manufacture.

In the second modification of our invention as illustrated in Fig. 11, the ribs at the side of the pin are formed into triangular members 18. This form as well as the other forms may be made from rolled stock or it may be formed by pressing, stamping or swaging the metal.

Having thus described our invention what we claim is:

1. In combination, a porcelain facing, an anchor pin adapted to be used for attaching the facing to a suitable backing, said pin comprising a very thin metallic member provided with a base portion adapted to be baked in the posterior surface of said porcelain facing, a plurality of flat protruding members formed integral with said base portion and arranged in series thereon and extending outwardly from the posterior surface to said porcelain facing, said protruding members being inclined to substantially a single point to facilitate the passage of said members through a suitable backing.

2. As a new article of manufacture, an anchor for an artificial tooth comprising a pin formed of very thin flat metallic stock, a rib forming an integral part of said pin and extending lengthwise thereof, anchoring means on one end of said pin and adapted to be baked in a porcelain tooth, and penetrating means comprising a point formed on the other end of said pin to facilitate the penetration of said pin through a suitable supporting member.

3. As a new article of manufacture, an
anchor for an artificial tooth comprising a pin formed of a very thin rigid flat metallic stock provided on one end with anchoring means adapted to be inclosed in a facing, a plurality of outwardly extending penetrating members adjacentlly arranged, said penetrating members being integral with said anchoring portion, and a point provided upon said penetrating members to facilitate the passage of a suitable backing over said penetrating means.

4. In combination, a porcelain facing, an anchor for said porcelain facing comprising a flat pin located in substantially the longitudinal middle plane of said porcelain facing, said flat pin including an anchoring portion baked within said porcelain facing, and a plurality of penetrating members formed integral with said anchoring portion and extending outwardly from the posterior surface of said porcelain facing, said protruding means being inclined to provide a point located at the middle of the end of the outwardly extending portion to facilitate the easy passage of the backing over said points.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."