

(No Model.)

C. E. FRIEL.
ARTIFICIAL TOOTH.

No. 470,332.

Patented Mar. 8, 1892.

Fig. 1.

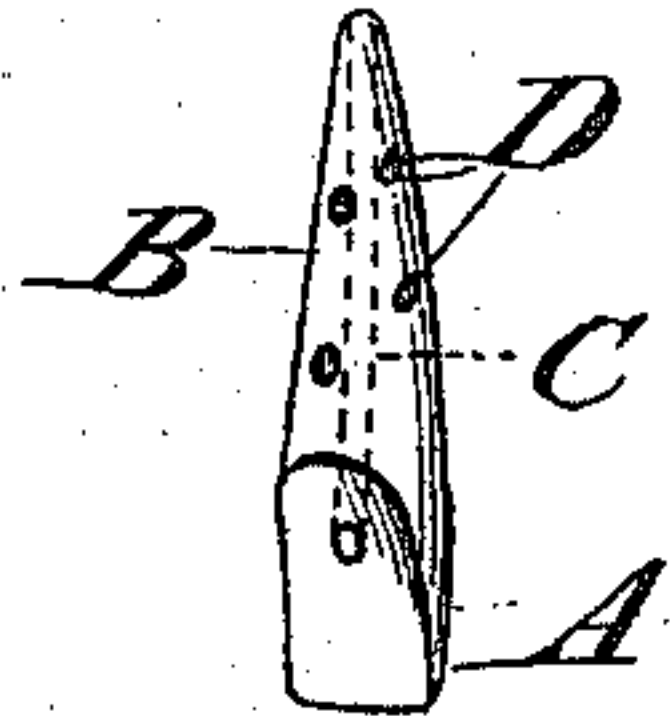


Fig. 2.

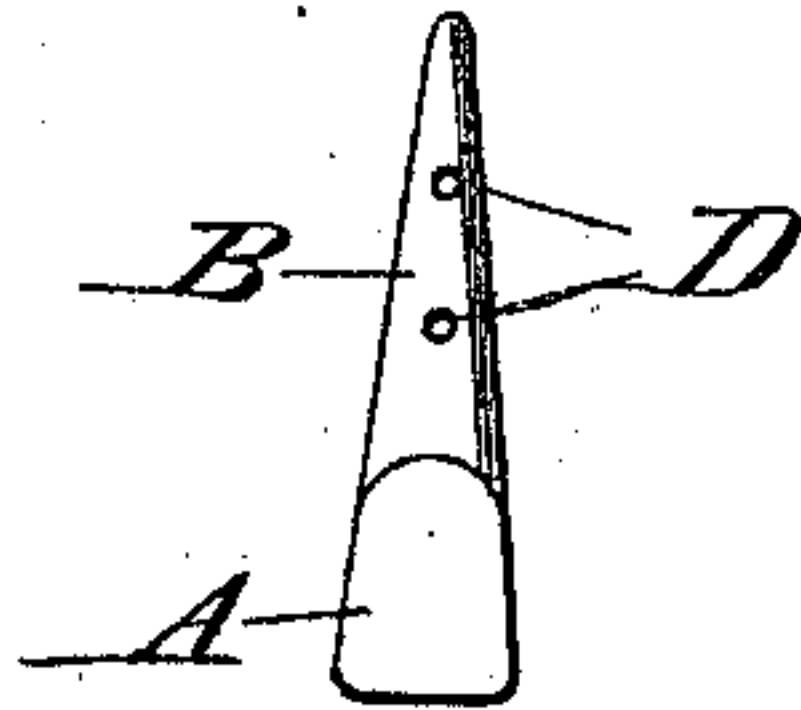


Fig. 3.

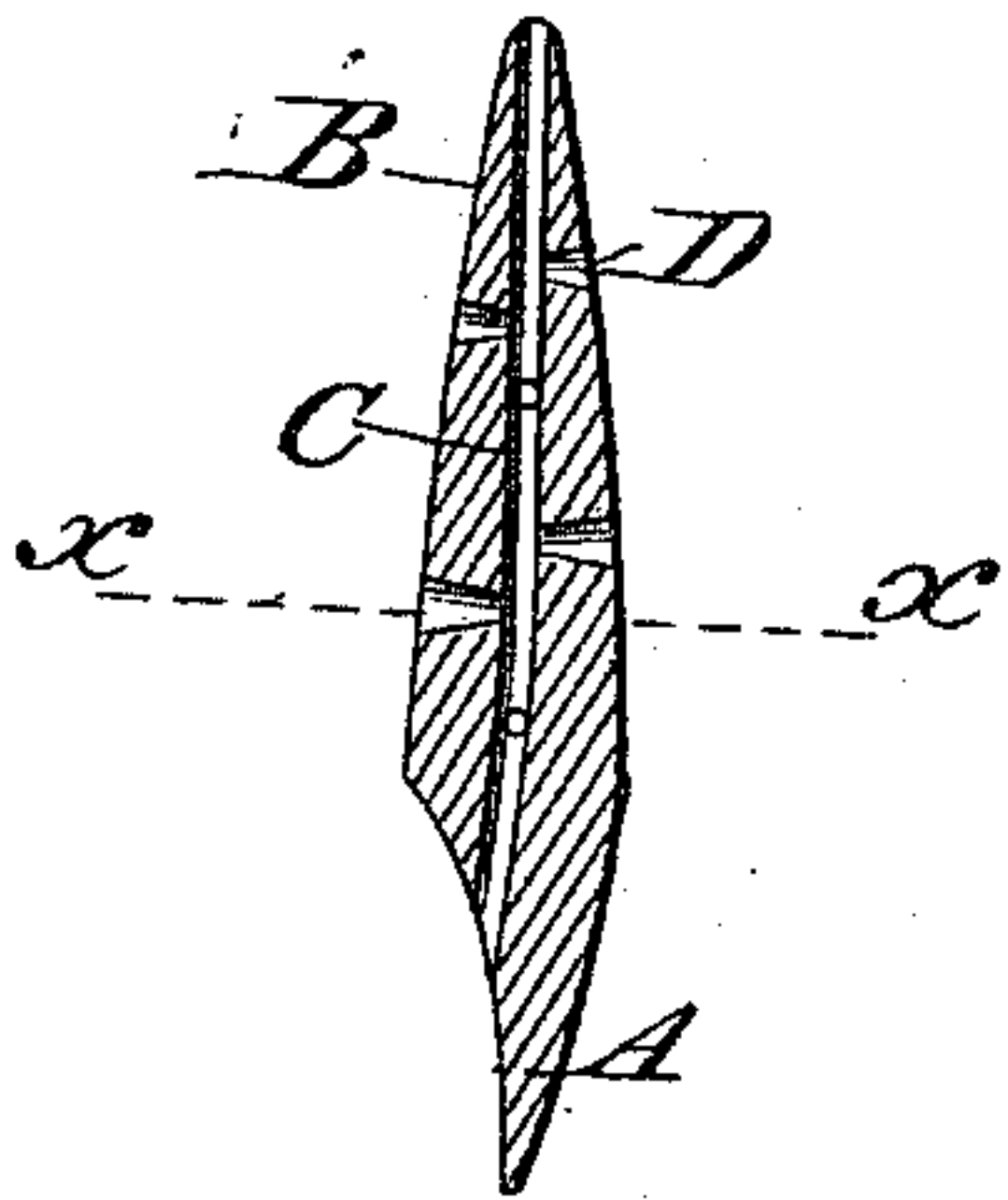


Fig. 4.

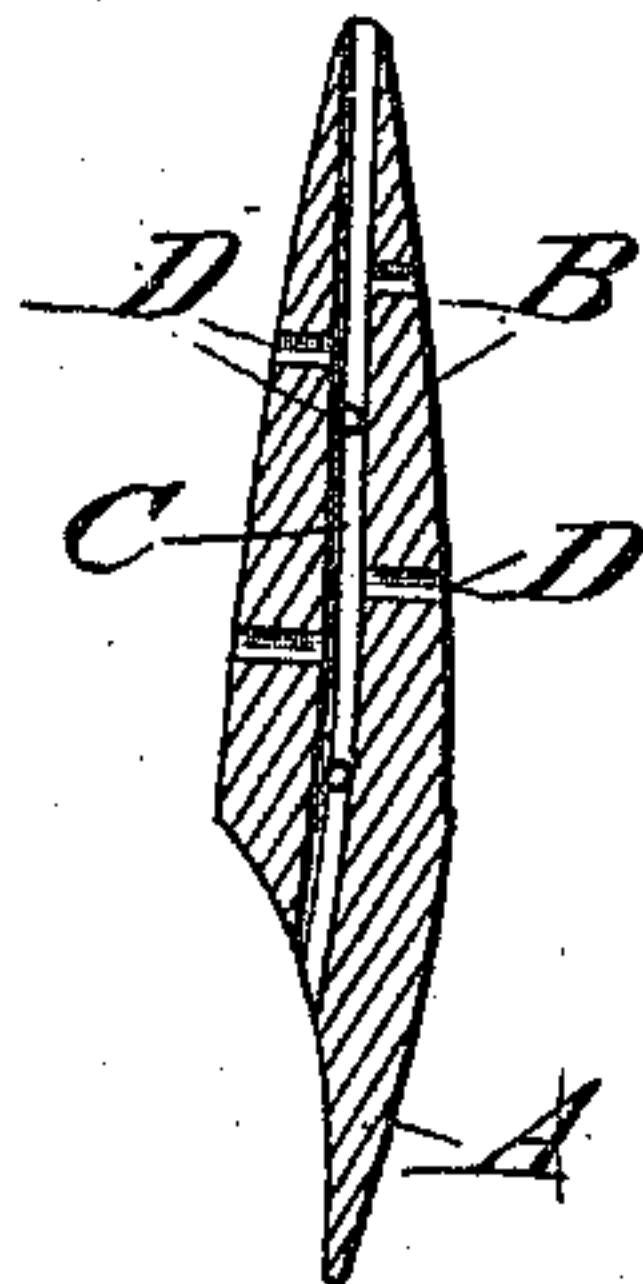


Fig. 5.

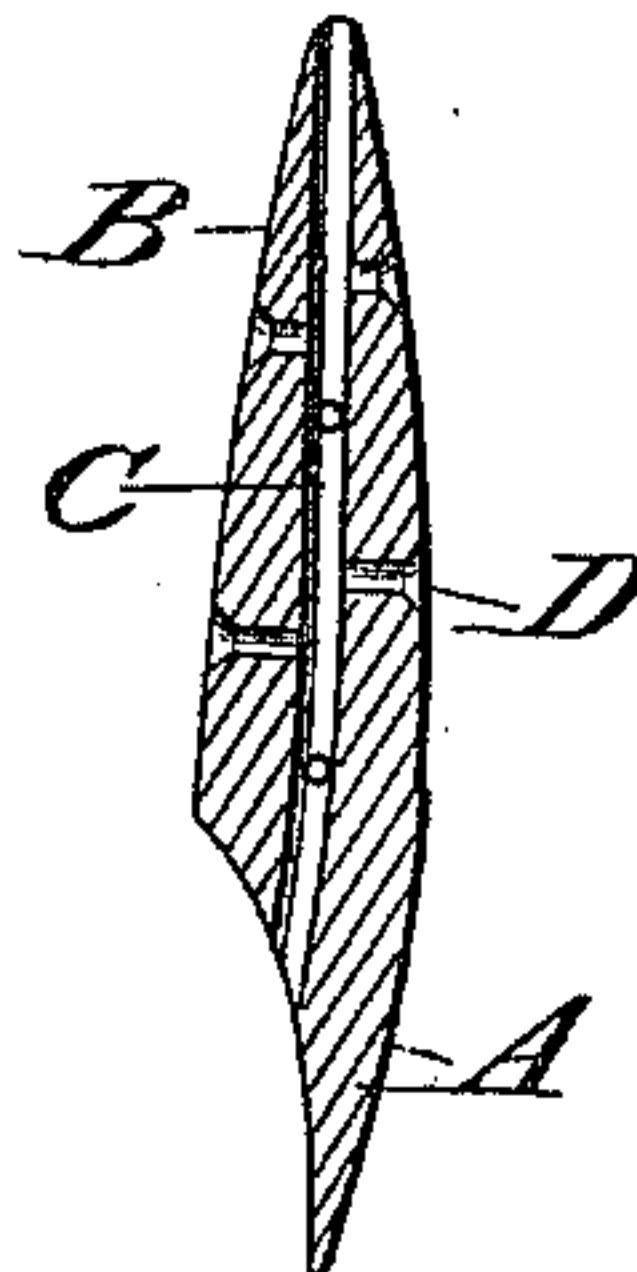
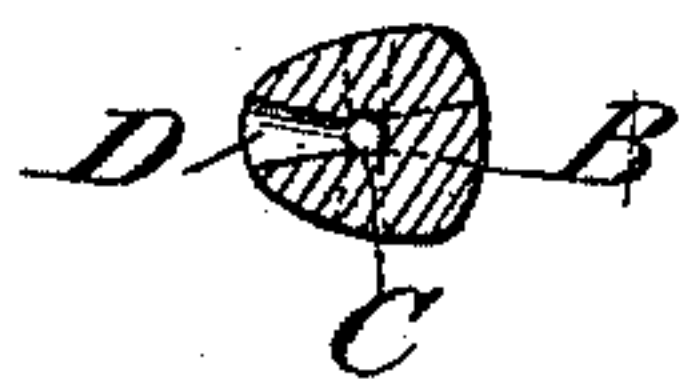


Fig. 6.



Attest:

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES E. FRIEL, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO ALFRED H. GILSON, OF SAME PLACE.

ARTIFICIAL TOOTH.

SPECIFICATION forming part of Letters Patent No. 470,332, dated March 8, 1892.

Application filed January 6, 1892. Serial No. 417,194. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. FRIEL, a citizen of Canada, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Artificial Teeth, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to improvements in artificial teeth of that class that are adapted to be implanted in the jaw on the removal of the natural ones.

It has for its object the production of such a tooth as will, when placed in position on the jaw, by the peculiar construction of its root, tend to become firmly implanted therein.

It also has for its object a construction that is simple, cheap, and at the same time efficient.

The invention consists in forming an artificial tooth of any suitable material and providing the root with a main perforation or channel extending coincident with its longitudinal axis, opening to the exterior of the tooth at both of its ends, and with radial perforations leading from the main perforation or channel, at substantially right angles to the same, to the exterior of the tooth.

It further consists in enlarging the outer openings of the perforations.

The invention also consists in the novel construction and arrangement, such as will be hereinafter more fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a rear elevation of a tooth embodying the invention. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical section through the center of the tooth, showing the perforations tapered. Fig. 4 is a similar view showing the perforations of the same diameter throughout their entire length. Fig. 5 is a similar view showing the perforations countersunk at their exterior openings. Fig. 6 is a horizontal section on the line $x x$ of Fig. 3.

Referring to the drawings by letter, A designates the crown of the tooth, and B the root. Extending through the length of the tooth, coincident with its main axis and somewhat analogous to the nerve-cavity of the natural tooth, the main perforation or channel C extends. In different portions of the root of the tooth the horizontal radial perforations D D lead from the main channel to the exterior of the tooth. These perforations are so situated and distributed that the weakening effect caused by the removal of the material in forming them will be as little as possible. The perforations may be of the same diameter throughout their entire length, as shown in Fig. 4, or they may be countersunk at their exterior openings, as shown in Fig. 5. The preferred form, however, is that shown in Figs. 3 and 6, tapering from their outer openings to their inner ones.

The tooth is manufactured of any material suitable in the premises, as porcelain, platinum, aluminium, ivory, &c., and is given the form of the tooth to be replaced. The tooth can be inserted in the jaw immediately after the extraction of the natural one; or if the wound left by the removal has healed the gum can be removed and an aperture formed in the bone by the proper instruments and in the manner usually adopted in such operations and the tooth inserted in the opening so prepared. As the healing of the bone progresses, the perforations in the root of the tooth will become filled by the deposition of bone. In this way the root finally becomes practically integral with the jaw, the bone entering the several perforations, firmly securing it in place. The main channel or perforation will allow any treatment becoming necessary by the inflammation of the wound. The upper end of the channel is temporarily closed until all danger of inflammation is over. Then it is permanently closed. If the crown should in any way become broken, the remaining root would serve as the foundation of a new crown, the main perforation of the root serving to receive the pivot of the new crown.

The object in having the outer openings of the perforations larger than the diameter of the main portion is to give as large openings as possible to the entrance of the bone formation without weakening the root by making

the perforations with the larger diameter throughout their entire length.

The entrance of a spur of bone formation having a large diameter comparatively for a short distance, and then gradually decreasing in diameter will give substantially the same result, as far as the securing of the root in place is concerned, as it would if it continued the whole length of the perforation with a comparatively large diameter, and thereby avoiding the weakening which might be incurred by the enlargement of the perforation.

Artificial teeth with roots formed of porous material are known to the art. In the manufacture of these teeth much difficulty is experienced in obtaining material possessing the properties necessary to their successful use. They are generally formed of clay, the crown being glazed and the root being left in a porous condition. A tooth so formed is liable to be weak, the porous part not having sufficient stability, and it is customary in consequence to implant in the tooth a metal plate. In the present instance this is overcome, as

the entire tooth can be formed of any of the several materials hereinbefore mentioned which possess the necessary strength.

It might be well to state that teeth constructed in the manner hereinbefore described are also peculiarly adapted to be used in bridge and pier work.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An artificial tooth having its root perforated, substantially as described.

2. An artificial tooth having its root provided with a main perforation coincident with its long axis and radial perforations leading from the main perforation to the exterior of the tooth, substantially as described.

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

CHARLES E. FRIEL.

Witnesses:

ALFRED H. GILSON,

CHARLES A. BRAMAN.