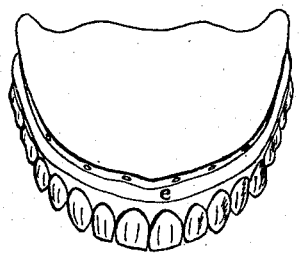
J. T. THORNTON.

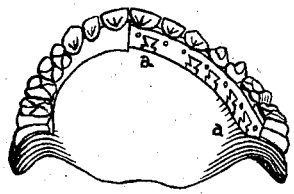
Securing Artificial Teeth on Aluminum Plates.

No. 198,908. Patented Jan. 1, 1878.

Fig, 1.



Fig, 2.



Fig, 3.

WITNESSES

Christian M. Nestell.

Fred T. Spencer.

INVENTOR.

Jonathan T. Thornton

Per Chas. L. Spencer

Atty.

UNITED STATES PATENT OFFICE.

JONATHAN T. THORNTON, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN SECURING ARTIFICIAL TEETH ON ALUMINUM PLATES.

Specification forming part of Letters Patent No. **198,908**, dated January 1, 1878; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, JONATHAN T. THORNTON, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Securing Artificial Teeth on Aluminum Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 represents a front view of an upper set of teeth, showing a band as I attach it to the edge of the plate. Fig. 2 represents a back view of the same, showing upright posts or studs as I secure them to the plate back of the teeth; and Fig. 3 represents the form of post or stud which I have used.

The nature of my invention consists in securing artificial teeth on aluminum plates without the use of solder or any alloy mixture of metals to be cast around the teeth in fastening them on the plate.

In the use of aluminum as a base or plate for artificial teeth, it is a well-known fact that no solder has yet been discovered or made that will adhere firmly to this metal or stand without corroding in the mouth.

I am aware that teeth have been secured on aluminum plates before by the use of a fusible alloy or composition of metals, and I have noticed that in the use of such metallic alloys, when worn in the mouth, the saliva, in connection with the alloy and aluminum, causes a galvanic action, and in a short time the alloy is dissolved or corroded from the aluminum plate, leaving the teeth to drop off or the work to fall to pieces.

Aluminum being a metal that resists the action of acids, with the advantage of being very light, its use as a base for artificial teeth for the mouth is of great value; hence, to secure teeth on plates of this metal in such a manner that they may be firmly attached for their use and wear, and without a liability of corroding off by the action in the mouth, would be of such an advantage as to bring the metal more in general use for this important purpose.

This is the object of my present invention, and I accomplish it by first making posts or studs of aluminum, similar to those represented in the drawings, *a*, Fig. 3. These posts are formed with a head, or dovetailed at one end, the opposite end being made with a tenon and provided with a shoulder for a bearing. They are riveted on the plate to stand upright, the proper distance extending to where the teeth are to be placed, (represented in Fig. 2,) the dovetail end being for the purpose of fastening around in securing the teeth on the plate, as hereinafter described.

These posts may be of different lengths, according to the distance of the pins in the artificial teeth from the aluminum plate as the teeth are fitted thereon.

To the front edge of the plate, and extending around as far back as the last molar tooth on either side of the plate, I rivet a suitable wire strip of aluminum, which is drawn or stretched into shape by burnishing, so that a portion or one edge may correspond with the shape of the plate to which it is riveted, and the opposite edge or portion made to lap a short distance on the front edge of the artificial gum on the teeth, forming a band, *e*, to give strength in holding the teeth on the plate and finish to the work. (Represented in the drawings, Fig. 1.)

Artificial plates or roofs of aluminum are formed by swaging with metallic dies, in the ordinary way. The teeth are fitted and arranged in their proper position, and while thus temporarily held with bees-wax or a cement, the places for the upright posts are marked upon the plate. The teeth being then removed, the holes for the posts are drilled through the plate and countersunk on the under side. I now fasten the posts in their respective places, as represented in Fig. 2. To accomplish this without the springing of the plate, I use a small upset tool or swage, and finish the riveting by spreading the head with a small burnisher.

The front strip or band *e* may now be secured in its place with small rivets made of aluminum wire, the rivets being put through from the under side of the plate, and the plate

laid on the male die upon which it was formed, which holds the rivets in their places while swaging their outer ends. The band *e* may be secured on the plate before the posts *a*, if preferred; but in either way care should be taken not to spring the plate. I next rearrange the teeth and embed my work in a flask with plaster-of-paris.

After the plaster becomes hard I remove the bees-wax or cement from the backs of the teeth, and pack a composition gum or vulcanite rubber around the dovetail posts and the pins in the teeth, so that when the composition gum or rubber is hardened or vulanized by the process already known the teeth are firmly held on the plate by the gum or vulcanite adhering around the dovetail end of the posts *a* and the pin-heads of the teeth, making a strong and durable set of teeth without the use of solder or a fusible alloy of metals to cast around the teeth.

Having thus described my invention and its use, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The posts *a* and band *e*, secured on an aluminum plate, in combination with a composition gum or vulcanite rubber, substantially as set forth, and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JONATHAN T. THORNTON.

Witnesses:
CHAS. L. SPENCER,
LE BARON B. COLT.