UNITED STATES PATENT OFFICE.

ALFRED A. BLANDY, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CASTING PLATES FOR ARTIFICIAL TEETH OF ALLOYS.

Specification forming part of Letters Patent No. **16,784**, dated March 10, 1857; antedated March 3, 1857.

To all whom it may concern:

Be it known that I, ALFRED A. BLANDY, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Casting the Plates of Artificial Teeth, of which the following is a full, clear, and exact description.

In making casts of artificial teeth the utmost exactness and nicety of fit of the plate to the gums are absolutely necessary to the ease and comfort of the wearer. This hitherto has been a matter of serious consideration to the profession, as it involves a vast expenditure of time and labor in the attempt to accomplish it. This arises from the shrinkage of the metal forming the dies between which the plate is swaged, the same difficulty being also experienced in the use of any of the metals suitable from its strength and rigidity to be cast directly into a plate for the teeth. To provide, therefore, a metal suitable from its strength and rigidity to form a dental plate, and which practically will not, on being cast, shrink or expand in solidifying, whereby the perfect counter-conformation and size of the mold are retained, thus insuring an absolute adaptation and fit of the plate to the mouth, is the object of my invention; and it consists in combining in certain proportions, according to the strength and rigidity of the plate required, suitable metals in which the expansive property of the one will counteract the tendency of the others to shrink in cooling after being cast—as, for example, an alloy of this nature may be formed by combining tin, bismuth, antimony, and silver in the following proportions, to wit: tin, ten to twenty parts; bismuth, one to five parts; and silver, one to two parts. To these might be added from five to fifteen parts of cadmium, if an alloy of a still greater strength and rigidity is required, as in cases of partial sets; or for the same purpose an alloy composed of tin, twenty to twenty-four parts; antimony, four to six parts, and silver, two to four parts, may be used. In all these examples the expansive properties of the bismuth and antimony on cooling are used to neutralize the shrinkage on the part of the other metals. These metals—bismuth and antimony—also serve, in conjunction with the silver and cadmium, to give that hardness, strength, and rigidity to the alloy which render it suitable for forming the dental plate, the bismuth also acting in conjunction with the tin and cadmium, when used, to lower its melting-point, great fusibility being an indispensable quality as well in the successful formation of the dental plates by the process of casting as in the repair of accidents and in the correction of mistakes. The plate, when completed, if desired, may be readily and durably coated with pure gold by the process known as "electro-gilding;" but as a general thing the plate, when made of the above-described alloys, will be worn pure, as it is almost devoid of taste, and is not liable to tarnish or corrode by the secretions of the mouth.

From the foregoing it will be apparent that these alloys may be slightly varied in their relative proportions in order to suit the circumstances of the case without departing materially from the principle of my invention; or the metals themselves might be substituted by others, so as to form an alloy possessing the same characteristic properties.

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

Casting the plates of artificial teeth of an alloy, substantially as herein described, suitable for such a purpose from its chemical and physical properties, and that practically will not shrink or expand on solidifying.

In testimony whereof I hereunto set my hand this 11th day of December, 1856.

ALFRED A. BLANDY.

Witnesses:

P. HANNAY,

WM. K. SMITH.