

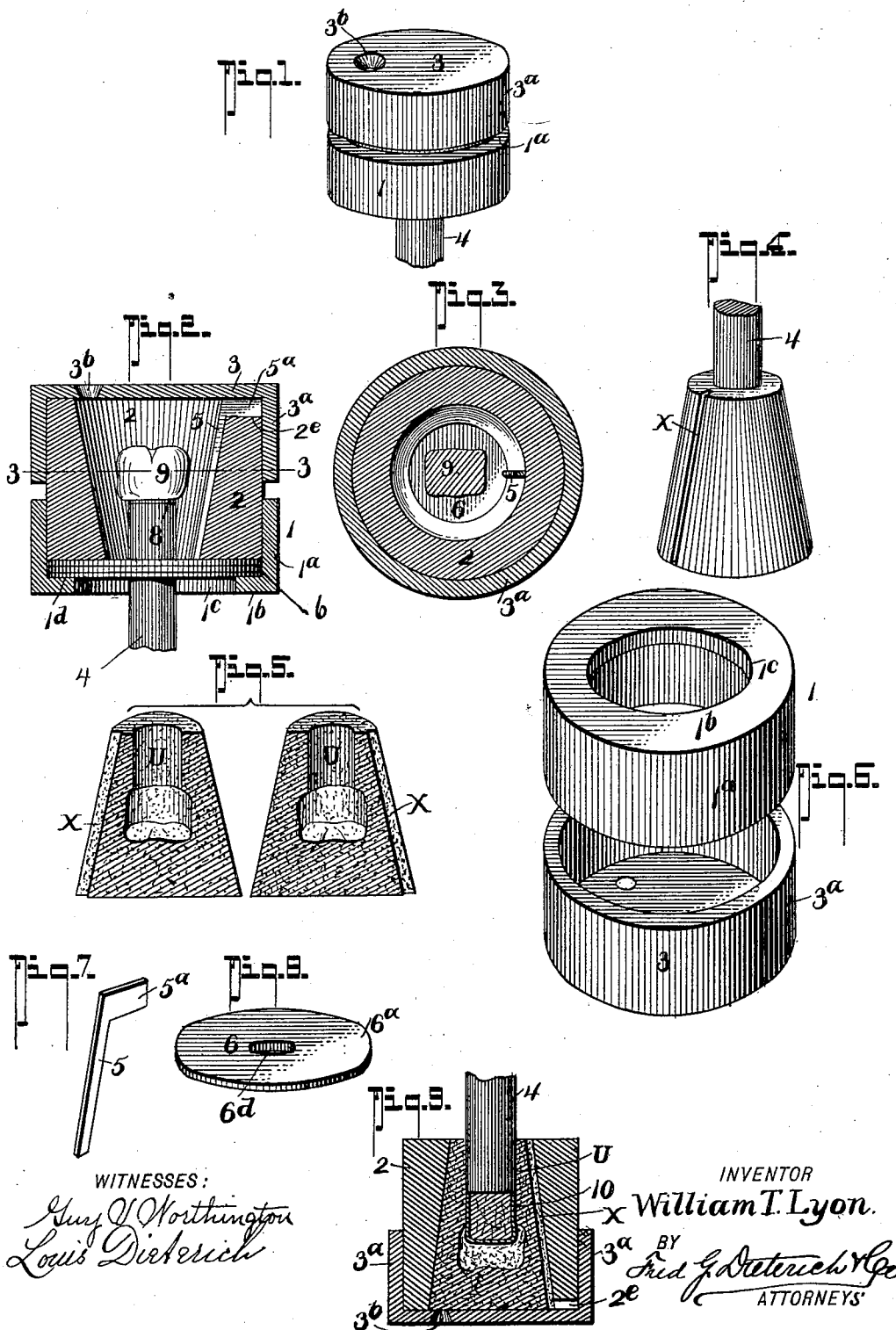
No. 682,098.

Patented Sept. 3, 1901.

W. T. LYON.
DENTAL APPLIANCE.

(Application filed Apr. 17, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

WILLIAM T. LYON, OF OREGON CITY, OREGON.

DENTAL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 682,098, dated September 3, 1901.

Application filed April 17, 1901. Serial No. 56,279. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. LYON, residing at Oregon City, in the county of Clackamas and State of Oregon, have invented a new and Improved Dental Appliance, of which the following is a specification.

This invention is in the nature of an improved means for making the matrix and shaping metal blanks into tooth-crowns; and among its essential objects this invention has for its purpose to provide a means of the character noted of a very simple and inexpensive nature which can be conveniently manipulated by any one familiar with mechanical dentistry and which will effectively serve for its intended purposes.

In its general construction my present invention comprehends a matrix and a crown-forming means including separable members adapted to be conveniently and quickly assembled to provide a matrix-forming chamber and including a split producing member adapted to so fit within the pouring or matrix-forming chamber whereby to finish the matrix into two half-sections capable of being instantly separated, and thereby provide for the ready removal of the tooth-form.

This invention also embodies, in connection with the detachable members that form the sides and bottom of the matrix-forming body, a top member having a single central automatically-adjustable aperture for the different sizes of tamping-pins and a pouring-aperture; and in its complete make-up my invention also consists in certain details of construction and peculiar combination of parts, all of which will be hereinafter described, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the appliance in condition ready to receive the matrix-forming material. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section taken on the line 3 3 of Fig. 2. Fig. 4 is a view illustrating the matrix after it has been formed by my approved appliance. Fig. 5 is a view illustrating the matrix-sections separated and the tooth-form removed. Fig. 6 illustrates the parts hereinafter designated by the numerals 1 and 3 in detail. Fig. 7 is a detail view of the matrix split former 5.

Fig. 8 is a detail view of the top member 6, and Fig. 9 illustrates the several parts constituting my complete appliance reassembled and in position for forming the metallic tooth-crown.

In its practical construction my improved dental appliance comprises a cup-shaped body 3, the sides 3^a of which have a height approximately one-half that of the complete body when all of the parts are assembled, and 1 designates a cylindrical member, the sides 1^a of which oppose the sides 3^a of the member 3. The portion 1^b of the part 1 has a central opening 1^c, the lower edge of which terminates at an internal annular flange 1^d, the purpose of which will presently appear.

2 designates a tubular member adapted to snugly fit within the members 1 3, and the said member 2 has a central opening tapering from the bottom upward, and in the practical assemblage of the several parts its lower end projects below the lower edge of the part 3 when the several parts of the device are arranged as shown in Fig. 2, but does not extend quite low enough to reach the flange 1^d of the part 1.

6 designates a disk which in my form of appliance consists of soft rubber molded in shape and having an annular portion 6^a adapted to extend over the flange 1^d of the part 1 and when in position fills the space between the said flange 1^d and the adjacent end of the member 2. The disk 6 has a central aperture 6^d for the passage of the tamping-pin.

At one end the member 2 has a radial notch 2^e, with which the toe 5^a of a separating member 5 is adapted to engage, the reason of which will presently appear.

8 designates a small piece of gutta-percha or moldine which in practice is placed between the lower end of the tamping-pin 4 and a tooth-form 9. The tooth form or die 9 is made in any suitable or desired manner well known in the art of mechanical dentistry, the same conforming with the size and contour of the complete tooth to which a crown is to be made in metal, said crown when the tooth-stump is capped therewith taking the place of the original or natural tooth.

The manner in which my invention is employed is best explained as follows: The tooth die or form having been made, the tamp-

ing-pin 4 is slid through the center opening in the disk 6, and herein lies one of the characteristic features of my invention, in that the disk 6 being of an elastic material the single central aperture will suffice for the passage through it of different sizes of pins 4, as the said central aperture, by reason of the elasticity of its walls, automatically, as it were, stretching to suit the size of the pin 4.

After the pin 4 has been passed through the member 6 the gutta-percha piece 8 is fitted on the inner end of the pin, which end, prior to the fitting of the piece 8 thereon, is sufficiently heated to cause the piece 8 to adhere thereto, and while yet plastic or warm the said piece 8 is placed against the die or tooth-form and holds it upon the end of the pin 4. While the tooth-form is thus held the disk member 6, with the pin, is placed in position on the body part 1, after which the small end of tubular piece 2 is fitted up against the member 6. The part 3 is then fitted in place and the split or separating member 5 is set up in the matrix-making chamber. The parts being now in proper assembled position, as shown in Fig. 2, the molten metal is then poured through the aperture 3^b into the matrix-forming chamber, which causes the matrix to form about the tooth, about the penetrating end of the pin 4, and also about the member 5, which member, by reason of its position within the matrix-chamber, causes the matrix to form with the external slit or groove X. The matrix having been thus formed, the parts are disassembled, the matrix removed with the pin 4, and the member 6 joined therewith. The matrix is then broken into two sections by placing a knife-blade within the slit or groove X and tapping the blade sufficiently to break the matrix into two pieces. This having been done, the two-part matrix is again placed into position within the member 2, the parts numbered 1 and 6 being now omitted. The thimble 10, formed of metal, preferably gold and of a slightly less diameter than the tamping-pin 4, which is to be used in connection therewith, is then filled with wax, soft rubber, or other expansible material and placed within the aperture U in the matrix made by the pin 4. This having been done, a tamping-pin 4 of suitable diameter is used to hammer the thimble down into position, it being understood that by reason of the said thimble being of less diameter than the pin it will be impossible for the pin to force itself down into the thimble, and in consequence the said thimble will be gradually forced down into the matrix by a percussion or tamping action.

By my form of appliance either anterior or posterior crowns can be made for the lower or upper teeth, it being understood that a new matrix is made for each individual crown.

I am aware that patents have heretofore been granted for devices having for their purpose to effect the same results as my present invention and in which a two-part matrix and tamping-pin devices are embodied. In some of such forms of patents the matrix only comes to the gum-line of the tooth, and therefore it requires in the use of such form of device that a new piece be melted around the thimble previously to forcing it home, such method producing a crease between the two pieces and damaging the crown. By my present appliance this objectionable feature is entirely overcome, as the crown is in one solid piece from the top to the bottom.

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

1. A cylindrical mold, a member cooperating therewith adapted to form a slit or groove on the outer vertical face of the completed matrix, a tooth-form-holding pin, and means for supporting the said pin within the mold, said mold including a top portion having a pouring-aperture, as specified.

2. A dental appliance of the character described, comprising a tooth-form-holding pin, a mold having an opening at one end to receive the tooth-form-holding pin and provided with a pouring-opening, and an elastic disk held over said opening provided with a central aperture for the passage of the pin, as set forth.

3. A dental appliance, comprising a tooth-form-holding pin, a matrix-forming chamber; a member detachably held therein and adapted to form an external dividing groove or slit in the finished matrix, and a detachable cover having a central aperture for the passage of the tooth-form-holding pin, said cover having a pouring-aperture, as described.

4. A dental appliance for the purposes described, comprising a cup-shaped portion 3, a tubular chamber 2, adapted to fit within the portion 3, and having a height extending beyond the portion 3, a cylindrical part 1, adapted to oppose the portion 3, and to project over the part 2, said portion 1 having a central aperture, and an internal annular flange 1^a, a disk 6 formed of elastic material, said disk having a flange portion for engaging the flange 1^a, of the part 1, and provided with a central aperture, a tooth-form-holding pin, adapted to project through the said central aperture, and a groove-forming member 5, adapted to be supported within the part 2, all being arranged substantially as shown and for the purposes described.

WILLIAM T. LYON.

Witnesses:

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A. T. LEWIS.