

J. W. IVORY.
DENTAL INSTRUMENT FOR CROWN OR CAP HOLDING.
APPLICATION FILED FEB. 5, 1909.

979,501.

Patented Dec. 27, 1910.

Fig. 1.

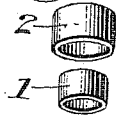


Fig. 3.

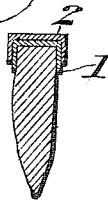


Fig. 2.

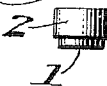


Fig. 9.

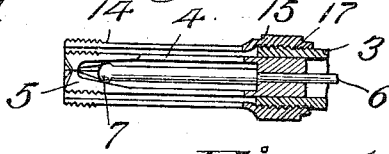


Fig. 4.

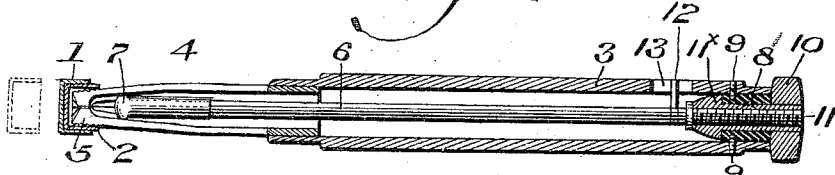


Fig. 5.

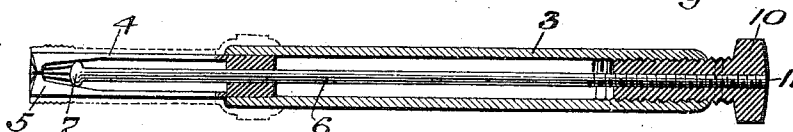


Fig. 6.

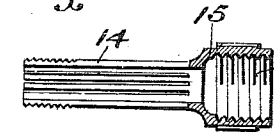
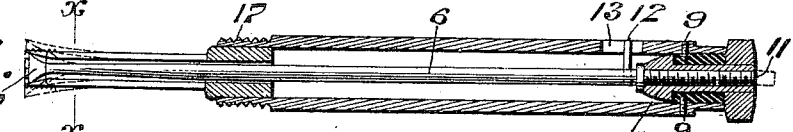
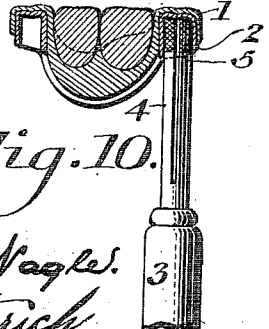


Fig. 7.



Fig. 8.

Fig. 10.



Witnesses

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DENTAL INSTRUMENT FOR CROWN OR CAP HOLDING.

979,501.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed February 5, 1909. Serial No. 476,210.

To all whom it may concern:

Be it known that I, JAMES W. IVORY, a subject of the King of Great Britain, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Dental Instrument for Crown or Cap Holding, of which the following is a specification.

This invention relates to an instrument for dental holding and has for an object, to produce a simple, complete and efficient means for separating a pair of caps used in crown work, whereby the caps may retain the perfect contour of the tooth and after the completion of the crown again be fitted together and correctly position the crown upon the tooth or root of the tooth as the case may be.

It further consists of an instrument provided with means for engaging telescoping caps of various sizes and permitting careful and accurate manipulation and handling of the same.

It further consists of novel details of construction all as will be hereinafter set forth.

Figure 1 represents in perspective the telescoping caps of a tooth crown employed in my invention. Fig. 2 represents a side elevation of the same in telescoped position. Fig. 3 represents a section of the same mounted on a tooth. Fig. 4 represents a longitudinal section of a novel telescoping cap-remover embodying my invention, showing a crown and cap thereon and in dotted lines the crown removed. Figs. 5 and 6 represent longitudinal sections of modifications. Fig. 7 represents a longitudinal section of an auxiliary expanding member. Fig. 8 represents a section on line $x-x$, Fig. 6. Fig. 9 represents a longitudinal section of a portion of the device showing the auxiliary expanding member connected with the handle. Fig. 10 represents a section through the same with a portion of a cap remover in position.

Similar numerals of reference indicate corresponding parts in the figures.

In said drawings, I have shown an embodiment of my invention, which I have found operates successfully in practice, but it will be evident that changes therein may be made and the arrangement thereof may be varied which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact forms as herein shown and described, but

desire to make such changes as may be necessary.

Referring to the drawings:—1 designates a cap adapted to fit over the root or a broken tooth and form a bearing for the accurate adjusting and fitting thereon of a tooth crown. This cap 1 is preferably formed of gold or a like material having malleable qualities in order that the cap may be accurately fitted over the tooth or root and conform readily to the irregular configuration thereof. 2 designates a second cap adapted to fit over and inclose the cap 1, the two caps being proportioned to give a snug fit and allow for the telescoping action. The cap 2 is, in the present instance, formed of a similar material as cap 1, and its function is to serve as a base for the crown proper and slide over and telescope with the cap 1 to form a solid fastening means for the crown.

It will readily be apparent when the two caps have been positioned over a tooth or root and have been pressed to conform to the shape thereof that some care is required to separate them without altering the formed shape. By my novel cap-removing means, I can accomplish this quickly, easily and without damage to the shape of the caps. For the purpose I have devised a novel instrument consisting as here shown, of a cylindrical tubular handle 3 having secured at one end a plurality of expansible members 4, each preferably tapering to a comparatively small jaw 5 here disclosed with a knurled surface. It will be clear if the cap 1 is placed over the jaws 5, and the members 4 forced to an expanded position that the cap 1 will be gripped tightly on the interior and held securely by the roughened surface preventing its withdrawal. In order to expand the members 4 in the proper manner and as desired, I preferably employ a rod 6 having an enlarged head 7 thereon to cooperate with the members 4, and it will be apparent if the rod 6 is passed through the handle 3 and forced into engagement with the members 4 that the head 7 will cause the same to expand in the desired manner. The operating means for the rod 6 consists, in a preferred form, of a bushing 8 detachably secured within the end of the handle 3, here shown as held stationary therein by means of screws 9, the said bushing forming a bearing for a thumb screw 10 adapted to cooperate with the threaded end 11 of rod 6,

whereby the turning movement of the thumb screw 10 produces movement in one direction or the other of the rod 6 according to the direction in which the thumb screw 10 is rotated. In order to prevent a movement of the thumb screw 10 along the rod 6, a head 11* is formed thereon which engages with the bushing 9 and maintains the thumb screw 10 in its correct position. A stop 12 is secured to the rod 6 and projects into an opening 13 of the handle 3 whereby rotary movement of the rod 6 is prevented and it will, of course, be understood that the opening 13 is of sufficient length to permit the necessary longitudinal movement of the expanding rod 6.

In the modification disclosed in Fig. 5, the bushing 8 is dispensed with and the thumb screw 10 is threaded directly into the handle 3, whereby rotation thereof operates to advance the thumb screw into the handle 3 or withdraw it according to direction of movement and consequently move the rod 6 to expanding position owing to its attachment thereto.

In Fig. 6, it will be noted that the rod 6 is somewhat longer than in previous forms, and the head 7 is positioned so as to expand the jaws 5 when the rod 6 is moved into the handle 3 and the threads 11 on the rod are cut with the opposite pitch in order to produce such movement. 14 designates a plurality of expanding members, similar to the members 4, mounted on a hub 15, which is provided with internal screw threads 16, adapted to be passed over the end of the handle 3 which may be, as shown in Fig. 6, provided with threads 17 to receive the same and thus inclose the jaws 4 within an outer cylindrical set of expanding members. This arrangement may be used in cases of very large caps where the expanding members 4 as shown in the previous figures do not expand sufficiently to engage the inner sides of the cap 1.

In the operation of my device, the two caps 1 and 2 are placed over a tooth and worked into the correct configuration, whereupon they are both removed and as one is closely telescoped within the other, the jaws 5 are inserted within the cap 1 and the thumb screw 10 rotated to move the rod 6 with its expanding head 7 into engagement with the members 4, whereupon they are forced outwardly and grip the interior of the cap 1 sufficiently tight to permit the outer cap 2 being readily removed. As soon as they are separated, the cap 1 is placed upon the tooth and the cap 2 then has the crown built around it, after which it may be easily slipped back upon the cap 1 in its correct position and shape.

It has long been the desire of the bridge-worker to have an instrument to separate the inner cap of a telescope crown from its

outer cap without injury to the inner cap itself. The usual method of forcing the caps apart with pliers, a piece of wood, a knife and other instruments is indeed very crude and, in many cases of tight fitting inner caps, causes permanent injury by bending or otherwise mutilating the edge of the cap. Caps of any practical size varying from the smallest, (those made for a lower bicuspid) to the largest, molar telescope crowns, can be removed and tightly held by this instrument without injury. In perfecting this instrument every effort has been made to reduce its size and thus make it convenient to handle.

In order to make this instrument adjustable to all telescope caps, it was found necessary to make an extra attachment for the large telescope caps, although the majority of telescope crowns will range within the adjustment of this instrument without the attachment. The second part, or attachment, can be screwed over the instrument when necessary to remove the inner cap of a large telescope crown and the instrument, with its attachment, will then act on the same principle as a larger instrument, thus saving the expense and annoyance of having two instruments of different sizes.

The adjustable remover and holder is, as its name implies, valuable as a holder for maintaining or holding firmly while adjusting, any size crown, cap or bridge.

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

1. In a device of the character stated, a handle, an expansible jaw at one end thereof adapted to fit into a tooth cap, a rod mounted in said handle and longitudinally movable therein, the end of said rod being adapted for engagement with said expansible jaw, and a separate member rotatably mounted on said handle and in engagement with said rod to longitudinally move said rod when said member is rotated.

2. In a device of the character described, a handle, an expansible jaw at one end thereof adapted to fit into a tooth cap, a rod mounted in said handle and longitudinally movable therein, a head on said rod and a thumb screw at the opposite end of said handle adapted to move said rod to force said head into engagement with said jaw.

3. In a device of the character described, a handle, an expansible jaw carried thereby, an auxiliary expansible member for engagement with said jaw and fit into a tooth cap and means to expand said jaw and auxiliary member.

4. In a device of the character described, a handle, an expansible jaw carried thereby, an auxiliary expansible member detachable on said jaw and adapted to fit into a tooth cap, a rod mounted in said handle, means

to shift said rod, and means on said rod to expand said jaw and auxiliary member.

5 In a device of the character stated, a handle, an expansible jaw at one end thereof, a rod mounted in said handle, and longitudinally movable therein, the end of said rod being adapted for engagement with said
10 said rod to longitudinally move said rod

when said member is rotated, and an auxiliary expansible member adapted for engagement with said device and adapted to receive said expansible jaw, whereby said
15 expansible member is expanded by said expansible jaw.

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Witnesses:

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