H. T. HARPIN.

DENTAL CROWN SLITTER.

APPLICATION FILED JUNE 25, 1915.

1,176,548. Patented Mar. 21, 1916.

Fig. 1.

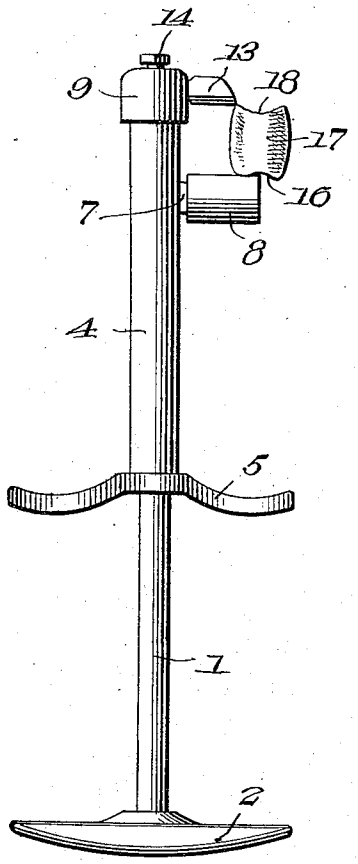


Fig. 2.

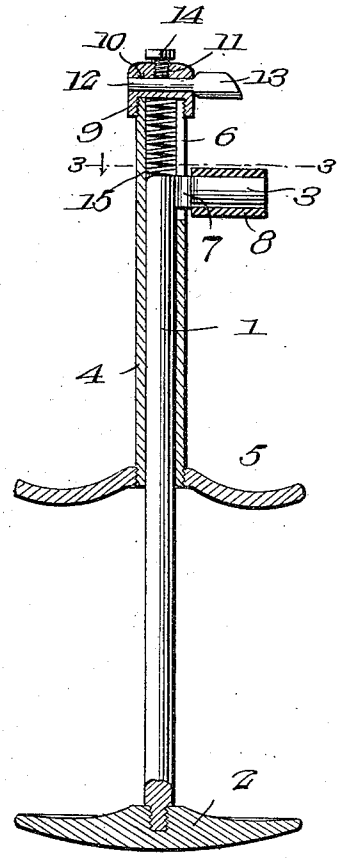


Fig. 3.

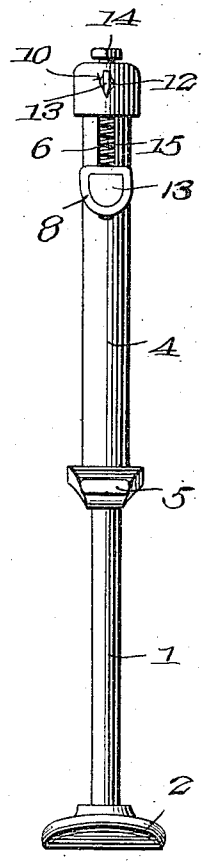
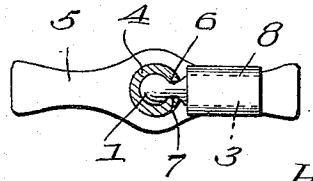


Fig. 4.



Witnesses

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DENTAL-CROWN SLITTER.

1,176,548. Specification of Letters Patent. Patented Mar. 21, 1916.

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To all whom it may concern:

Be it known that I, HENRY T. HARPIN, a citizen of the United States, residing at Windsor, in the county of Windsor and State of Vermont, have invented new and useful Improvements in Dental-Crown Slitters, of which the following is a specification.

My invention relates to a new and improved device for slitting dental crowns for the removal of the same from the teeth to which they are applied, one object of the invention being to provide a device in which the cutting knife operates with a straight longitudinal cut, while the bearing portion of the tool rests solidly against the cusp of the tooth, by means of which the crown may be slit without producing a twisting strain or otherwise causing discomfort to the patient.

A further object of the invention is to provide a crown slitter which will perfectly follow the contour of the crown, which embodies a yielding backing member adapted to protect the biting surface of the crown against injury, and which may be employed with great ease and facility in removing all kinds of crowns, including the slitting of the back or palatal portion of a front or anterior crown, so that such crowns may be repaired and reapplied for use.

The invention consists of the features of construction, combination and arrangement of parts herein fully described and claimed, reference being had to the accompanying drawing in which:—

Figure 1 is a side elevation of my improved dental crown slitter, showing the mode of use of the device in slitting a crown. Fig. 2 is a vertical longitudinal section through the tool taken on a line parallel with the handle of the sliding sleeve. Fig. 3 is a detail cross section on the line 3—3 of Fig. 2. Fig. 4 is a side elevation looking toward the operating side of the instrument.

The device comprises relatively stationary and movable members, the stationary member 1 comprising a rod or stem provided at one end with a hand piece 2 and at the other end with a right angularly extending arm 3, the movable member comprising a tube or sleeve 4 fitted to slide upon said rod or stem and having at one end a handle or finger piece 5 and at its opposite end a longitudinally extending guide slot 6 opening through such end of the sleeve, and through which slot the arm 3 projects laterally at right angles beyond one side of the sleeve. The arm 3, which is provided with side notches 7 to receive and accommodate the walls of the slot 6, forms an abutment or pressure base adapted to bear against the cusp or biting surface of the crown which is to be slit. This abutment member or base is provided with a cushioning or yielding surface in the form of a rubber sleeve 8, which permits considerable pressure to be employed upon the cusp of the crown without liability of distorting or otherwise injuring the same.

The slotted outer end of the sleeve or tube 4 is threaded to receive a closure cap 9, which cap is provided with a transverse slot 10 extending diametrically therethrough and a threaded opening 11 intersecting said slot. The slot 10 is adapted to receive the shank 12 of a cutting knife 13, while the opening 11 receives a set screw 14 whereby the shank of the knife may be clamped or fastened in position. The knife when applied is arranged in line with the abutment or pressure member 3 and projects beyond the same side of the instrument. A coil spring 15 is inclosed within the slotted portion of the sleeve 4 between the cap 9 and adjacent end of the rod or stem 1 and serves to normally hold the abutment or pressure member 3 spaced a normal distance away from the knife 13 so as to admit the crown which is to be slit between them.

In the use of the device, the hand piece 2 is disposed in the palm of the hand while the fingers of the same hand are arranged to grip the finger piece 5, so that by moving the fingers in a direction toward the palm of the hand the sleeve or movable member 4 of the tool may be moved toward the hand piece 2, by which the knife 13 is moved toward the abutment or pressure surface 3. The instrument, while thus held, is then inserted in position and disposed so that the cushioned surface 8 of the abutment 3 bears against the cusp or morsal surface 16 of the crown 17 and the knife 13 is arranged to engage the free edge 18 of the wall of the crown, so that while the abutment 3 is held firmly by pressure on the hand piece 2 against the cusp 16 of the crown 17 the finger piece 5 may be moved outward to run the knife 13 longitudinally of the crown, the knife in such operation being moved against the resistance of the spring 15 and

serving to cleanly sever or slit the wall of the crown along which it is moved. Owing to the fact that this cutting motion of the knife is directly in a plane parallel with the longitudinal axis of the crown, it is evident that no twisting or other objectionable pressures or strains are set up, enabling the crown to be slitted without any pain or even discomfort to the patient. The instrument may then be removed in an obvious manner and the crown detached in the usual way. It will be evident that owing to the yielding or cushioning surface 8 of the bearing or abutment member any suitable pressure may be brought to bear against the crown without distorting the cusp portion, the crown being acted upon in such a way as to preserve its shape and to form an absolutely clean cut slit. As a result, the crown may be readily repaired and used again and its normal bite will be preserved.

It will be evident that the construction of the tool adapts it for use in slitting the posteria or palatal surface of a front or anterior crown with as much ease and facility as in slitting the crown of any other tooth, the advantages of which will be readily understood and appreciated. The parts of the tool may be readily disconnected or disassembled for cleaning and repairs and by the use of interchangeable parts repairs may be readily made. A new knife may also be substituted at any time for a dull or worn one so that the instrument may be kept in primed condition at all times.

I claim:—

1. A dental crown slitter comprising relatively movable members, one mounted to slide upon the other, an abutment surface carried by one member to bear against the cusp of the crown, a knife carried by the other member and movable toward said abutment in a line parallel to the longitudinal axis of the members, a spring for normally holding the members in position to maintain the abutment and knife separated, and means for operating the movable member to move the knife in a direction toward the abutment.

2. A dental crown slitter comprising a relatively fixed member including a rod or stem having a hand piece at one end and a laterally projecting arm at its opposite end, said arm forming an abutment, a relatively movable member comprising a sleeve slidably mounted on said rod or stem, said relatively movable member having a finger piece at one end and provided at its opposite end with a longitudinal slot through which said abutment projects and is longitudinally movable, a knife carried by said sleeve and projecting laterally therefrom in line with said abutment, and a spring disposed in said tube or sleeve and acting upon said members to normally maintain the abutment and knife separated.

3. A dental crown slitter comprising a relatively fixed member including a rod or stem having a hand piece at one end and a laterally projecting arm at its opposite end, said arm forming an abutment, a relatively movable member comprising a sleeve slidably mounted on said rod or stem, said relatively movable member having a finger piece at one end and provided at its opposite end with a longitudinal slot through which said abutment projects and is longitudinally movable, a knife carried by the tube or sleeve and projecting laterally therefrom in line with said abutment, a spring disposed in said tube or sleeve and acting upon said members to normally maintain the abutment and knife separated, and a cushioned surface carried by said abutment.

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

HENRY T. HARPIN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."