J. A. JOHNSON.

PORCELAIN CROWN REMOVER.

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1,177,706.

Patented Apr. 4, 1916.

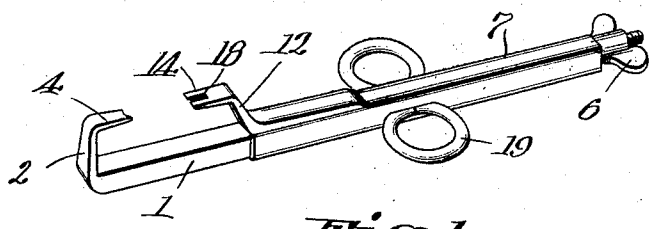


Fig. 1.

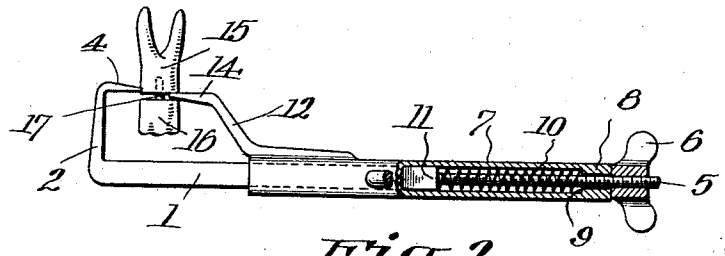


Fig. 2.

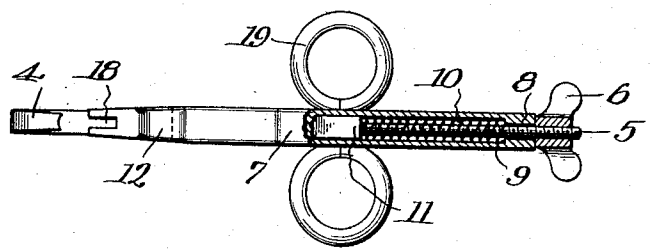


Fig. 3.

Inventor:
John A. Johnson
by George W. Ramsey
Atty.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. JOHNSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO GOLDSMITH BROS. SMELTING & REFINING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PORCELAIN-CROWN REMOVER.

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To all whom it may concern:

Be it known that I, JOHN A. JOHNSON, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Porcelain-Crown Removers, of which the following is a specification.

This invention relates broadly to dental tools, and more particularly to an instrument for removing porcelain crowns.

The principal object of this invention is to provide an instrument for the removal of a porcelain crown which may be desired to be removed from the tooth on which said crown has been permanently set.

A further object of this invention is the production of an instrument of the character specified wherein the porcelain crown is removed by gradually forcing a wedge between the base of the crown and the tooth by means of relative movement between an abutment and a wedge member, both of which are carried upon devices which extend to one side of the tooth being operated upon.

A still further object of the present invention is the production of a porcelain crown remover wherein the operating jaws are carried upon body members which extend substantially parallel and to one side of the zone of operations of said jaws.

A still further object of the present invention is the production of a porcelain crown remover comprising a pair of operating jaws, one of which is wedge shaped, and wherein one of said jaws is carried upon a bar adapted to extend over the crown being operated upon and at substantially right angles thereto.

A still further object of the present invention is the provision in a porcelain crown remover of a pair of jaws, one of which is wedge shaped, and the jaw adapted to engage the lingual side of the tooth being carried upon a member extending at right angles to and over the top of the crown, and the jaw engaging the labial side of the tooth being carried upon a member having slidable engagement with the first mentioned member, and wherein a thumb screw is provided to coöperate with said members to close said jaws.

Other and further objects of the present invention will in part be obvious and will in part be pointed out hereinafter in the specification by reference to the accompanying drawings wherein like parts are represented by like characters throughout the several views thereof.

Figure 1 is a perspective view illustrating one embodiment of my invention. Fig. 2 is an elevational view showing a part broken away and illustrating a different view of the device shown in Fig. 1. Fig. 3 is a plan view illustration of the device shown in Figs. 1 and 2, and showing a portion broken away to illustrate the interior construction.

Crown removers heretofore as common in the art have comprised devices similar in construction to spring tweezers with a pair of inturned jaws at their inner ends and provided with a clamp screw whereby the jaws might be closed. With devices of this kind it is difficult to insert the instrument in the patient's mouth and properly seat the jaws in position to displace the crown. One of the chief reasons for this difficulty is the fact that the body or main portion of the instrument extends substantially in the direction of the axis of the tooth and consequently in line with the correlated tooth in the opposite jaw. Also in this type of crown remover there is more or less deviation of the operating jaws from their normal movement, due to the spring of the tweezer part of the body portion thereby to a certain extent destroying the positive action necessary to loosen the cemented crown from its position on the tooth. Furthermore, removers of this character lack a rigid hand hold which is desirable and substantially necessary to manipulate the instrument to properly and efficiently loosen the crown which is to be removed.

To improve this type of instrument generally and to obviate the foregoing difficulties my invention includes a crown remover wherein the operating jaws are arranged on one side of a rigid body portion which extends substantially parallel to the said jaws whereby the insertion and manipulation of the instrument in the patient's mouth is greatly facilitated. Furthermore, my invention includes a construction in which the jaws are constructed to be positively closed

by endwise movements of rigid parts thus establishing a positive forcible action of the jaws and overcoming the difficulties encountered due to springing of parts under pressure. To further facilitate manipulation and loosening of a cemented crown I prefer to provide the instrument including my invention with finger rings integral with the body portion so that the instrument may be positively and definitely operated.

Referring now more particularly to the drawings the bar 1 is preferably square in cross-section and at its inner end carries a right angle extension 2 on the end of which is a jaw 4 constructed to engage the lingual side of the tooth and which preferably extends substantially parallel to the bar 1. The inner end of the bar 1 is cylindrical and provided with screw threads 5 with which is engaged the thumb nut 6 that bears against the outer end of the square sleeve or tubular member 7. This tubular member 7 has an interior cross-section very slightly larger than the cross-section of the bar 1 so that the bar 1 snugly fits within the tubular member for sliding engagement therewith and the outer end 8 of the tubular member 7 is filled to provide a shoulder 9 to comprise an abutment so that the spring 10 bearing against the shoulder 11 tends to substantially urge the bar inward thus seating the thumb nut 6 firmly against the outer end of the tubular member. The inner end of the tubular member carries an off-set extension 12 on which is mounted a wedge shaped jaw 14 that is adapted to engage the labial side of the tooth at the junction line between the tooth 15 and the porcelain crown 16 thus wedging the crown loose from its position upon the tooth. In order to accommodate the crown pin 17 it is necessary that one of the operating jaws be bifurcated and therefore I have illustrated the jaw 14 as being provided with a slot 18. Since it is desirable that the operating jaws be constructed so that one jaw will pass the other, I have illustrated the jaw 4 as being constructed to pass over the jaw 14. To facilitate manipulation I have provided the tubular member 7 with finger rings 19 rigidly secured thereto, so that these rings may be used as hand holds so that the instrument may be given a rocking motion to make the action of the wedge elements most effective.

Realizing that it is possible to vary the physical embodiments of my invention without departing from the spirit thereof, I desire that the specific construction herein shown and described shall be understood as being illustrative and not in the limiting sense.

Having thus described my invention what I claim is:—

1. In a device of the character described, in combination, a square bar provided with an off-set portion, a jaw on the end of said off-set portion adapted to engage the lingual side of the tooth, a tubular member having a square cross-section opening within which said square bar is adapted to slide endwise, an off-set member carried by said tubular member and provided on its end with a wedge shaped jaw constructed to engage a tooth on the labial side and to separate a cemented porcelain crown from the tooth to which it is anchored, a screw threaded portion upon said square bar, and extending beyond the end of said tubular member, a thumb screw constructed to co-operate with said threaded portion to draw said bar outwardly relative to said tubular member thereby causing said jaws to positively close, a coil spring within said tubular member and bearing against said square bar to constantly exert pressure tending to open said jaws and to seat said thumb screw against said tubular member, and a hand hold formed upon said tubular member to enable said device to be manipulated.

2. In a device of the character described, in combination, a square bar provided on its inner end with an off-set portion, a jaw upon said off-set portion and extending substantially parallel to the axis of said bar, a tubular member having the opening therein square shaped in cross-section and within which said bar is adapted to slide, a jaw mounted upon and off-set from said tubular member and being opposed to the first mentioned jaw, said jaw extending parallel to the axis of the bar, and means to gradually and positively close said jaws.

3. In a device of the character described, in combination, a rigid bar provided with an off-set portion carrying an operating jaw extending parallel to the axis of the bar, a member secured to and mounted to slide relatively to said bar, said member carrying a jaw adapted to be opposed to the first mentioned jaw and also extending parallel to the axis of the bar, and means for gradually and positively moving said bar and said member relative to each other to effect a positive gradual and closing movement of said jaws.

4. In a device of the character described, in combination, a pair of operating jaws, supporting members for said jaws extending to one side of the operating zone of said jaws and parallel to the operative movement of the jaws, and means coöperating with said supporting members to gradually and positively close said jaws.

5. In a porcelain crown remover, in combination, a pair of jaws, one of which is wedge shaped, said wedge shaped jaw being provided with a slotted opening, supporting members for both of said jaws, said supporting members extending to one side of the zone of operations of said jaws and

parallel to the movement of the jaws, a pair of hand-holds secured to one of said supporting members, and a thumb screw for positively closing said jaws.

6. In a porcelain crown remover, in combination, a pair of opposed jaws, one of which is wedge shaped, a pair of sliding members carrying said jaws, said jaws being constructed to permit one jaw to slide over the other, a spring coöperating with the said members and tending to open said jaws, and a thumb nut for positively closing said jaws.

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