

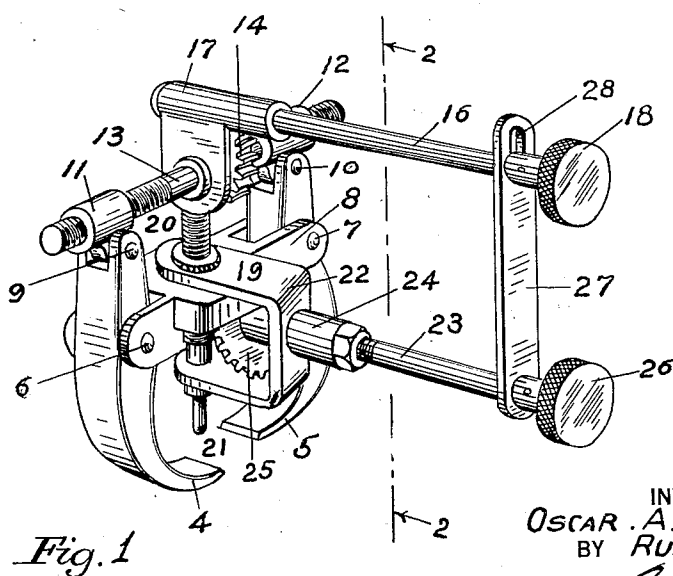
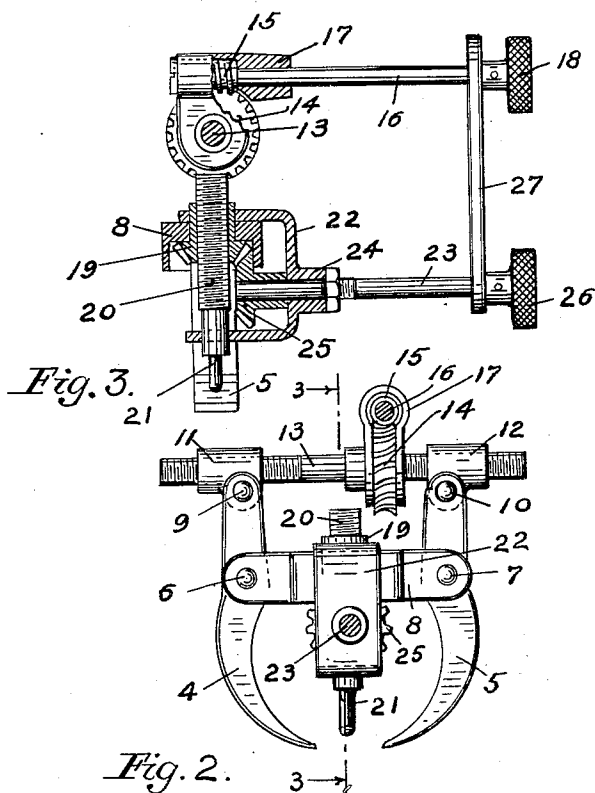
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DENTAL CROWN REMOVER

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DENTAL CROWN REMOVER

Original application filed October 10, 1927, Serial No. 225,298. Divided and this application filed April 28, 1930. Serial No. 447,798.

This invention relates to dental crown removers, and the primary object is to provide means of a novel, efficient, and practical nature for removing gold crowns from teeth without destroying the shape or usefulness of such crowns, so that they may be replaced upon the teeth after the latter have been treated or repaired, as frequently becomes necessary. A further object is to provide a device of this character with extended operating members whereby it may be applied to the crown on a rear molar tooth, and adjusted and controlled from the outside of the patient's mouth. More specifically the object is to provide a unit having a pair of clamping jaws for engagement either against the sides of or under opposite edges of the crown with means adapted to extend to the exterior of the patient's mouth for forcibly opening and closing such jaws, in combination with a vertically operating screw also adapted to be controlled from the exterior of the patient's mouth, and which screw has a pin adapted to be forced downwardly through a small hole that has previously been drilled in the cap of the crown, so that the jaws engaging the crown will move in a vertically opposite direction of the screw pin which engages the end of the tooth, so that the crown may be forced off and away from the tooth. Further and more specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is an enlarged perspective view of the device.

Fig. 2 is a sectional elevation, as seen on the line 2—2 in Fig. 1.

Fig. 3 is a sectional elevation, as seen on the line 3—3 in Fig. 2.

Referring to the drawings more particularly and by reference characters, 4 and 5 designate a pair of clamping jaws, the lower ends of which are so formed that they will grip the crown to be removed, or may be engaged under the lower edges of the crown, if so desired. The jaw members 4 and 5 are pivotally secured, as at 6 and 7 respectively, in the bifurcated ends of a link member 8, and the upper ends of the jaw members are

pivotally secured, as at 9 and 10, to a pair of internally threaded collars 11 and 12. These collars are threaded to receive the opposite ends of a reversely threaded bar or shaft 13, which when rotated will move the collars toward or away from each other, which action imparts the necessary clamping and opening action to the lower ends of the jaws 4 and 5. The shaft 13 has a worm gear 14 that meshes with a worm 15 at one end of a rod 16. The inner end of this rod is journaled in a small casting 17, which also has bearing engagement with the shaft 13, so as to hold the worm 15 in proper engagement with the worm gear 14. The outer end of the rod 16 is provided with a hand piece 18 by which the rod is rotated to operate the gears, and thus impart clamping or spreading action to the jaws 4 and 5.

The central portion of the link 8 forms a housing and journal bearing for a bevel pinion 19, within which is threaded a forcing screw 20 from the lower end of which extends an integral pin 21. A bail or yoke 22 has an upper arm trunnioned upon the shank of the bevel pinion 19, while its lower arm is trunnioned upon the lower end of the forcing screw 20. A rod 23 has bearing engagement with the yoke 22, as at 24, and secured upon the inner end of this rod is a bevel pinion 25 which meshes with the bevel pinion 19. The outer end of the rod 23 has a hand piece 26, by which the rod is rotated to turn the bevel pinions 25 and 19 to move the screw 20 either upwardly or downwardly, it being understood that the screw 20 does not rotate with the pinion 19. The outer ends of the rods 16 and 23 are preferably, though not necessarily, connected by a link bar 27, the upper end of which is provided with a slot 28 to receive the rod 16 so as to permit some play for adjustment, for instance, when the rod 23 is moved from one side to the other, with respect to the rod 16.

From the foregoing description the use and operation of the device are no doubt quite obvious, nevertheless the method of removing a crown with this instrument may be briefly recited as follows:

Before the instrument is brought into use

it is first necessary to drill a hole in the top or cap of the crown to be removed. The instrument is then applied by placing it in such a position that the pin 21 will project into the previously drilled hole and the jaws 4 and 5 are brought into clamping position with respect to the sides of the crown. The hand piece 18 is then turned to rotate the shaft 13, whereupon the necessary clamping pressure is imparted to the jaws. When the crown is properly gripped in this manner the hand piece 26 is turned to rotate the rod 23 and the bevel pinions 25 and 19, which action, as previously stated, will force the screw 20 downwardly, with a result that the pin 21 is brought to bear firmly upon the tooth within the crown, while the jaws 4 and 5 serve their function in forcibly removing the crown.

This application is a division of our co-pending application, Ser. No. 225,298, filed October 10, 1927, for dental crown remover, which application matured into Patent No. 1,756,245.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described our invention, what we claim to be new and desire to protect by Letters Patent is:

1. A dental crown remover comprising a pair of jaws adapted to grip the sides of the crown, a link pivotally connecting the jaws, a tooth engaging screw operating through the link between the jaws, and a pair of shafts extending from the remover, one of which has a worm-screw mechanism for operating the jaws and the other of which has a gear mechanism for operating the screw.

2. A dental crown remover comprising a pair of jaws adapted to engage the crown to be removed, a forcing screw operative between the jaws to engage a tooth covered by the crown, and a pair of rotatable adjuster rods extending from the remover at right angles to the plane of the jaws for manual rotation for respectively actuating the jaws and the forcing screw.

3. A dental crown remover comprising a pair of jaws adapted to grip the sides of the crown, a link pivotally connected at its ends to the jaws, a tooth engaging screw operating through the link between the jaws, and a pair of rotatable shafts extending from the remover, one for operating the jaws and the other for operating the screw.

4. A dental crown remover comprising a pair of jaws, a forcing member operative between the jaws, a link to the opposite ends of which the jaws are mounted, threaded members carried by the jaws, a shaft having reverse threads at its opposite ends for engaging the threaded members, and a worm and screw device for rotating the shaft.

5. A dental crown remover comprising a pair of jaws, a forcing member operative between the jaws, a link to the opposite ends of which the jaws are mounted, threaded members carried by the jaws, a shaft having reverse threads at its opposite ends for engaging the threaded members, and a rod disposed at right angles to the shaft and geared thereto for actuating the same to spread or clamp the jaws with respect to the crown acted upon.

6. A dental crown remover comprising a pair of jaws, a link connecting the jaws intermediate their ends, means for actuating the jaws, a bevel gear journaled in the link, a forcing screw threaded in the gear, and a manually operative second bevel gear meshing with the first mentioned bevel gear.

7. A dental crown remover comprising a link member, a pair of jaws secured to the ends of the link member, means for exerting clamping pressure upon the jaws, a forcing screw mounted in the link member between the jaws, a yoke pivoted to swing on an axis concentric with the screw, an actuator rod journaled in the yoke, and a gear connection between the rod and screw whereby rotation of the rod will move the screw longitudinally.

8. A dental crown remover comprising a link member, a pair of jaws secured to the ends of the link member, means for exerting clamping pressure upon the jaws, a forcing screw mounted in the link member between the jaws, a yoke pivoted to swing on an axis concentric with the screw, an actuator rod journaled in the yoke, a hand piece on the rod for rotating the same, and means for converting rotary movement of the rod into longitudinal movement to the forcing screw.

9. A dental crown remover comprising a link member, a pair of jaws secured to the ends of the link member, means for exerting clamping pressure upon the jaws, a forcing screw mounted in the link member between the jaws, a yoke pivoted to swing on an axis concentric with the screw, an actuator rod journaled in the yoke, a hand piece on the rod for rotating the same, and means for converting rotary movement of the rod into longitudinal movement to the forcing screw, said converting means including a pair of intermeshing gears one of which is mounted on the rod and the other of which has internal threads to receive the forcing screw.

10. A dental crown remover comprising a pair of jaws connected intermediate their ends by a link member, a pair of threaded collars pivotally secured to the jaws, a shaft having reverse threads engaging the collars, means for rotating the shaft, a bevel gear journaled in the link, a forcing screw threaded in the gear, a second bevel gear meshing

with the first mentioned bevel gear, and a rod for rotating the second bevel gear.

11. A dental crown remover comprising a pair of jaws, a forcing screw operative between the jaws, a rod extending from the remover for actuating the jaws, a second rod extending from the remover substantially parallel to the first mentioned rod for actuating the forcing screw, and a link connecting the rods adjacent their outer ends.

12. A dental crown remover comprising a pair of jaws, a forcing screw operative between the jaws, a rod extending from the remover for actuating the jaws, a second rod extending from the remover substantially parallel to the first mentioned rod for actuating the forcing screw, and a link connecting the rods adjacent their outer ends, said link having a slot at one end for adjustably receiving one of the rods.

Signed at Minneapolis, Minnesota, this 23rd day of April, 1930.

OSCAR A. FLAGSTAD.

Signed at Hoffman, Minnesota, this 24th day of April, 1930.

RUEBEN G. LEE.

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