This invention relates to an instrument for use by dentists in removing an impacted mandibular third molar tooth.

6 Heretofore it has been customary in removing an impacted mandibular third molar tooth to cut away that portion of the jaw-bone growing above the impacted tooth by means of a chisel-like instrument adapted to cut downwardly through the bone by pushing downwardly on the instrument with hand pressure or by striking the instrument with a mallet, or by drilling. This procedure is objectionable in that the chisel-like implement has to cut first through the hard portion of the jaw-bone, which renders the operation much more difficult, produces considerable trauma, shock to nervous system, and the use of such instruments is very painful to the patient as well as much more difficult for satisfactory use by the dentist.

10 In the present invention these difficulties have been overcome by the provision of a tool provided with a lateral cutting edge and so shaped with a pointed end, a rearwardly increasing cross-section, and a rounded back edge portion, and arranged that the point of the tool may be inserted at the point of greatest hardness of the jaw-bone and by a rotating or rocking movement of the tool and a slight forward pressure the tool may be manipulated so that the cutting edge of the instrument operates for cutting the bone back of the third molar, or cutting away the hard bony structure overlapping the impacted lower third molar, or cutting the dense bony structure in what is commonly termed the retra-molar triangle.

35 It is important to note that this new instrument of the present invention embodies an entirely new technique and cuts from below with a rotating and undercutting cut, starting in the soft bony structure which is underlying the dense harder bony structure in the retra-molar triangle. It is also emphasized that the instrument of the present invention is not an elevator for prying loose a tooth or portion of tooth, but is a bone cutting tool which cuts with a rotating and undercutting cut. There is always a point of entry back of the second molar where the soft bony structure can be reached, and at which point the tool may be inserted for the commencement of its operation in cutting away the soft bony structure, and when the harder portion of the bone is reached in the upward cutting movement of the tool it may be cut away with much greater facility and less pain to the patient than with the old tools heretofore known, which cut downwardly first through the hard bony portion.

Among the objects of my invention are the accomplishment of the above mentioned advantages, and such other objects, advantages and capabilities as will later more fully appear.

My invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and while I have shown therein preferred embodiments I wish it understood that the same are susceptible of modification and change without departing from the spirit of this invention.

In the drawings—

Fig. 1 is a fragmentary view in side elevation of the inner face of the rear portion of the right-hand side of a human lower jaw showing the 15 three molar teeth, the third or rear one being impacted.

Fig. 2 is a view similar to Fig. 1 of the lower jaw and showing a left-hand tool in position for cutting away that portion of the bony structure above the impacted tooth and on the side of the jaw-bone nearest the eye.

Fig. 3 is a plan view of Fig. 2 showing the left-hand tool in position to start the cutting along the inner side of the impacted tooth.

Fig. 4 is a view similar to Fig. 2, but showing a right-hand tool applied in cutting position for removing that portion of the jaw-bone over the outside portion of the impacted tooth.

Fig. 5 is a view similar to Fig. 3, but showing the cutting tool in position for making a deeper cut along the side of the tooth.

Fig. 6 is a fragmentary side elevation of the cutting end of a left-hand tool of the general type of that shown in Figs. 2, 3 and 5.

Fig. 7 is a sectional view along the line 7—7 of Fig. 1, and showing a left-hand tool in cross-section in position for cutting away the softer portion of the bone over and alongside the impacted tooth.

Fig. 8 is a view similar to Fig. 7, but showing a greater portion of the bone being cut away and to a depth permitting the impacted tooth to be straightened up.

Fig. 9 is a perspective view looking down at an angle upon Fig. 1, and showing a right-hand cutting tool in cutting position and with a greater portion of the bone cut away than in Fig. 4.

Fig. 10 is a view similar to Fig. 9, but showing a left-hand tool in cutting position and with a greater portion of the bone cut away than in Figs. 3 and 5.

Fig. 11 is a transverse section through the cutting blade of one of the instruments of the present invention.
Fig. 12 is a perspective view of a different form of cutting tool for use in cutting away bone at places where this particular angle is required. Fig. 13 is a perspective view of a tool similar to that shown in Fig. 12, but with the cutting blade reversed. In other words, one of these is a right-hand tool and the other is a left-hand tool.

Referring more in detail to the drawings, the impacted third molar is shown at 1 in an approximate horizontal position in the jaw-bone 2. The second molar is shown at 5, and the first molar at 6. As is understood, however, the third molar may be impacted against the second molar in any of various positions, the substantially horizontal position as shown in Fig. 1 being merely selected for illustrative purposes.

The cutting instrument forming the present invention is for cutting away the bone above the impacted tooth to permit the latter to be straightened up sufficiently that it may be pulled out of the jaw-bone. Fig. 2 shows a left-hand tool which has just been started into cutting position, the cutting not having as yet proceeded very far. A plan view of this tool is also shown in Fig. 3, in which the cut is just being started.

As will be understood, these tools will be both right-hand and left-hand in construction to permit operation of the cutting edge on one side or the other of the tooth as required. Figs. 2, 3 and 5 show left-hand tools, while Fig. 4 shows a right-hand tool in operative position. Reference to Fig. 11 will show the general cross-sectional contour of my improved instrument, the blade of which comprises a sharpened cutting edge 5 and a rounded rear portion 6, which latter serves as a fulcrum upon which the instrument may be given a rotary movement to effect an undermining cut, as will be readily understood from an inspection of Figs. 7 and 8. In other words, the converging upper and lower faces 7 and 8 respectively, provide a thin cutting edge 5, the axis of which (indicated by the line a—a of Fig. 11) is at an angle to the axis of the rounded rear edge 6 (indicated by line b—b of Fig. 11), whereby the convexed lower face and the rear edge provide bearing portions for the blade in such manner as to rotatively support it upon the jaw-bone during the cutting operations performed by said cutting edge. The upper face 7 (see Fig. 11) of the blade is slightly concaved to facilitate the cutting action of the cutting edge 5, while the lower face 8 of the blade is convex to cooperate when necessary with the curved rear edge 6. It will be observed that the lower face 8 is rounded at its rear portion, and that its front portion is inclined toward the cutting edge 5. As seen in Fig. 6 the point of the tool is sharpened as at 8 to facilitate starting of the tool into cutting position between the overlying bone and the impacted tooth. The Shank portion 10 of the tool may be of any required angularity such as to accommodate the particular use of the tool, such as for a left-hand tool or a right-hand tool, or for cutting in some particular angular position.

That portion of the jaw-bone growing next to the tooth is softer and more spongy than the exterior surface of the jaw bone. This is illustrated in Figs. 7 and 8, from which figures it is shown how the cutting blade of my improved tool cuts away the softer inner portion of the bone first, after which the harder exterior shell may be more easily cut through. The handle of the instrument is so manipulated that the cutting blade is given a rotating or rocking motion, the curved rear portion 5 of the blade having a rolling contact with the impacted tooth, and the cutting blade cutting upwardly with an undermining cut. This rocking cutting action of the blade enables it to be advanced along the impacted tooth as the bone structure is cut away until sufficient of the jaw-bone has been cut away from above and at the sides of the impacted tooth to permit its being sufficiently straightened to enable pulling of the same.

It is also of importance to keep in mind that my improved tool is a cutting tool for cutting away portions of the jaw-bone rather than being merely a lever for prying the tooth loose. In the use of my improved tool sufficient of the jaw-bone is cut away to enable removal of the impacted tooth, and this cutting away is effected by the cutting blade 5 during the rocking movement given to the blade about the rounded inner portion 6. With the use of this tool any need for hammer blows upon a chisel tool, or a downwardly pushing movement of a chisel tool, is entirely eliminated, and the patient not only spared much pain, but the efficiency of the work is very greatly increased and the time required for removal of the impacted tooth considerably lessened.

Having now described my invention, I claim:
1. A dental instrument for cutting away the jaw-bone from an impacted tooth comprising a handle portion and a blade portion, said blade portion having a pointed end and a thickened curved rear edge, a transversely convex bottom face and a transversely concaved top face, said top and bottom faces meeting to provide a thin front cutting edge, the axis of which lies at an angle to the axis of said thickened rear edge, whereby the convexed lower face and the thickened rear edge provide bearing portions for the blade in such manner as to rotatively support it upon the jaw-bone during the operations of said cutting edge.
2. A dental instrument for cutting away the jaw-bone from above an impacted tooth comprising a handle portion and a blade carried thereby, said blade having a rear longitudinal edge of substantial thickness and rounded, a bottom face of generally bulging formation and a top face, said top and bottom faces meeting to provide a thin front edge, the axis of which lies at an angle to the axis of said rounded rear edge, whereby said rounded lower face provide bearing portions for the blade in such manner as to rotatively support it upon the jaw-bone during the operations of said cutting edge.
3. A dental instrument for cutting away the jaw-bone from above an impacted tooth comprising a handle portion and a blade carried thereby, said blade having a longitudinally disposed rear edge of substantial thickness and curved to provide a bearing surface, said blade having a top face and also having a bottom portion so contoured that the blade gradually decreases in thickness from the curved rear edge laterally to the front and joining the top face in such manner as to provide a front cutting edge, the axis of which lies at an angle to the axis of the thickened rear edge, whereby the lower face and the rear edge provide bearing portions for the blade in such manner as to rotatively support it upon the jaw-bone during operations of the cutting edge, said cutting edge being laterally opposite the axis of rotation of the blade.
4. A dental instrument for cutting away the jaw-bone from above an impacted tooth comprising a handle portion and a blade carried thereby, said blade having a longitudinally disposed rear edge of substantial thickness and curved to provide a bearing surface, said blade having a top face and also having a bottom portion so contoured that the blade gradually decreases in thickness from the curved rear edge laterally to the front and joining the top face in such manner as to provide a front cutting edge, the axis of which lies at an angle to the axis of the thickened rear edge, whereby the lower face and the rear edge provide bearing portions for the blade in such manner as to rotatively support it upon the jaw-bone during operations of the cutting edge, said cutting edge being laterally opposite the axis of rotation of the blade.
prising a handle and a blade carried thereby, said blade having a longitudinally disposed rear edge of substantial thickness and rounded to form a bearing surface, a front cutting edge, said edges being connected by a bottom surface of convex contour, the blade in lateral cross section decreasing in thickness from the thickened rear edge to the front cutting edge, said edges being so related that an imaginary line bisecting the internal angle of the cutting edge falls below the longitudinal center of the thickest portion of the blade while the blade is held in a substantially horizontal flatwise position with the cutting edge placed to cut with an upward turning movement, said blade having its forward end pointed, said cutting edge, said rounded rear edge and said pointed end being so constructed and arranged that said lower face and the read edge constitute bearing portions for the blade so as to rotatively support it upon the jaw-bone during operations of said cutting edge, the blade being so constructed and arranged that its pointed end may be inserted between the impacted tooth and the jaw-bone in such manner that an axial turning movement imparted to the blade will cause said cutting edge to remove portions of the jaw-bone with undermining cuts while the rounded rear edge has a rocking contact with the impacted tooth.

5. A dental instrument for cutting away the jaw-bone from above an impacted tooth comprising a handle, a Shank and a bone-cutting blade of approximately spear shape carried by said Shank, said blade having a longitudinally disposed front cutting edge, a rounded longitudinally disposed rear edge, an upper concave face and a bottom face having a rounded portion which merges at one side into said rounded edge and which meets the top face at the other side to form the cutting edge, the axis of said cutting edge lying at an angle to the axis of the rounded rear edge whereby the bottom face and the rear edge provide bearing portions for rotatively supporting the blade during turning movements thereof, so that the cutting edge will cut the jaw-bone upwardly from below with an undermining cutting action.

6. A dental instrument for cutting away the jaw-bone from above an impacted tooth comprising a handle and blade carried thereby, said blade having a thin sharpened cutting edge, a longitudinally disposed rear edge formed with a laterally rounded portion, a concave upper face and a convexed under face, said upper and lower faces converging laterally and meeting to provide said cutting edge, said cutting edge and said rounded edge converging to provide a pointed end, the axis of said cutting edge lying at an angle to the axis of the thickened rear edge, whereby said bottom face and said rear edge provide bearing portions for the blade to rotate support it upon the jaw-bone during operations by the cutting edge, said blade being so constructed and arranged that while the pointed end is inserted between the impacted tooth and the jaw-bone an axial rotative motion may be imparted thereto, so as to move the cutting edge away from the jaw-bone upwardly from below with an undermining cutting action, the concaved upper face being so related to the cutting edge as to permit the escape of bone particles as they are cut away from the jaw-bone.

7. The method of preparing an impacted tooth for extraction which consists in cutting away portions of the jaw bone adjacent to the impacted tooth by undermining rotational cuts which are continued until sufficient jaw bone has been removed from around the tooth to permit lifting and extraction of said tooth.

8. The method of preparing an impacted tooth for extraction which consists in cutting away portions of the jaw bone at a location adjacent to the impacted tooth by a series of gradually advancing axially rotative undermining cuts until sufficient jaw bone has been removed from around the tooth to permit lifting and extraction of said tooth.

9. The method of preparing an impacted tooth for extraction which consists in cutting away portions of the jaw bone adjacent to one side of the impacted tooth by undermining rotational cuts, and then cutting away other portions of the jaw bone adjacent said tooth but on the opposite side thereof by undermining rotational cuts in the opposite direction, the respective rotational cuts being continued until sufficient jaw bone has been removed from around the tooth to permit lifting and extraction of the tooth.

10. The method of preparing an impacted tooth for extraction which consists in first cutting away the soft bony structure on one side of and partially above the impacted tooth by undermining rotational cuts, then cutting away the soft bony structure on the other side of and above the tooth by undermining rotational cuts in the opposite direction, then cutting away the harder cortical layer of the jaw bone in a similar manner until sufficient jaw bone has been removed from around the tooth to permit lifting and extraction thereof.

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