

CHAPTER XXVII.

THE EXTRACTION OF TEETH.

Indications for Extraction.—1. Teeth, or roots of teeth, which have lost their vitality, and which have become so much loosened as to be agents of offence and injury to surrounding parts.

2. Posterior teeth which, from absence of antagonizing teeth, are rising from their alveoli, and, through the displacement, have become a source of pain or inconvenience.

3. Teeth having fungoid excrescences growing from the pulp-cavity, not responding happily to curatives.

4. Teeth having associated with them incurable abscesses, threatening complications.

5. Teeth, particularly the premolars, so crowded and wedged into the arch as to contribute to undue lateral pressure.

6. Posterior teeth inferred to contain nodules of osteo-dentine, being themselves painful, or involved with sympathetic neuralgia.

7. Teeth recognized as associated with antral disease.

8. Teeth which are worn down to the pulp-cavities, or so close upon the gums as to render mastication painful, and where periodontal irritability renders the application of artificial crowns objectionable.

9. Teeth so badly affected by caries—being painful or offensive—as to afford no prospect of usefulness.

10. All roots of teeth about which the gums are congested and debased.

11. All roots which are sources of unrelievable pain or discomfort.

12. All roots in which badly putrescent decay is progressing.

The removal of a tooth is an easy or difficult matter according as the principle involved in the operation is clearly or obscurely appreciated. In the adult mouth there are thirty-two teeth, and these, as the study of their extraction is concerned, are comprehended under six classes.

The first of these classes embraces the eight central and lateral incisors, teeth with cone-like roots, and accommodated in alveoli representing hollow cones.

The second class embraces the cuspidati, represented by the partly flattened cone.

The third class embraces the bicuspidati, represented by the flattened cone.

The fourth class embraces the superior first and second molars, teeth having three roots,—two external cone roots, situated antero-posteriorly, with the interspaces looking toward the cheek, and the third, generally a flattened root, looking toward the palatine arch.

FIG. 264.—PERMANENT TEETH OF UPPER JAW.

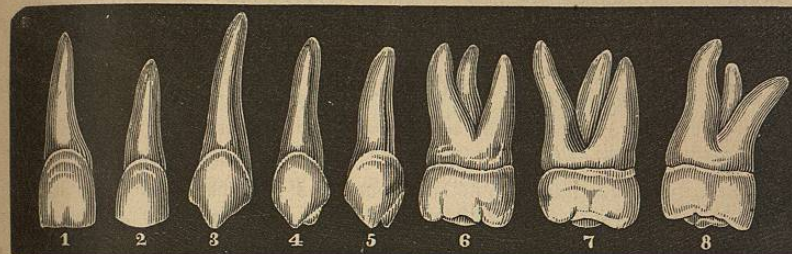
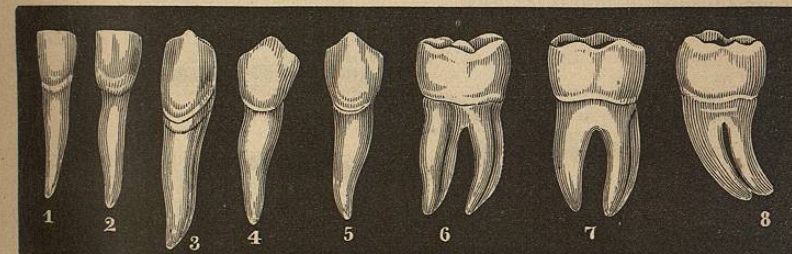


FIG. 265.—PERMANENT TEETH OF LOWER JAW.



Figs. 264, 265, DIAGRAM OF TEETH.—1, 2, incisors; 3, 4, 5, bicuspidati, or small molars; 6, 7, 8, large molars, or grinders.

The fifth class embraces the inferior first and second molars, teeth having two roots, one looking anteriorly, the other posteriorly; the interspace looking outward and inward.

The sixth class embraces the four wisdom-teeth. These are single-rooted as a rule, with a curve looking backward.

To extract a tooth of the first class, the application of the force is required in a twofold direction, rotary, and downward or upward, as the case may be.

To extract a tooth of the second class, the force is required in a threefold direction, downward or upward, lateral, and rotary.

To extract a tooth of the third class, upward or downward, and lateral, or inward and outward, as one loosens a nail.

To extract a tooth of the fourth class, the same application of the force; one-half of such a tooth is, however, to be extracted at a time,—that is, we first break the attachment of either the inner or outer roots, and feeling these yield, the force is instantly brought to bear upon the other. In extracting teeth of this class after such manner, much care is necessary in guarding against

a too great extent of lateral motion; otherwise the roots, instead of yielding, will be found to break, thus complicating matters very seriously.

Teeth of the fifth class require the lateral and direct application of the force; they are to be gently rocked inward and outward until felt to yield, when they are at once to be lifted from their sockets.

Teeth of the sixth class are to be carried backward and upward, or downward, in the line of the axis of their single curved root. Such applications will make easy an extraction which might otherwise be attended with much risk.

INSTRUMENTS.

Instruments are now made in consideration of the anatomical peculiarities of the teeth for which they are intended. The better class are nickel-plated, to insure against rust, and are of such temper, as the character of the steel is concerned, that they will retain the outline and sharpness of blades through much service. No forceps but those of this quality are worthy of purchase. We now describe, together with manner of use, such as have most commended themselves.

FIG. 266.—UPPER INCISOR.

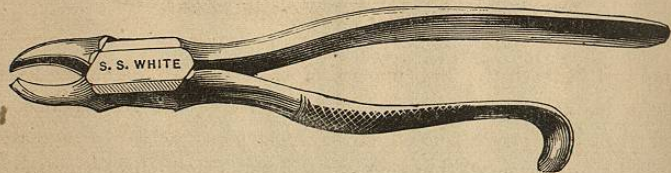


FIG. 267.—UPPER LATERAL INCISOR.

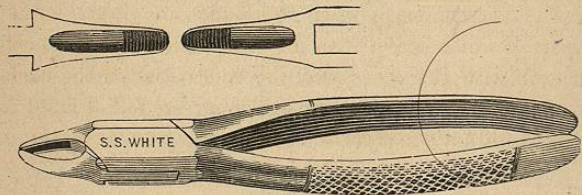
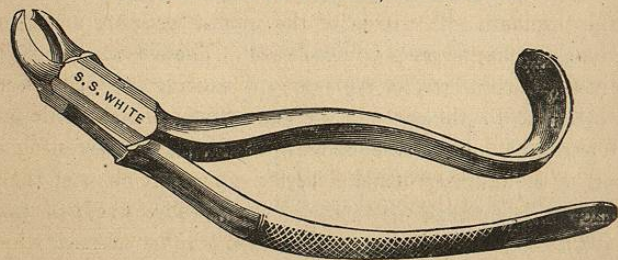


FIG. 268.—LOWER INCISOR, HAWK-BILL.



Figs. 266 to 270 represent forceps designed for the extraction of the incisor teeth. Referring to Figs. 264, 265, Nos. 1 and 2, or, what is practi-

cally much better, examining the organs themselves, the reader will perceive that these teeth fully represent, as has been stated, double cones, the bases

FIG. 269.—LOWER INCISOR AND BICUSPID FOR EITHER SIDE.

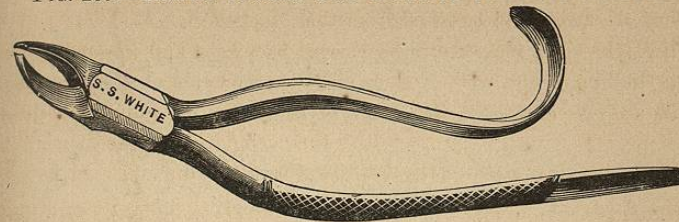
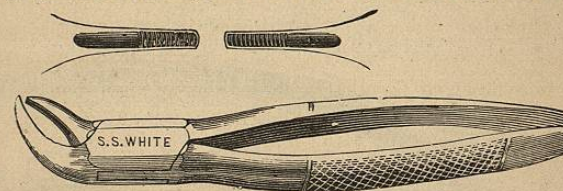


FIG. 270.—HAWK-BILL, LOWER INCISOR, AND CROWDED TEETH.



abutting just beneath the free margin of the gum. To secure a fixed, unyielding hold of a body so shaped, it would strike the intelligence of any operator that the forceps should be so constructed as to accommodate the width of the base, yet at the same time grasp firmly the retreating cones. Turning here the examination to the forceps, these indications are found fully met. The fenestra, made when the blades are closed, forms an ellipse, the widest part of which agrees with the base of the teeth. The apices correspond so in form with the cones, and the concavities of the blades so adapt themselves, that, applying the instruments, they are found fitted to the teeth with the nicest accuracy; indeed, as suited to the purpose, nothing seems left to desire.

Fig. 266, upper incisor, is a straight forceps, designed for the superior incisors, and which, where the under jaw is well withdrawn, answers very well for the cuspidati. The roots of the incisor teeth are understood to be rounded cones, having corresponding alveoli. These teeth are, perhaps, the most easily extracted of any in the jaws. Thrusting the blades well beyond the neck of the tooth, the curve in the handle receiving the little finger, and looking toward the body of the patient, having the head resting either in the support of the ordinary dental chair, or against the chest of the operator, whose left arm is to be thrown around it to secure fixedness (and which position applies to all the upper teeth), a force is to be exerted, which, while drawing downward, rotates or twists the organ from its socket. If, however, the resistance prove too great for a single twist,—which, in heavy jaws, is almost certain to be the case,—then the motion is to be reversed, the direction

of the twist being alternated until the tooth is felt to yield, when, without further effort, it may be drawn from its socket.

Fig. 267 represents a forceps designed for the upper lateral incisors. The ellipse is seen to differ a trifle from that of the preceding instrument; this adapts it to a corresponding difference in the tooth. It differs principally, however, in having the blades made narrower. The application of this forceps is precisely the same as that employed in the case of the central.

Figs. 268 to 274 represent forceps, all of which are found adapted to the inferior incisors, central and lateral, to the cuspidati, and the bicuspidati.

When extracting these teeth, the operator may stand either in front of his patient, or (a position more commonly preferred) he may seat the patient upon a low chair, leaning over his head, or over the right or left shoulder, as found most convenient.

FIG. 271.—UPPER AND LOWER ROOT, HALF CURVED.

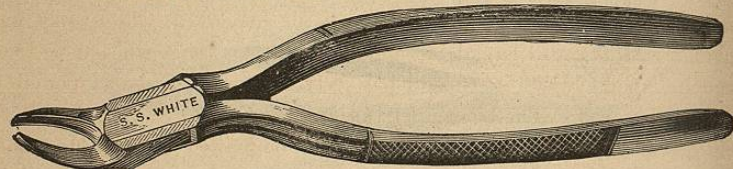


FIG. 272.—LOWER ROOT, FULL CURVED.

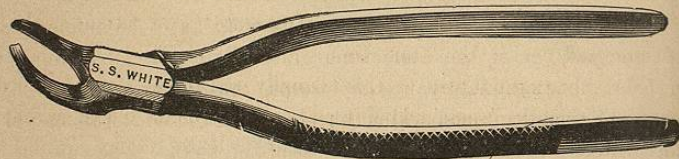


FIG. 273.—UPPER AND LOWER BICUSPID, HALF CURVED.

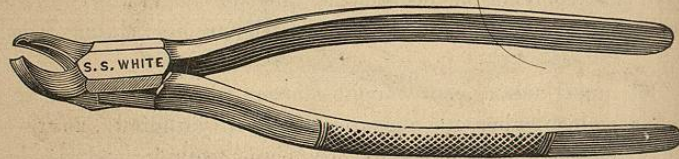


FIG. 274.—UPPER BACK ROOT (universal).

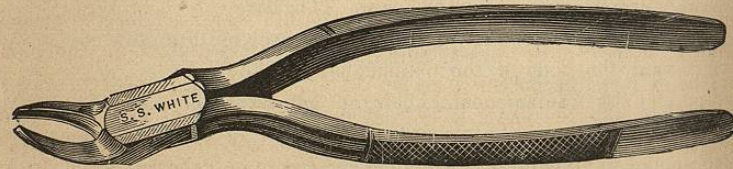
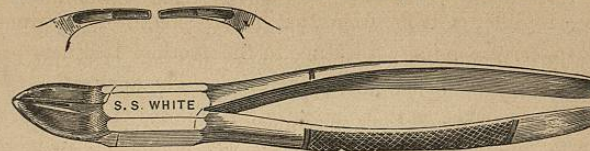


Fig. 274 is a forceps particularly adapted to the extraction of the inferior incisor teeth. Grasping the tooth by forcing the blades as far down as possible, keeping them confined closely to the organ, that thus they may be directed

between the tooth and its alveolus, the rounded root of the central may generally with much ease be broken from its attachments by an upward and

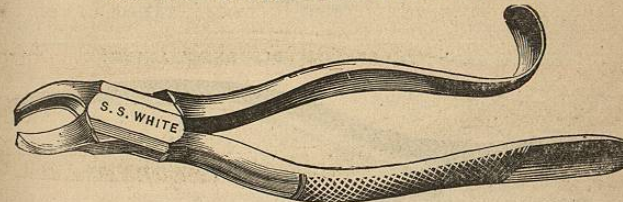
FIG. 275.—HALF CURVED, NARROW BEAK, FOR CROWDED TEETH.



rotary movement. If, however, with a very reasonable exertion of force so applied it is not felt to yield, the strain is not to be increased to a risk of breaking the tooth, but a lateral motion inward and outward may be tried, or this conjoined with the rotary. This root being sometimes considerably flattened, makes such lateral motion necessary. If very narrow or crowded, the forceps represented by Fig. 275 may be used. In removing the inferior lateral incisors the rotary movement is to be employed, which may have combined with it slight lateral motion, although this latter will not be found of much import, unless in exceptional cases, where the roots happen to be markedly flattened. The bicuspidati all have flat roots, and, so far as the conditions of extraction are concerned, are to be viewed as possessing but a single root. These teeth are removed just as a nail is worked from a board into which it has been loosely driven,—a motion inward and outward quickly breaking the attachment. The position of operator and patient is the same as just suggested.

Fig. 276 designates a forceps adapted equally well to the ten anterior upper teeth. It may justly be termed a faultless instrument. The writer cer-

FIG. 276.—UPPER BICUSPID AND CANINE.



tainly gives it the preference over all that he has seen used for the purposes intended: indeed, he inclines to think that with it any tooth in the mouth could be extracted in an emergency. Applying this instrument to any one of these ten anterior teeth, it is seen to be possessed of most satisfactory adaptation, the curve in the blades and handles clearing the lower lip to an extent affording the greatest freedom in motion, while the support curve in the handle prevents the possibility of change in the grasp.

The root of a cuspidatus is perhaps the most firmly fixed in its alveolus of

all the teeth of the jaw. Occupying as it does the position of a keystone to an arch, to extract it requires both strength and skill. In shape, the root is found to be a partly rounded, partly flattened cone; its alveolus, of course, corresponds. In length it is greater than the adjoining teeth,—in many instances to the extent of a third,—and, while generally straight, is yet frequently to be met with having an apex curved at varying angles, such curvature, however, being confined to the extreme end. To extract this tooth, the organ is grasped by working the blades of the forceps as much below the edge of the process as possible, and, while a firm compressing force is maintained, the tooth is gradually rotated, and also worked inward and outward. If, after a moment, it should be felt to yield, and yet, while moving with more or less freedom in its socket, seem to be held by some attachment, the operator is to cease his efforts, that he may satisfy himself that the loosening resides not in a fractured alveolar process nor in a retaining flap of gum. If neither of these complications exists, he may again seize the tooth, and, understanding that the retention depends on curvature of the fang, attempt to get it away by finding, through various movements, the direction which affords the least resistance: this discovered, the organ is to be worked out even at the risk of fracturing the curved apex. No tooth requires to be more thoroughly and deeply lanced than the canine.

FIG. 277.—UPPER BICUSPID AND INCISOR.

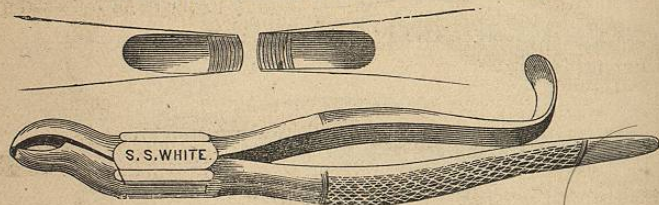
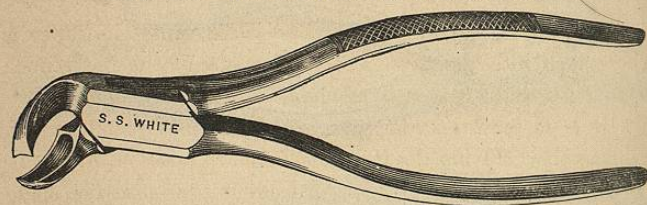


FIG. 278.—LOWER BICUSPID AND CANINE.



Figs. 277 to 279, are instruments devised by different operators for the extraction of the bicuspidati and cuspidati. These forceps are remarked to vary considerably in shape. Fig. 279 is one found to have most frequent application, being useful alike in the superior and the inferior jaw. Unless it is designed to furnish a case with all the numbers, this may with most satisfaction be selected. Fig. 280 is an excellent instrument, particularly

applicable to the lower jaw when the teeth are set well back and the commissure is small and unyielding.

FIG. 279.—LOWER BICUSPID, SAFETY.

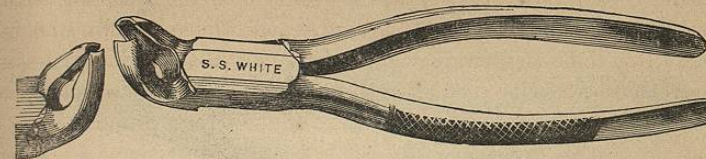
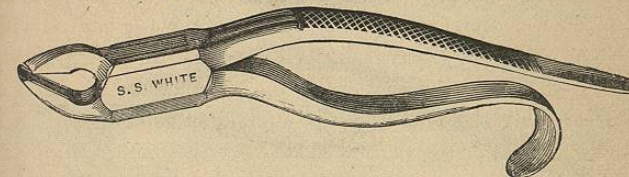
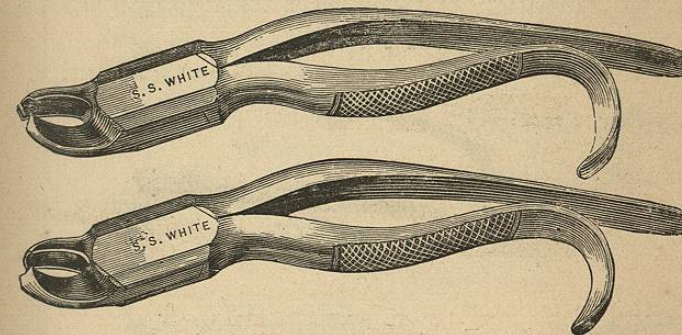


FIG. 280.—UPPER BICUSPID, SAFETY.



Figs. 281 to 283 represent forceps designed for the extraction of the superior molar teeth. On examining the blades of any of these instruments,

FIG. 281.—UPPER MOLAR, RIGHT AND LEFT (HARRIS'S).

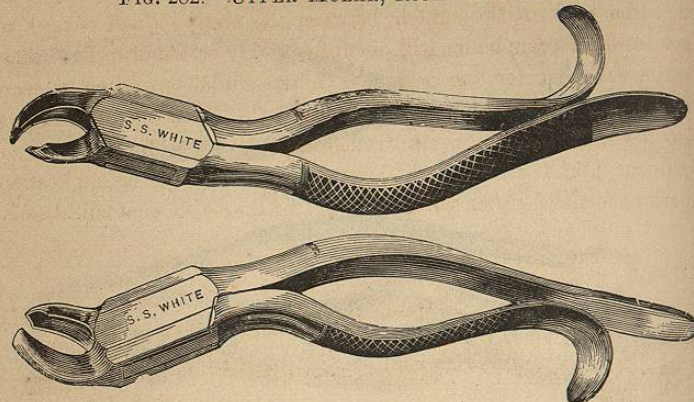


the outer will be seen to run to a nib at its centre, while the inner is plain. These correspond with the anatomical indications of the teeth upon which they are to be used, as is seen by glancing at Figs. 264, 265, Nos. 6 and 7. To apply these forceps, the triangular blade must correspond with the outer face of the tooth. Having the instrument well in position, which, it will be recognized, places the point of the outer blade in the interspace made by the bifurcation of the buccal roots, and the concave plain inner blade against the palatine root, the force is to be so applied as to break the attachments at separate motions; this is easily accomplished by the process of rocking the tooth outward and inward. Lateral movement is not to be great, that fracture be avoided. The position of operator and patient is as before designated for other upper teeth.

It is not always the case, however, that these teeth are found as represented

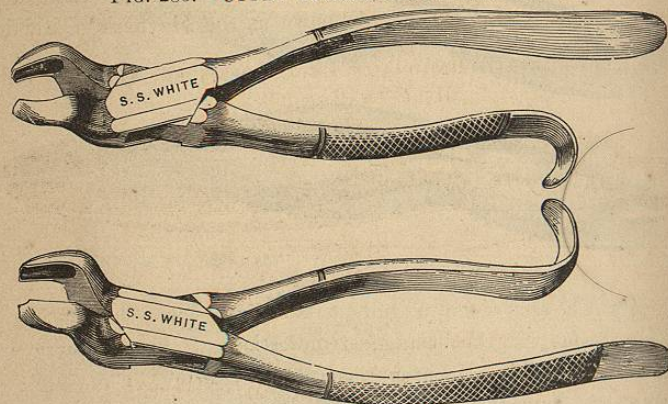
in the drawing. Sometimes as many as five roots exist, and these so diverging as to render the removal of all of them, without fracture, a very difficult

FIG. 282.—UPPER MOLAR, RIGHT AND LEFT.



matter, perhaps indeed impossible, particularly if the jaw be heavy and the alveolar process dense. At other times it will be seen that the roots have commingled, forming an irregular conical fang. This latter condition facilitates, of course, extraction. Another condition not infrequently met with is a

FIG. 283.—UPPER MOLAR, RIGHT AND LEFT.



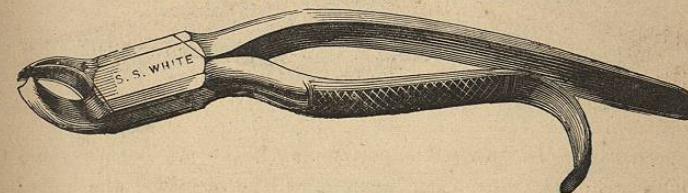
convergence of the apices of the roots, these so grasping the inclosed process that, in the coming away of the tooth, either the fangs must spring to such extent as to permit the passage, or this piece of bone must come away with it.

Again, it is sometimes seen that a molar tooth—although this is much more common to the bicuspidati—stands to the inside of the arch, being wedged, as it were, out of its place. Here the rocking motion is necessarily modified. The tooth is first, with gentle yet steady force, to be carried inward, then back to the point of departure. This is to be repeated until the attachments are broken. Cases also present, but they are very rare, where a

tooth desired to be removed is more or less overlaid by its fellows. Here it will most likely be necessary to resort to the use of the file, or recourse may be had to wedging away the opponent teeth by means of slips of india-rubber worked, while held on the stretch, between the teeth. Such wedges, after being retained for a few hours, will not infrequently be found to have secured room quite sufficient for the passage. Where undue crowding is seen to depend on approximal caries of the tooth to be extracted, it will be all-sufficient to chisel away the part intruded upon.

Instrument Fig. 284 is of such construction as permits its application to the superior molars of either side. It is not, of course, an anatomical forceps,

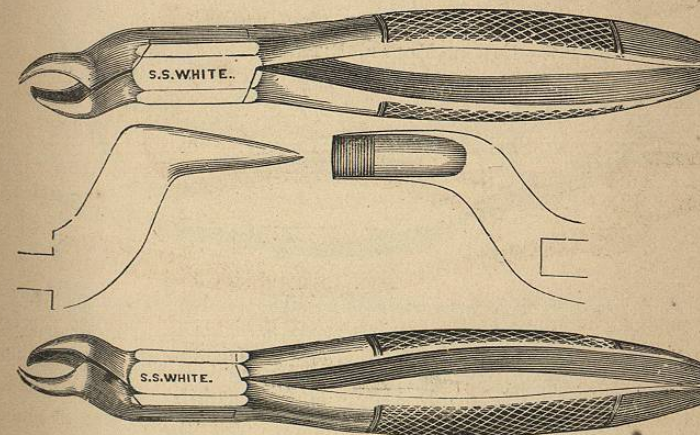
FIG. 284.—UPPER MOLAR, FOR EITHER SIDE.



but when the teeth to be extracted are solid and resistive as to structure it answers its end tolerably well. It is not, however, to be commended.

Fig. 285. These are instruments, in pairs, designed for the extraction of the superior molar teeth. They are known as the Maynard, or cow-horn.

FIG. 285.—UPPER MOLAR, RIGHT AND LEFT, COW-HORN, WITH OR WITHOUT HOOK ON HANDLE.



Than these forceps, it would seem that none could be devised meeting more happily the anatomical requirements of Class IV.

The outer beak, horn-shaped, is designed to enter the interspace between the buccal roots; the inner—flat, square of blade, and grooved—adapts itself accurately and firmly to the palatine fang.

To apply these forceps, the operator stands to the right of his patient, precisely as in the case of teeth of the first three classes, the left arm passing around the head, the fingers of the left hand holding the lip out of place. In using the Maynard forceps, care must be taken to thrust the point of the horn directly into the interspace, otherwise the operator would have no hold on the tooth; this being in position, the flat blade is carried along the palatine fang as high as possible. A few rocks of the tooth inward and outward, combined with a direct force in the line of its long axis, and it will be found to give way.

Fig. 286 is an instrument of similar construction, differing, however, in an arrangement of blade-curve which permits of its application to the teeth of either side.

FIG. 286.—UPPER MOLAR, COW-HORN, EITHER SIDE.

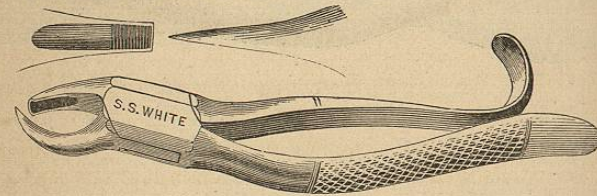
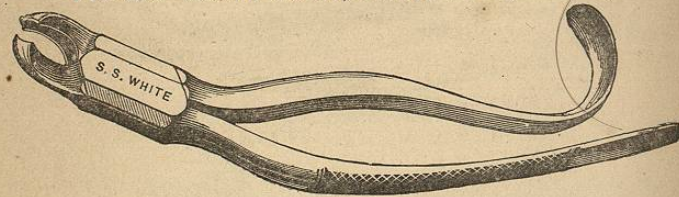


Fig. 287 is a forceps intended for the lower molars and the dentes sapientiæ of either side. The molars of the inferior jaw are two-rooted (see Figs. 264, 265), with the interspace looking outward and inward. Examining the instrument, it is seen that the blades terminate in sharp, central nibs, the design of

FIG. 287.—LOWER MOLAR, EITHER SIDE (HARRIS'S).



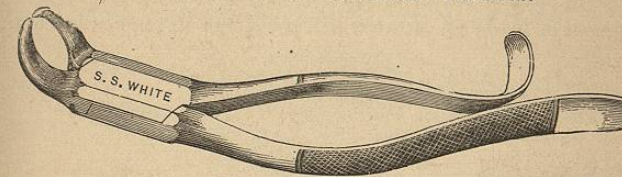
such points being to fit as accurately as possible the depressions made by the division. When the crown of a tooth is strong and resisting, or where a loose process permits of a hold which carries the nibs well into the interspace, this instrument is to be used most satisfactorily. Where, however, the crown is much decayed, and consequently frail, the cow-horn forceps, next to be described, are found better adapted.

The wisdom-teeth of the lower jaw have the single curved root corresponding with the upper, bending here toward the rami of the jaw. Instrument Fig. 287 allows of the proper application of the force demanded for their extraction; they are to be lifted upward and backward. Wisdom-teeth

crowded under the rami, and thereby unable properly to erupt, not infrequently become the occasion of grave lesions. (For instances of such complication, together with mode of treatment, see *Alveolar Abscess*.)

Fig. 288 is the lower cow-horn forceps. This instrument, designed to be used in the extraction of the lower molars, is one of the most effective in the collection. To employ it, care is taken so to apply the points that the closure of the handle forces them into the interspace. Referring to Fig. 265, this interspace is seen to correspond with the exact centre of the buccal and

FIG. 288.—LOWER COW-HORN FORCEPS.



lingual faces of the tooth, and, examining its relation with the alveolar process, it is seen to be on a level with the border. When the blades of the instrument are in position, it will be recognized that the points are to occupy this interspace; thus the pressure is exerted from below, and not at all upon the walls of the crown, affording, in this respect, such advantage that extent of decay or brittleness amounts to very little. The lifting power and leverage of this forceps are of such character that it frequently happens that the

FIG. 289.—LOWER MOLAR, COW-HORN, RIGHT SIDE.

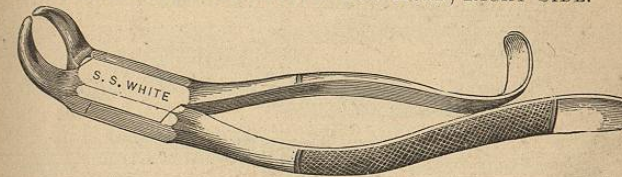
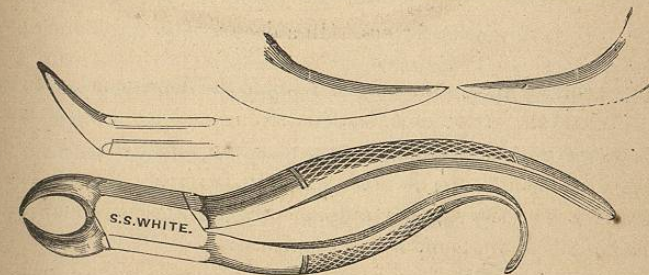


FIG. 290.—LOWER MOLAR, COW-HORN, LEFT SIDE.



mere closing of the handle loosens the tooth. When, however, this does not occur, the organ is to be rocked until the connection is felt to break. Examining a tooth held in the grasp of this instrument, the points of the