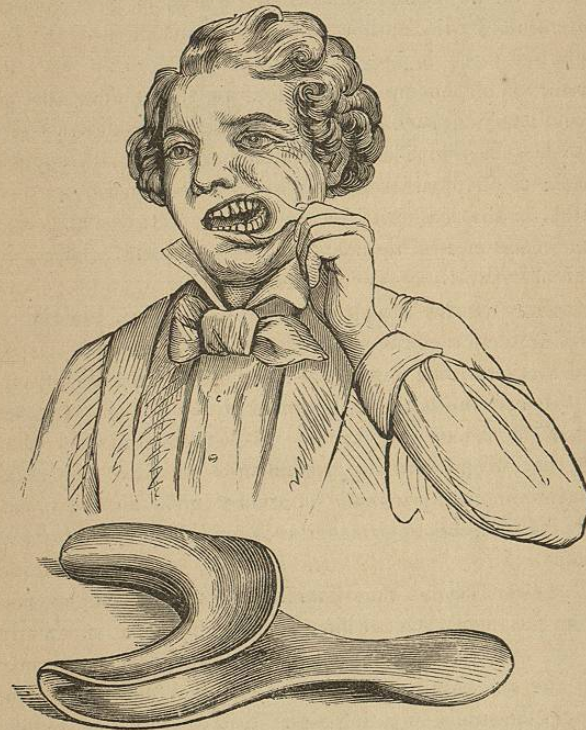


of the bone. From this carry a second under the jaw—although along it—to the temporo-maxillary articulation. Dissect now the flap upward. In the horizontal cut here made it will be perceived that the facial artery is divided; this is a large vessel, and requires a ligature. It will be found the better practice to tie both ends before proceeding to the operation upon the bone. The coronary artery, cut in the vertical incision, will often compel a ligature.

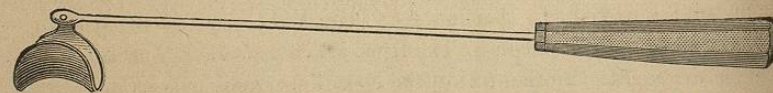
Subfigure 6 exhibits an exposure of the whole body of the bone. This is

FIG. 527.—MOUTH STRETCHER APPLIED.



accomplished, as seen in the drawing, by a simple horizontal incision along the base of the jaw, being carried from angle to angle, and the flap, including

FIG. 528.



the mouth entire, thrown up; or it may be secured by joining the horizontal to a vertical incision made from the angle of the mouth; or, as in Fig. 8, by the median, vertical, and horizontal incisions. These sections understood, any required modification will suggest itself.

Subfigures 4, 5, 6, represent an operation practised by Dr. J. Rhea Barton: 4 exhibits the tumor, which will be seen to be of great bulk, being described as having complete possession of the mouth, forcing the tongue into the pharynx, and stretching the jaws widely apart. It also rose up outside the superior maxillary bone, protruding the lips, cheek, and neck on the left side.

Finding, by examination, that the base of the bone might be left with promise, Dr. Barton made the exsection as exhibited by the lines in 5. This was accomplished by sawing horizontally from without inward, commencing at the middle line below the canal, and extending the section bilaterally. The removal of the bone, in this particular operation, gave no hemorrhage requiring attention. The flaps being replaced and stitched, the patient was well in a month.

Complete section of the jaw, as exhibited in Fig. 8, after the practice of Dupuytren and many successors, destroys forever the articulation of the jaws, and interferes not only with mastication, but seriously with deglutition and speech. Exposing the bone as directed, the section is most easily made with either the Hey, metacarpal, chain, or circular-saw. Before, however, shaving from the bone its inner attachments, a loop of waxed silk, or silver wire, is to be passed through the tip of the tongue, that this organ may be prevented from being drawn back into the pharynx by the hyo-glossi muscles.

Subfigure 7 exhibits the removal of one-half the maxilla. Exposing the bone as directed, extract one or more of the centre teeth; next, from without inward, saw through the bone, or if preferred, use a chain saw, carrying it around the part by the aid of a curved needle. Catching now the bone in the grasp of the forceps, or using the fingers, detach the inner soft parts, turning it outward and downward. Arriving, in the dissection, at the coronoid process, the temporal tendon is to be detached by a chisel-shaped knife, care being taken not to wound the maxillary artery or internal carotid. The process freed, the condyle can be twisted from its ligaments, or, better still, twisted and at the same time cut away. This operation, apparently so formidable, the author has succeeded in doing without external incision. With the section of the soft parts, as represented in the figure, it is not nearly so difficult as might be supposed. A diseased bone is seldom as troublesome to disarticulate as a sound one.

Professor Smith, in his System of Surgery, gives the credit to Dr. George McClellan of having been the first to attempt more than a limited section of the inferior maxilla,—this surgeon, in 1823, having removed all the parts anterior to the angles. In this, however, he was preceded by Deadrick, of Tennessee, who, in 1812, made an exsection which extended from the symphysis to the angle. Professor Mott, of New York, also made an operation similar to Deadrick's, in 1821. Dr. Ackley, of Cleveland, Ohio, is reported as having, in 1850, removed the bone entire. In Europe, priority of the operation performed first by Deadrick is awarded to Dupuytren. Mott, according to Professor Smith, disarticulated the bone,—Deadrick and Dupuytren



did not. Professor Mott thought it necessary to ligate the primitive carotid artery a few days before making his exsection, a step long since proved to be uncalled for.

The performance of Dr. Deadrick, deservedly famous for its priority, was done on the person of a lad fourteen years of age. The operation was for the removal of a cartilaginous tumor on the left side of the jaw, which tumor filled up nearly the whole of the mouth, causing the greatest difficulty in swallowing, and, at times, even in breathing. To accomplish his exsection, Dr. Deadrick commenced an incision under the zygomatic process, and carried it across the tumor, downward and forward, to nearly an inch beyond the middle of the chin. From the centre of this first incision, and consequently at right angles with it, a cut was extended a short distance upon the neck; the flaps thus secured were dissected from the diseased mass, and the bone next sawed off at the angle and symphysis. The flaps were laid back in the usual way, the boy making a speedy recovery.

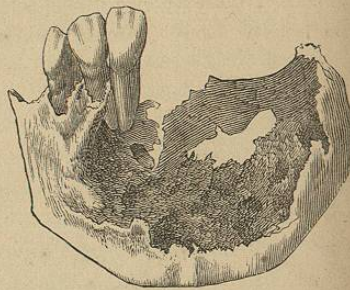
The author's manner of exposing the lower jaw and removing sections from it will be understood by reference to the illustrations given.

CASE 1.—Operation in this case was required for a cysto-sarcoma which extended from the first molar tooth of the left side to the first bicuspid of the

FIG. 529.



FIG. 530.



right. Patient, a young lady, seventeen years of age. Tumor had been twice removed by internal section, quickly recurring in both instances.

An exsection from which the lady quickly recovered, and which leaves her to-day (eight years having passed) without disfigurement of any kind, was done as follows. An incision, commenced at the free border of the lip, was carried directly in the vertical line until it passed beneath the chin. Next the neck tissue was drawn upward until it rested upon the jaw; it was then incised outwardly upon either side as shown in the cut. The bone thus exposed was sawn with great delicacy from side to side, a rim being left to pre-

serve the convexity of the chin. The tumor removed, a succeeding step replaced the soft parts and stitched them in position. On completion of the cure, which was very rapid, an artificial substitute for the lost teeth and portion of jaw removed was made, which, together with the immediate union of the lip wound, have placed the patient in as good a position, as appearance is concerned, as before the operation.

FIG. 531.

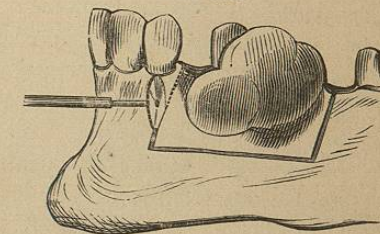


Fig. 531 exhibits an operation performed now many times by the author both before the class of the Philadelphia Hospital of Oral Surgery and in

FIG. 532.



FIG. 533.



private practice. As is seen, the instrument used is a circular-saw revolved by an engine. The removal of bone after a manner that retains the con-



tinuity, consequently preserves the contour of the face, is understood by observing the dotted line.

The manner of making a section of the lower jaw, as here shown, is one always to be selected when circumstances permit. The circular-saw is not, of course, a necessity for accomplishment of the performance, but it is a help only to be appreciated by a surgeon familiar with its use. In the absence of an engine, Hey's saw is to be used. An exsection thus made leaves no deformity.

Fig. 532, taken from the practice of the writer, shows the use of engine and saw used on front of lower jaw.

Fig. 533, shows manner of applying circular-saw in removal of small epulic growths. The diagrams explain themselves.

In doing operations upon the jaw-bones consideration is demanded by any undeveloped teeth that may happen to be present. To cut through a tooth with the Hey saw is impossible. It is difficult, and in cases cannot be done, where the circular instrument and engine are used. Caution is to be observed as reference is had to making the horizontal cut as near the base of the jaw as safety permits.

**Addendum. SURGICAL ENGINE.**—A surgical engine differs from the instrument used in dentistry proper principally as power is concerned. The invention is by Wm. G. A. Bonwill, D.D.S., and the introducing of it into general surgical practice is claimed with much satisfaction by the writer.

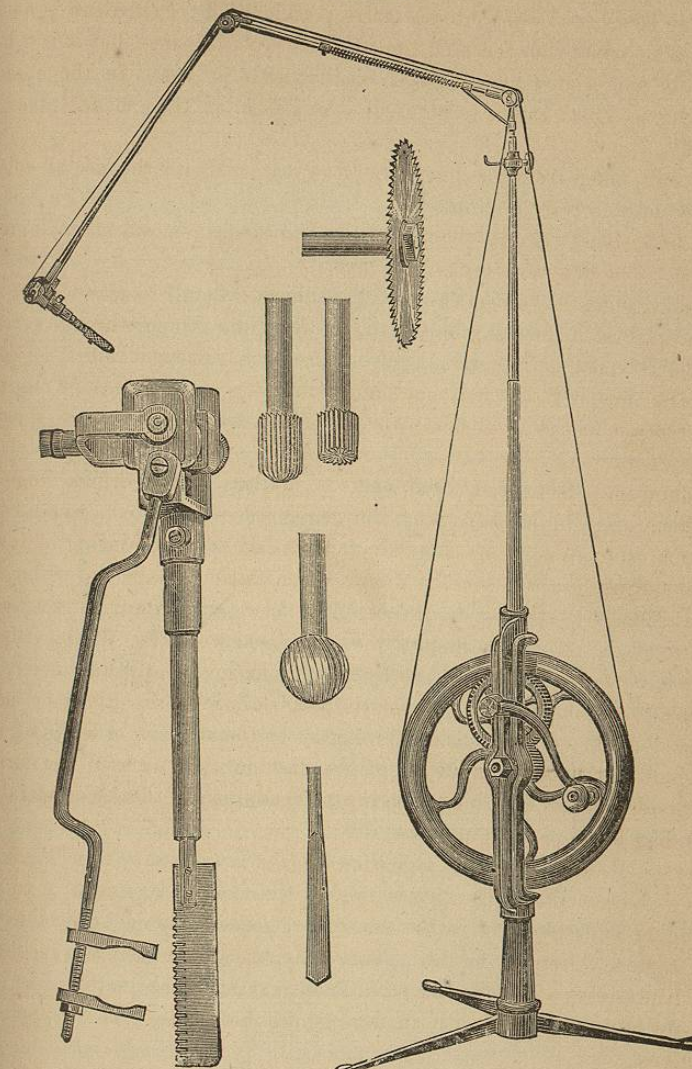
The reader, by referring to the cut (Fig. 534), will obtain correct understanding of the apparatus, and of the tools used with it. While a dental engine is worked with the foot, or by an electric, steam, or water motor, and possesses but a single driving-wheel, the surgical machine is driven by means of a hand-crank, and is intensified in motion by the addition of a cog adjunct. The shaft of the latter is always of arm fashion; the cable of the former, as at present constructed, being too weak to accomplish other than operations demanding little mechanical power.

The middle pieces in the engraving show a circular-saw, three sizes and forms of burs, and a drill. These are the principal instruments used with the engine, and they possess the capability, individually and collectively, of doing a great variety of service. The contrivance to the left is a reciprocal-saw; it possesses a latitude of motion to the extent of one-quarter of an inch, and runs back and forth with an unrecognizable rapidity; its use applies in exsections.

In oral practice the surgical engine is a convenience above praise. By means of the capability furnished by the apparatus operations of magnitude and danger are accomplished with all ease and at greatly diminished risk. Instruments are used precisely as one handles a pen; saw, burr, or drill slipping, by means of a shank, into a hand-piece, or handle, and made to perform revolutions to the extent of several thousand to the minute, while, at time of greatest movement, a thumb and two fingers controls the cutting tool with all

the facility of an act in drawing. (See for illustrations in practice various diagrams showing operations.)

FIG. 534.



Surgical engine and appliances.