

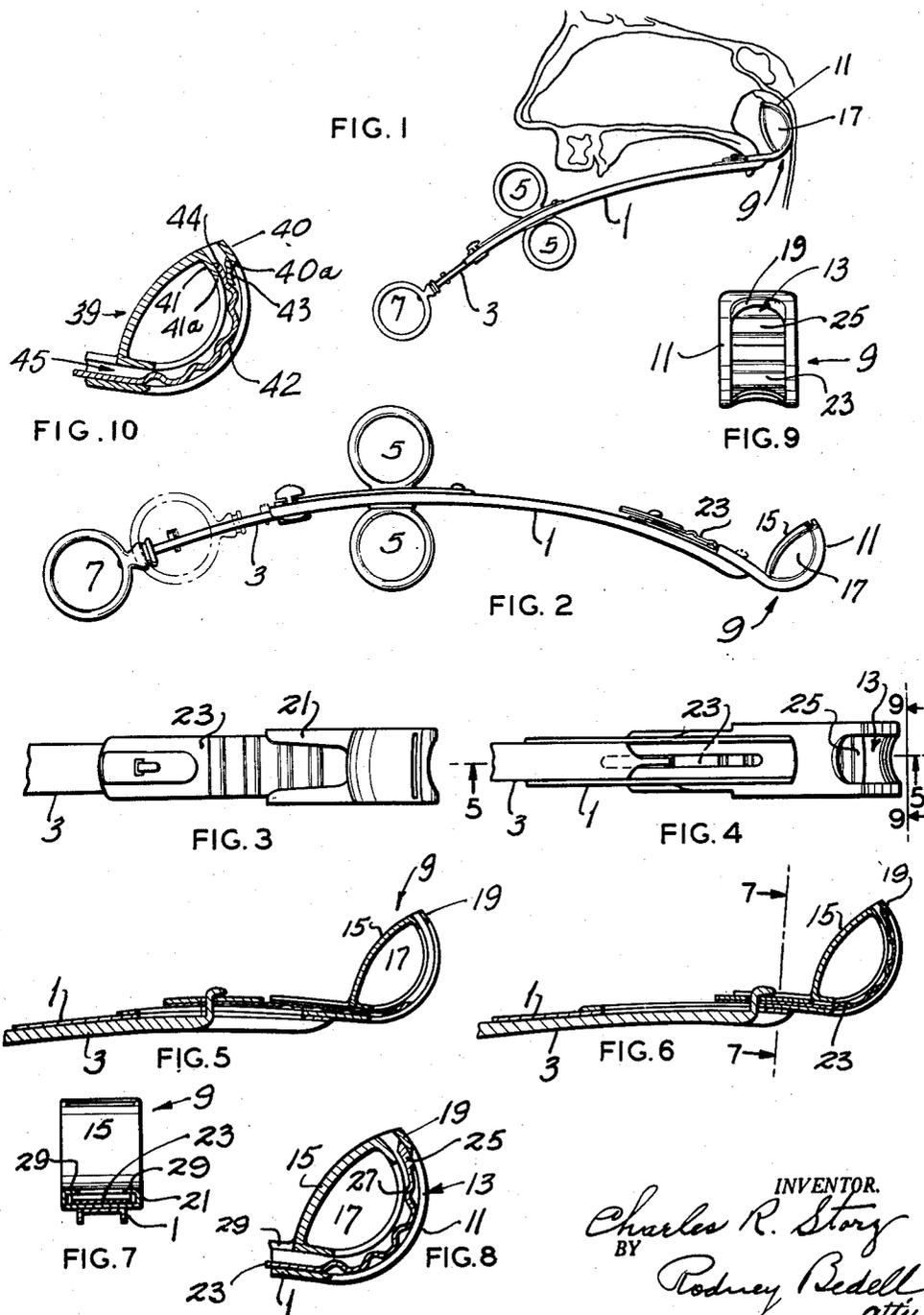
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ADENOTOME

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1

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## ADENOTOME

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5 Claims. (Cl. 128—309)

The invention relates to adenotomes of the type disclosed in Patent No. 2,131,780, issued to the present inventor October 4, 1938, and disclosing a cutting blade slidable across the side of a cage near one end of the instrument and disposed to receive tissue to be cut away by the blade. This application is a continuation-in-part of an application filed August 1, 1955, Serial No. 525,622.

The main object of the invention is to facilitate the clean, prompt severance of tissue and to avoid the likelihood of a separate curetting operation being required to remove fragments of tissue adhering to the flesh and to avoid the possibility of tearing unsevered tissue from the underlying flesh when the adenotome is withdrawn.

These objects are attained by providing an adenotome with opposed blades, which pass each other in a shear-like action to sever the tissue to be removed without relying upon pressure of a single knife edge against a stop and without dependence upon a tugging action by the adenotome.

In the accompanying drawings illustrating selected embodiments of the invention:

Figure 1 shows the adenotome applied to the upper portion of an oral cavity and in position for removing tissue at the rear of the cavity.

Figure 2 is a side elevation of the adenotome drawn to a larger scale, a thumb-receiving ring on a slidable bar being shown in full lines in the position assumed when the adenotome is opened, i. e., when its cooperating cutting blades are spaced apart, and being shown in broken lines in the position assumed when the adenotome is closed, i. e., when its cutting blades have been moved toward and past each other.

Figure 3 is a top view of the right hand end of the instrument, as shown in Figure 2, drawn to a larger scale.

Figure 4 is a bottom view of the same portion of the instrument as shown in Figure 2, with the slidable blade spaced from the stationary blade.

Figure 5 is a vertical section on line 5—5 of Figure 4.

Figure 6 is a similar section showing the instrument fully closed.

Figure 7 is a vertical transverse section on line 7—7 of Figure 6.

Figure 8 is a section corresponding to the right hand end of Figure 6 but drawn to a larger scale to better illustrate details of the structure.

Figure 9 is an end view of the right hand end of the instrument.

Figure 10 is a section similar to Figure 8 but shows another form of the invention.

The instrument includes an elongated body 1 of channel-like cross section with an elongated bar 3 slidable in the body. A pair of finger-receiving rings 5 are fixed to the left hand end of body 1 and a thumb-receiving ring 7 swivels on the corresponding end of bar 3. The right hand end of the body mounts a vertically-oval box-like structure 9 having an outwardly convex face 11 provided with a rectangular opening 13 extending substantially throughout the length and width of face 11. The

2

structure is closed throughout its inner face 15 and on its sides 17, thus forming a cage opening outwardly to receive tissue to be removed. A transverse element 19 at the outer end of opening 13 has a flat inner face and its outer face is beveled downwardly and inwardly and forms a cutting edge facing toward the other end of the opening.

Adjacent the base of structure 9, body 1 includes channeled or grooved upstanding ribs 21 which slidably mount a flexible blade 23 having a forward end 25 extending transversely of opening 13 with a flat outer face and with an inner face beveled upwardly and outwardly to form a cutting edge. Blade 23 has transverse corrugations, the uppermost portion 27 of the last corrugation bearing against the underfaces of channel flanges 29 and yieldingly thrusting the outer flat face of the blade into contact with the inner flat face of element 19.

As the flat faces of elements 19 and 25 slide over each other, they cooperate to form a shear. The cutting edge of flexible blade end 25 is convex from side to side of cage 9 (Figure 4). The opposing edge of stationary blade 19 is concave from side to side of cage 9 (Figure 9), thus rendering the shear action more effective.

When blade 23 is moved to its forward position, any tissue between the cutting edges is severed cleanly, thus eliminating the possibility of a piece of tissue being merely clamped between the forward end of the blade and an opposing element on the cage and pulling away from the flesh to produce hemorrhage.

Figure 10 illustrates another form of the invention in which the oval box-like structure 39 at the end of the body has both transverse elements 40 and 41 at its outer end beveled downwardly and inwardly to form cutting edges 40a and 41a respectively facing toward the inner end of the cage opening. The flexible blade 42 corresponds generally to blade 27 previously described, but at its outer end it is bifurcated with the bifurcations 43 and 44 providing two cutting edges, the terminals of which slidably engage the inner and outer flanges respectively of the grooves 45 along the sides of the cage opening. Thus there are provided two pairs of shears to sever tissue projecting into the cage and neither cutting edge of the blade can be moved away from its cooperating edge by the wedging of tissue between them. This further insures against hemorrhage which might follow a tugging of tissue to be removed away from the flesh which is permeated with blood vessels.

The bifurcations on the end of blade 42 are formed by welding a short element 43 to the main blade 42, but the second cutting edge may be formed otherwise, for example, by doubling the end of the main blade upon itself and machining the knife edges in the folded portion of the blade.

Both forms of the instrument attain the objectives named above. It is compact, requiring no larger over-all dimensions than adenotomes used previously. It is characterized by providing a plurality of cutting edges at one end of the elongated body operated by manually actuated parts at the other end of the body movable lengthwise of the body, and the shear action does not involve movement of the flesh-contacting parts over the flesh.

The details of the construction may be varied substantially otherwise than as shown without departing from the spirit of the invention and the exclusive use of those modifications coming within the scope of the claims is contemplated.

What is claimed is:

1. An adenotome comprising an elongated body with an end portion having a convex outer face provided with an opening, there being an element extending transversely of the body near said end portion and bounding the outer end of said opening and having inwardly flat, outwardly beveled surfaces forming a cutting edge facing

3

toward the opposite end portion of the body, a flexible member slidable on said body and movable toward and from said element and having outwardly flat and inwardly beveled surfaces forming a cutting edge facing toward said element, and means operable manually from the second-mentioned end portion of the body and connected to said flexible member to advance it along the arc of said convex outer face to move its cutting edge past the first-mentioned cutting edge in shearing action.

2. An adenotome comprising an elongated body with a box-like end portion having an outer wall provided with an opening and having an inner wall spaced therefrom and having side walls provided with opposing grooves adjacent to said outer wall, a flexible blade having transverse corrugations and slidable in said grooves and said blade being movable lengthwise of the body across said opening, said outer wall including an element at one end of said opening extending transversely of the path of movement of said blade and having a flat inner face and a beveled outer face forming a cutting edge facing the opening, said blade having a flat outer face and a beveled inner face forming a cutting edge facing said element, the groove elements thrusting the outer face of said blade yieldingly against the inner face of said element to form a shear as the blade is moved toward the adjacent end of the body, and means at the opposite end of the body for advancing and retracting said blade.

3. An adenotome according to claim 1 in which the outer end of the blade is bifurcated and provides parallel cutting edges abreast of each other and spaced apart transversely of the width of the blade and the end portion of the body has two cutting edges abreast of each other and similarly spaced apart and cooperating with the cutting edges of said bifurcated blade to form a double pair of shears.

4. An elongated adenotome instrument with a box-like portion at one end having an outer wall, provided with an opening, an inner wall spaced therefrom and side walls provided with opposing grooves, a flexible blade having transverse corrugations the ends of which slidably fit in said grooves, the outer end of the blade comprising a pair of parallel elements extending transversely of said opening and spaced apart transversely of

4

the thickness of the blade, the terminals of one of said elements being slidable along the upper faces of the side wall grooves and terminals of the other element being slidable along the lower faces of the side wall grooves, the first mentioned element having a flat upper face and a beveled lower face forming a cutting edge, and the second mentioned element having a flat lower face and a beveled upper face forming a cutting edge, the end wall of said box-like end portion having correspondingly beveled surfaces similarly spaced apart and forming cutting edges cooperating with said blade cutting edges to form two pairs of shears as the blade is moved lengthwise toward the outer end of said body end portion, and means at the opposite end of the body for advancing and retracting said blade.

5. An elongated adenotome instrument with one end portion having a forward wall provided with an opening for receiving therethrough tissue to be severed, opposing members at opposite sides of said opening with channel grooves facing each other and extending lengthwise of the body, a blade slidable lengthwise of said body and having a bifurcated end with the bifurcations forming a pair of cutting edges abreast of each other and extending across said opening, the terminals of one bifurcation sliding along the outer flanges of the opposed channels and the terminals of the other bifurcation sliding along the inner flange of the opposed channels, the outer end of said opening being defined by spaced cutting edges in line with the inner and outer flanges respectively of the channels and forming with said bifurcations spaced pairs of shears as the blade is moved toward the end of the body.

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