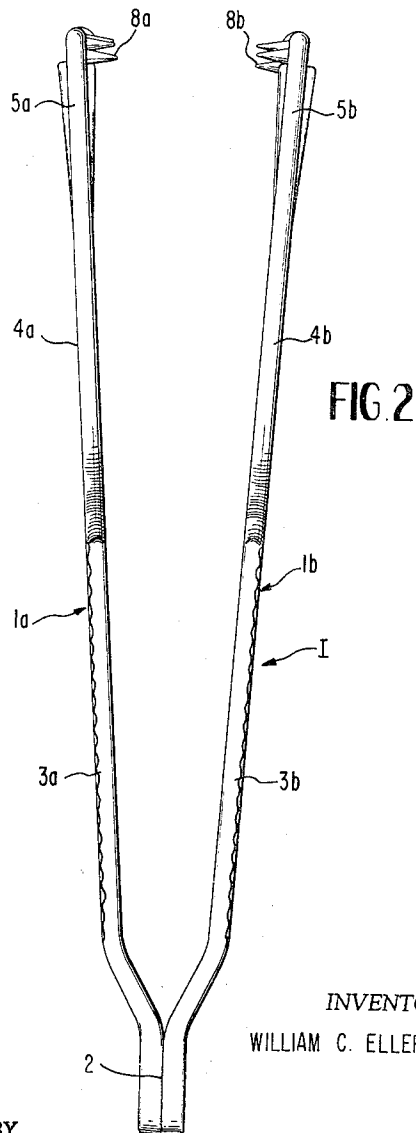
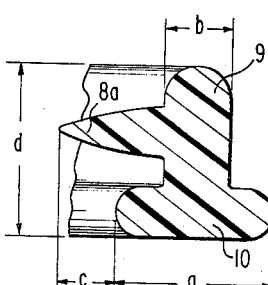
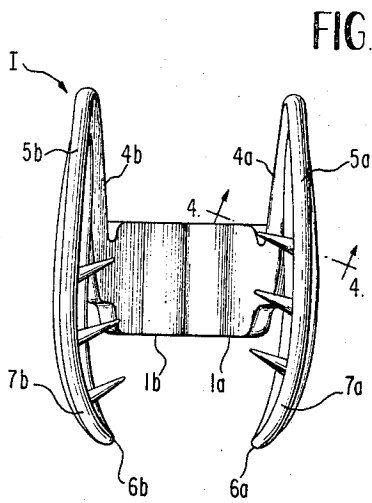
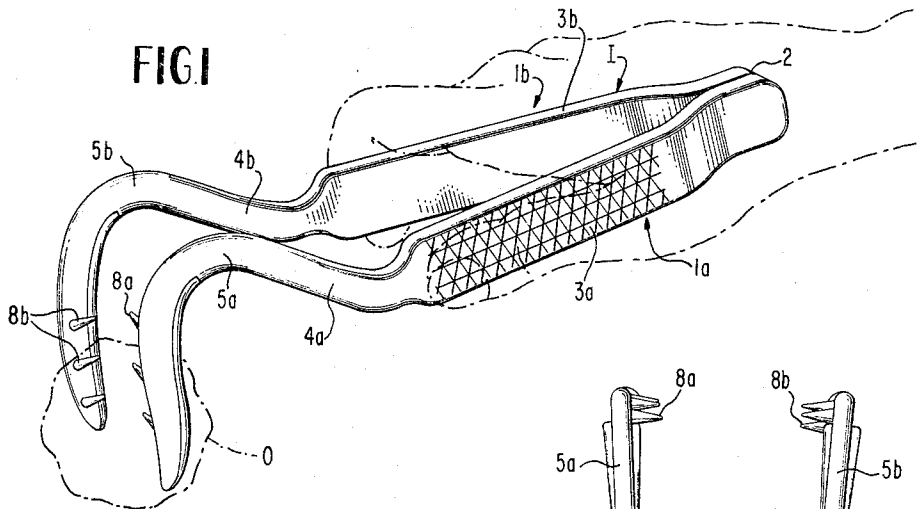


Jan. 13, 1970

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INSTRUMENT FOR REMOVING OBSTACLES FROM ANATOMIC
ORGANS ASSOCIATED WITH THE THROAT
Filed May 29, 1967

3,489,151



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INSTRUMENT FOR REMOVING OBSTACLES FROM ANATOMIC ORGANS ASSOCIATED WITH THE THROAT

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Filed May 29, 1967, Ser. No. 641,816

Int. Cl. A61b 17/24, 17/28, 17/30

U.S. Cl. 128—356

9 Claims

ABSTRACT OF THE DISCLOSURE

An instrument for removing obstructions from anatomic organs associated with the throat comprises two generally coextensive arms hinged together at one end of each, enabling a forceps or tweezer-like movement of the other or free ends. The arms have insertable portions terminating in the free ends and being similarly curved in the general planes of the arms for insertion into a throat associated organ on opposite sides of an obstruction therein. The insertable portions have spur-like obstruction-engageable means extending from each insertable portion inner face. The end regions of the insertable portions are curled inwardly toward each other.

This invention relates to instruments for removing obstacles from anatomic organs, e.g. the larynx, associated with the throat, and more particularly to instruments for removing such obstacles by a layman in case of an emergency when no physician is available.

It is well known to the medical profession and restaurateurs that pieces of food sometimes become lodged in the organs associated with the human throat, especially in cases of people using dentures who may tend to swallow without adequately chewing their food. Unless the piece of food can be removed quickly, death of the victim is apt to be rapid and may be inevitable. Prompt removal of the obstruction must be performed by someone on the spot, and often there is insufficient time to summon a doctor or ambulance. A number of such cases are reported in the article "The Cafe Coronary—Sudden Deaths in Restaurants"—By Dr. R. G. Haugen in The Journal of the American Medical Association, Oct. 12, 1963, volume 186, pages 142 and 143.

An object of the present invention is to provide an instrument which may be safely and effectively used by restaurant personnel with minimal training or indoctrination so as to remove, for example, a large piece of meat obstructing an organ, and save the victim's life.

Other objects will become apparent from a reading of the following description of a representative and preferred embodiment of the invention, the appended claims, and the accompanying drawings, in which:

FIGURE 1 is a perspective view of an instrument embodying the invention;

FIGURE 2 is a top plan view thereof;

FIGURE 3 is an end elevational view thereof; and

FIGURE 4 is a section on the line 4—4 of FIGURE 3, on an enlarged scale.

The illustrated tweezer or forceps-like instrument generally designated I embodying the invention in a preferred form includes two generally coextensive arms 1a and 1b shown as being joined for hinge-like movement at their outer ends at 2. The arms 1a and 1b may be formed of any suitable material which preferably should be resilient and, for example, may be metal, wood, or plastic. A resilient material is preferred in order to avoid the neces-

sity of providing a pivot or other two-part hinge and supplemental resilient means for urging the arms apart to the normal positions shown in the drawings. As shown, a plastic material is employed and the arms 1a and 1b are secured to each other at the hinge end 2, but it is contemplated that the entire instrument may be molded in one piece.

Adjacent the hinge end 2, the arms 1a and 1b are formed with handle portions 3a and 3b which are grippable for squeezing the arms toward each other. Beyond the handle portions 3a and 3b are intervening arm portions 4a and 4b which are inclined upwardly and forwardly from the handle portions and which merge with insertable portions 5a and 5b, respectively. The portions 5a and 5b, which are to be inserted through the mouth to extend down into the throat area, are similarly smoothly curved downwardly, each in the general plane of its associated arm 1a, 1b, the insertable portions terminating in free ends 6a, 6b. Adjacent their free or lower ends 6a, 6b the insertable portions are curled inwardly toward each other transversely to the planes of the arms 1a, 1b, as indicated at 7a, 7b in FIGURE 3.

The inner faces of the insertable portions 5a, 5b are provided with obstacle-engageable means 8a, 8b, adapted to engage or impale an obstacle on opposite sides of the latter when the portions 5a, 5b have been fully inserted and the arms 1a, 1b have been squeezed together. In the form shown, the obstacle-engageable means 8a, 8b comprise spur-like elements which project from the inner faces of the insertable portions and which slant upwardly and away from the free ends 6a, 6b toward the insertable portion curves. Preferably, the spurs 8a on the insertable portion 5a are staggered with respect to the spurs 8b on the insertable portion 5b.

The construction is such that the insertable portions 5a, 5b may readily be passed conjointly into the mouth and slid over the tongue and extended to the back of the throat, the curves in the insertable portions enabling them to move naturally downwardly to reach the throat area so that the spurs 8a, 8b will be positioned on opposite sides of and may be caused to engage the enlodged obstacle by squeezing the arms 1a, 1b toward each other, whereupon the instrument may be withdrawn to remove the obstacle. Even when used by a layman, which often will be the case, it is almost impossible for the instrument to be mistakenly placed during insertion. The victim will not resist insertion because, in a typical case, he will be so disabled if not too nearly dead to resist.

Best results are obtainable with certain general dimensional relationships being maintained. As best shown in FIGURE 4, the insertable portions are generally T shaped in cross section, the T stem being designated 9 and being in the general plane of the associated arm and the T cross being designated 10 and being transverse to the general plane of the arm and within the curvature of the insertable portion where it is concave. The cross of the T provides a part in the nature of a plate which acts as a skid to guide the insertable portion over the tongue and then serves, when fully inserted, to depress the tongue and pull the base of the tongue forwardly. The slight inward curls 7a and 7b adjacent to the free ends of the insertable portions guide the free ends through the isthmuses, i.e. the tonsillar pillars and the ary-epiglottic folds. The spurs 8a, 8b extend from the stems of the T's inwardly just slightly beyond the inner ends of the crosses of the T's.

The dimensions of the T shaped cross section should be in general accordance with the relationships tabulated

below, the dimensions (a), (b), (c), and (d) being shown in FIGURE 4:

	Cm.
(a) Width of wide surface on cross of T	1
(b) Width of stem of T	.5
(c) Extension of spur-like elements inwardly beyond cross of T	.3
(d) Dimension from wide surface of cross of T to free edge of stem of T	1

The construction shown and described embodies the invention in the form now preferred, but it is intended that the disclosure be illustrative rather than definitive, the invention being defined in the claims.

I claim:

1. A forceps-like instrument for removing obstructions from anatomic organs associated with the throat, comprising:

- two generally coextensive arms respectively having handle portions grippable for moving the arms toward each other in a direction transverse to the direction of extent of the arms,
- each of said arms having an intervening portion extending in one direction at an inclination to the handle portion thereof substantially in the general plane of said handle portion,
- said arms having insertable portions respectively extending from said intervening portions and terminating in free ends,
- said insertable portions being similarly curved respectively in the general planes of said arms oppositely to the inclination of said intervening portions, whereby said free ends of said insertable portions project in a direction generally contra to but inclined with respect to said one direction of inclination of said intervening portions, whereby said insertable portions are adapted for conjoint insertion through the mouth and extension into a throat-associated anatomic organ on opposite sides of an obstruction therein,
- the inclination of said intervening portions and the curvature of said insertable portions together enabling the free ends of said insertable portions to be extended into the throat-associated anatomic organ to the required depth,
- said insertable portions having inner faces facing toward each other, and
- obstruction-engageable means respectively on and extending from each insertable portion inner face toward the other insertable portion inner face.

2. Instrument according to claim 1 in which said insertable portions, adjacent their free ends, are curled inwardly toward each other transversely to the general planes of said arms.

3. Instrument according to claim 1 in which the spur-like obstruction-engageable means on at least one of said insertable portions comprises a plurality of spaced spur-like elements.

4. Instrument according to claim 3 in which the spur-like obstruction-engageable means on said one of said insertable portions are staggered with respect to the spur-like obstruction-engageable means on the other of said insertable portions.

5. Instrument according to claim 3 in which said spaced spur-like elements are slanted to extend from the associated insertable portions away from the free ends thereof toward the curves therein intervening between said insertable portion free ends and said handle portions.

6. Instrument according to claim 1 in which each of said curved insertable portions is of generally T shaped cross section, the stem of each T lying in the general plane of the associated arm, and the cross of each T lying transversely to said general plane and within the curvature of said insertable portion where the latter is concave, said cross of each T providing a relatively wide surface adapted to be skidded easily over the tongue and, when fully inserted, to depress the tongue and pull the base of the tongue forward, said obstruction-engageable means extending from the stems of the T's.

7. Instrument according to claim 6 in which said obstruction engageable means extend inwardly beyond the inner edges of the crosses of the T's.

8. Instrument according to claim 1 in which said insertable portions, adjacent their free ends, are curled inwardly toward each other transversely to the general planes of said arms, in which the obstruction-engageable means on at least one of said insertable portions comprises a plurality of spaced spur-like elements, in which the spur-like obstruction-engageable means on said one of said insertable portions are staggered with respect to the obstruction-engageable means on the other of said insertable portions, in which said spaced spur-like elements are slanted to extend from the associated insertable portions away from the free ends thereof toward the curves therein intervening between said insertable portion free ends and said handle portions, in which each of said curved insertable portions is of generally T shaped cross section, the stem of each T lying in the general plane of the associated arm, and the cross of each T lying transversely to said general plane and within the curvature of said insertable portion where the latter is concave, said cross of each T providing a relatively wide surface adapted to be skidded easily over the tongue and, when fully inserted, to depress the tongue and pull the base of the tongue forward, said obstruction-engageable means extending from the stem of the T's, and in which said obstruction engageable means extend inwardly beyond the inner edges of the crosses of the T's.

9. Instrument according to claim 9 in which the cross section of each of said insertable portions has dimensional relationships conforming substantially to the following example:

	Cm.
(a) Width of wide surface on cross of T	1
(b) Width of stem of T	.5
(c) Extension of spur-like elements inwardly beyond cross of T	.3
(d) Dimension from wide surface of cross of T to free edge of stem of T	1

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U.S. Cl. X.R.

81—43; 128—321, 354; 294—99