J. J. MOYER.

TONSIL SNARE.

APPLICATION FILED NOV. 25, 1919.

1,359,908. **Patented Nov. 23, 1920.**

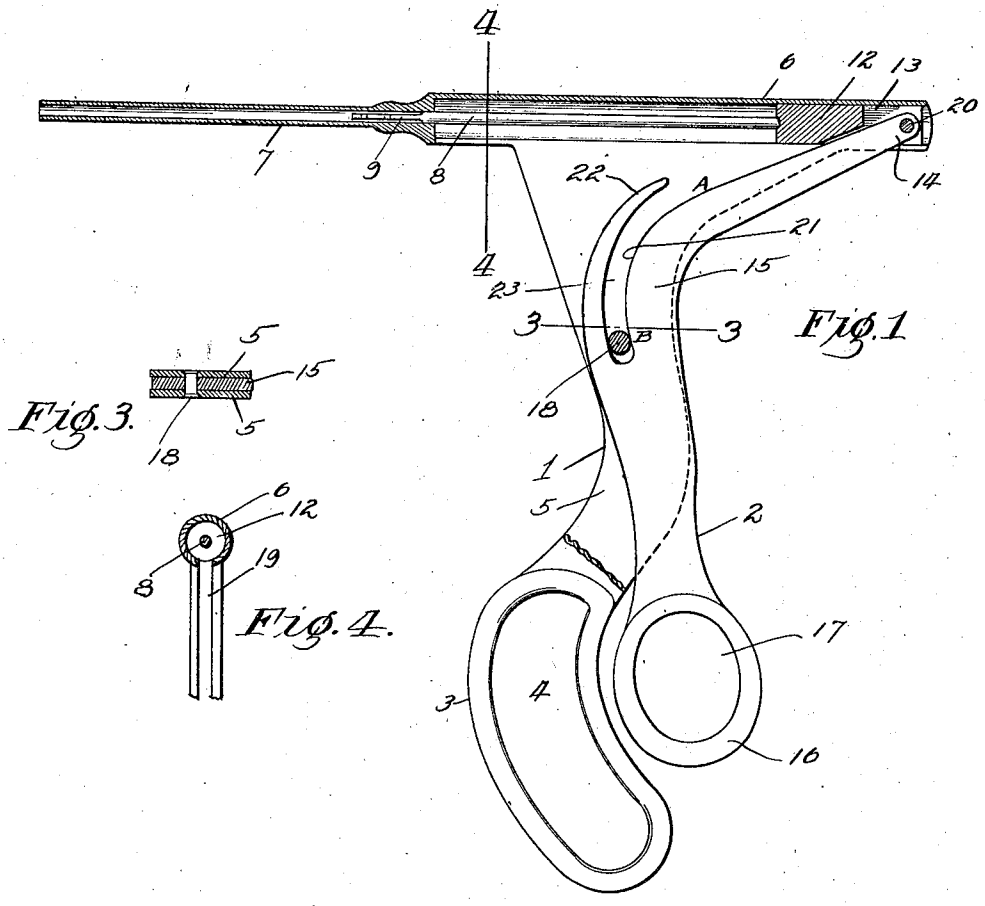


Fig. 1.

Fig. 3.

Fig. 4.

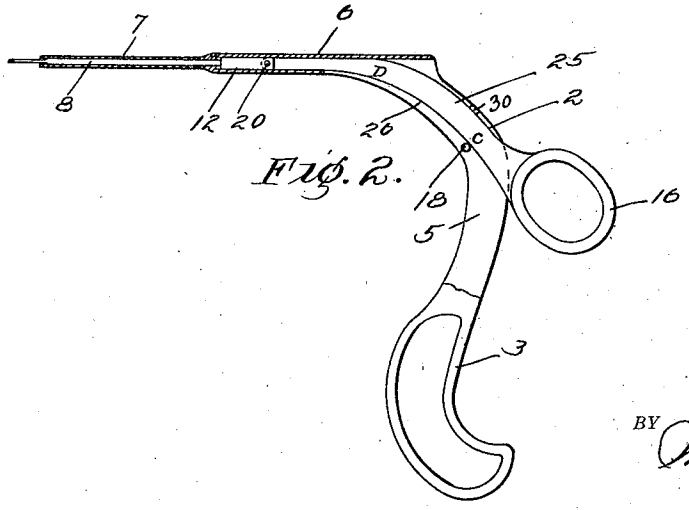


Fig. 2.

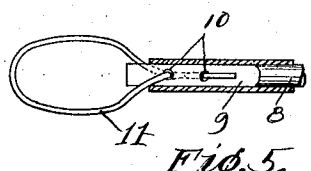


Fig. 5.

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TONSIL-SNARE.

1,359,908. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed November 25, 1919. Serial No. 340,676.

To all whom it may concern:

Be it known that I, JONAS J. MOYER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Tonsil-Snares, of which the following is a specification.

This invention relates to improvements in surgical instruments and more particularly to the type of instruments commonly known as tonsil snares.

The principal objects of my present invention are, to provide an instrument which consists of but few parts, which is easily assembled and diassembled, and which is so constructed that the force applied by the user is greatest when the most resistance is exerted against the instrument. A further object is to so construct the instrument that there are no projecting screws or ends which are inconveniently disposed and may hinder the work of the operator or his assistants.

With these and other objects in view, the invention consists of certain novel features of construction, combinations and arrangements of parts hereinafter described and more specifically pointed out in the appended claims; it being understood that changes in form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Referring to the drawing forming a part of this specification,

Figure 1— is a view partly in side elevation and partly in section of my improved instrument.

Fig. 2— is a similar view of a modified form of the instrument.

Fig. 3— is a view in section on the line 3—3, Fig. 1.

Fig. 4— is a view in section on the line 4—4, Fig. 1.

Fig. 5— is an enlarged view in plan of the end of the tubular portion of the snare showing the manner in which the snare loop is held therein.

Referring to corresponding parts of the several views by the same numerals of reference, the instrument consists of the frame denoted generally by 1 and a blade movable therein denoted generally by 2. The former consists of the curved handle 3 having the finger opening 4 and from which extends the curved standard 5. On the upper end of the latter is a tubular portion 6 from the outer end of which extends a tubular portion 7, of smaller diameter. Slidably mounted in the latter is a rod 8 the outer end of which is flattened as shown at 9 and provided with openings 10 in which the ends of a snare wire 11 may be engaged.

The opposite end of rod 8 has a head 12 which is slidable within the bore of the tubular portion 6 and this head is slotted as shown at 13 to receive the upper end 14 of the curved blade 15. End 14 is pivotally mounted within the slot 13 either by means of a rivet or counter-sunk head screw 20.

The standard of frame 1 is provided with a slot 19 extending from a point adjacent the handle 3 and communicating with the bore of the tubular portion 6. Blade 15 is curved on a circular arc 21 between points A and B which arc is adapted to ride on a pin or abutment 18 and the blade is of such thickness that it fits closely within this slot 19.

Adjacent the curve 21 a finger 22 extends upwardly from the blade 15 and this finger has the side adjacent the curve 21 formed concentric thereto so as to provide a slot 23 in which pin 18 is engaged. Integrally formed on the lower end of the blade is a ring 16 having a thumb opening 17 which is adapted to be drawn toward the handle 3 and to be partly embraced thereby when the rod 8 is in its innermost position.

In the modified form the movable blade 2 has the intermediate portion 25 curved along the edge 26 between the points D and C. This curve is concave in relation to the pin 18 while in the form shown in Fig. 1 the curve 21 is convex in relation to the pin. In the modified form of the instrument the ring 16 is drawn toward the handle 3 in a line which is nearly perpendicular to the line of movement of the plunger 8. In the regular form of the instrument the movement of ring 16 is to and from the handle 3 in a line substantially parallel to the line of movement of the plunger.

In use the ends of the snare wire are placed in the holes 10 and the plunger rod 8 drawn into the tube 7 until the bent over ends of the wire 11 are held between the walls of the tube and the surfaces of the flattened portion 9. This leaves a loop outside of the end of the tube 7 which is placed around the tonsil or other part to be severed and which is gradually closed by the withdrawal of the plunger rod into the tube.

In the regular form, at the beginning of the operation the blade rests against the pin 18 approximately at the point A so that as the handles are moved toward each other this point is a fulcrum and a direct leverage action is obtained.

As the movement of the ring 16 is continued there is at first a slight movement of the pin along the curve toward the end 14 and then a retrograde movement toward the end B. As this end of the curve is approached the line of tangency between the curve and the pin assumes such an angle that there is a wedging action which tends to force the end 14 outwardly as well as a leverage action tending to produce the same result. This gives a very powerful stroke at the time the loop 11 is about contracted and just when the tonsil is about to be severed.

This same result is accomplished in the modified form by the greater change in leverage which takes place, the greater leverage being at the end of the stroke.

The function of finger 22 is to hold the blade in position when the instrument is not in use. Pin 18 is engaged in this slot at all times except when the plunger is in its extreme outer position which only occurs when the instrument is to be disassembled or when the ends of the snare loop are being placed in position.

In the modified form I provide small lugs 30 on the inner surfaces of the blade slot which hold the blade in position and which spring apart when the blade is placed in position or removed.

I claim as new and wish to cover by Letters Patent:—

1. A surgical instrument comprising a standard having a longitudinal slot, a tubular casing having its interior communicating with said slot, a pin within said slot, a curved blade adapted to slide on said pin, and a rod pivotally attached to said blade and slidable in said casing.

2. A surgical instrument comprising a frame, a rod slidably mounted therein, a curved blade pivotally attached to said rod, and a fixed pin about which said blade is adapted to be drawn to move said rod into the frame.

3. A surgical instrument, a frame comprising a handle, a standard and a tubular portion, said stem having a longitudinal slot the entire width thereof, a pin extending across said slot, a blade slidable in said slot over said pin, a rod pivotally attached to the outer end of said blade and slidable in said tubular portion of the frame, and means for holding said blade in said slot.

4. A surgical instrument, a frame comprising a handle, a stem having a longitudinal slot, a tubular casing on the end of said casing opposite said handle and having its interior communicating with said slot, a rod slidably mounted in said casing, a blade movable in said slot and having one end pivotally attached to said rod, a coöperating handle on the opposite end of said blade, a curved portion on said blade intermediate its ends, and a fixed pin extending between the side wall of said slot which acts as a fulcrum for said blade.

5. A surgical instrument, a frame comprising a handle, a stem having a longitudinal slot, a tubular casing on the end of said casing opposite said handle and having its interior communicating with said slot, a rod slidably mounted in said casing, a blade movable in said slot and having one end pivotally attached to said rod, a cooperating handle on the opposite end of said blade, a curved portion on said blade intermediate its ends, a fixed pin extending between the side wall of said slot which acts as a fulcrum for said blade, and a finger adapted to embrace the opposite side of said pin extending from said blade concentrically to said curved portion.

6. A surgical instrument, a frame comprising a handle, a stem having a longitudinal slot, a tubular casing on the end of said casing opposite said handle and having its interior communicating with said slot, a rod slidably mounted in said casing, a blade movable in said slot and having one end pivotally attached to said rod, a coöperating handle on the opposite end of said blade, a convex curved portion on said blade intermediate its ends, a fixed pin extending between the side wall of said slot which acts as a fulcrum for said blade, and a finger adapted to embrace the opposite side of said pin extending from said blade concentrically to said curved portion.

In testimony whereof I affix my signature.

JONAS J. MOYER.