June 22, 1926. 1,589,923

R. W. ARMSTRONG

SURGICAL INSTRUMENT

Filed July 30, 1924

Fig. 1.

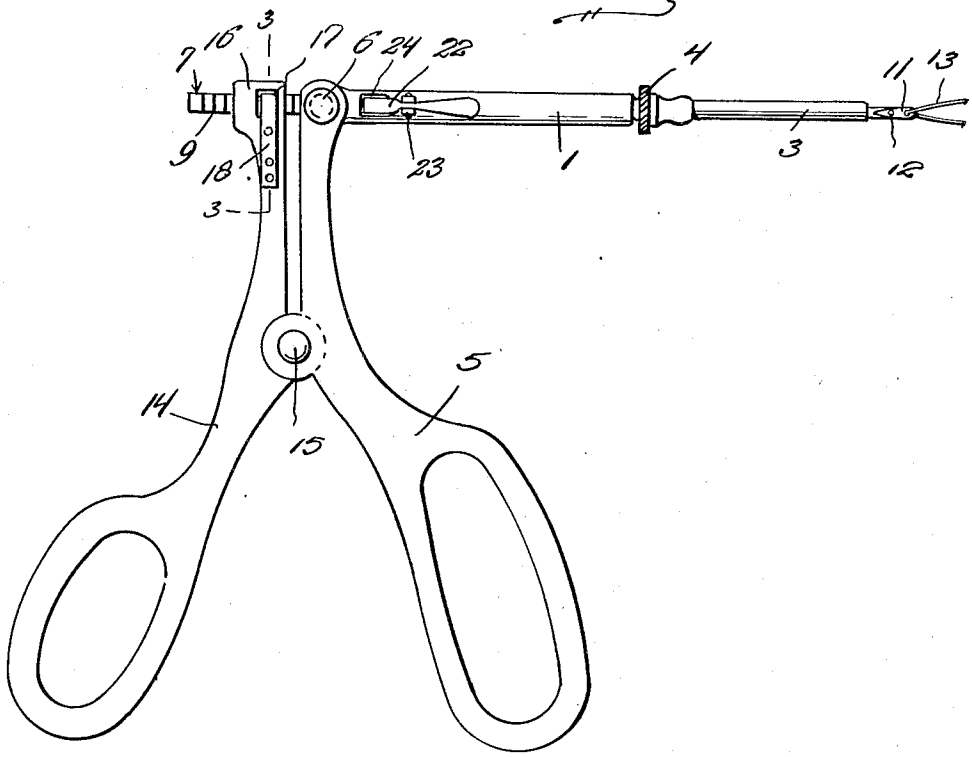
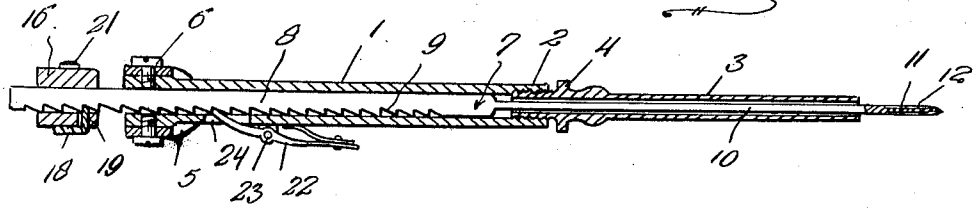


Fig. 2.



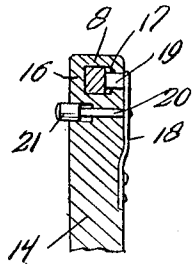


Fig. 3.

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UNITED STATES PATENT OFFICE.

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SURGICAL INSTRUMENT.

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This invention relates to a surgical instrument for removing infected tonsils and has for its principal object to provide a simple and efficient means for actuating the ligator member to facilitate the easy removal of the tonsils.

A further object of the invention is to provide a surgical instrument of the above mentioned character, which is simple in construction, inexpensive, strong and durable and furthermore adapted for the purposes for which it is designated.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals designate like parts throughout the same:

Figure 1 is a side elevation of my improved surgical instrument.

Figure 2 is a longitudinal sectional view through the barrel showing the ligator member arranged therein and the pawls cooperating with the ratchet teeth of the ligator member, and

Figure 3 is a sectional view taken approximately on line 3—3 of Figure 1.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates the barrel of my improved surgical instrument and the forward end thereof is internally threaded as illustrated at 2 for receiving the rear threaded end of an elongated sleeve 3, the diameter of which is less than the diameter of the barrel. The sleeve 3 is provided with a knurled flange 4 adjacent the rear end thereof for facilitating the attaching of the sleeve in the forward end of the barrel. A handle, designated generally by the numeral 5, has its upper end bifurcated and pivotally secured on opposite sides of the rear end of the barrel 1 by means of the screws 6. The screws are adapted to extend through suitable openings provided in the upper bifurcated end of the handle 5 and are threaded into suitable threaded openings provided in opposite sides of the barrel 1 in the manner clearly illustrated in Figure 2 of the drawing.

Extending longitudinally through the barrel and the sleeve 3 carried by the forward end thereof is the ligator member designated generally by the numeral 7. The major portion of the ligator member 7 comprises a substantially square shaped bar 8 the same being disposed in the barrel 1 and having the rear end thereof extending beyond the rear end of the barrel 1. The substantially square shaped portion 8 has provided in the forward face thereof the ratchet teeth 9 and the purpose thereof will hereinafter be more fully described.

The forward portion of the ligator member 7 comprises a reduced cylindrical member 10 which extends through the sleeve 3 and the forward end thereof projects beyond the forward end of the sleeve. The forward end of the cylindrical portion 10 is provided with diametrically opposed concaved portions such as are illustrated at 11 and also provided in the forward end of the cylindrical portion 10 and extending through the concaved portion are the openings 12. A ligature 13 is adapted to extend through one of the openings in the manner illustrated in Figure 1 of the drawing.

An operating lever or handle 14 is pivotally associated with the handle 5 as at 15 and the upper end of the operating lever or handle is enlarged as illustrated at 16 and is further provided with a transversely extending opening 17 which is also substantially square for the purpose of receiving the rear end of the substantially square bar 8 forming the rear portion of the ligator member 7. Secured to the front face of the upper portion of the operating handle 14 is the finger 18 which is formed of spring metal and the upper end thereof is provided with an inwardly disposed pawl 19 which extends through a suitable opening provided in the front face of the enlarged portion 16 of the lever 14 and engages the ratchet teeth 9 for the purpose of moving the ligator member 7 rearwardly through the barrel in the manner hereinafter to be more fully described. For the purpose of releasing the pawl 19 from engagement with the ratchet teeth 9, the spring finger 18 has secured thereto the transversely extending pin 20 which is arranged in a suitable opening provided in the upper portion of the handle 14 and an enlarged head 21 is arranged on the pin 20 and extends beyond the rear face of the handle in the manner as clearly illustrated in Figure 3.

For the purpose of preventing the ligator member from moving forwardly within the barrel and sleeve the spring pressed pawl 22

is pivotally supported on the barrel 1 as illustrated at 23 and the inner end of the pawl extends through a suitable opening 24 also provided in the barrel whereby the pawl will engage the ratchet teeth 9.

The operation of my improved surgical instrument may be briefly stated as follows:—The parts are arranged as illustrated in Figure 1 of the drawing, with the ligature received in one of the openings 12 provided in the forward end of the ligature carrier. The instrument is then grasped and the sleeve 3 is placed in the mouth of the patient in such a manner as to have the ligature disposed around the infected tonsil. The handle 14 is then actuated so as to cause the pawl 19 to successively engage the ratchet teeth 9 of the rear portion of the ligator member causing the same to move rearwardly through the barrel and drawing the forward portion of the ligator member through the sleeve 3 in a step-by-step arrangement so as to facilitate the easy and ready removal of the infected tonsil. The spring pressed pawl will prevent the ligator member from moving forwardly in the barrel during the operation of the surgical instrument and by releasing the spring pressed pawl 22 the ligator member will be permitted to move forwardly in the barrel and the sleeve.

It will thus be seen from the foregoing description, that a surgical instrument for removing infected tonsils has been provided which will be very efficient and positive in carrying out the purposes for which it is designated and furthermore the parts are so arranged as to enable the same to be readily disassembled whenever it becomes necessary.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim is:—

1. A surgical instrument of the class described comprising a tubular open ended barrel, a rack bar slidably mounted in said barrel and having its toothed end extending beyond the inner end of the barrel, a sleeve connected to the outer end of said barrel, said bar being provided with a cylindrical rod carried by the outer end and extending through and beyond said sleeve, a ligature carried by the outer end of said rod, a handle having an upper bifurcated end, said barrel being disposed between and pivotally connected with the furcations, a spring pressed latch carried by said barrel and cooperative with the teeth of said bar for preventing retrograde movement of the bar, an operating lever pivoted between its ends upon said handle and provided at its upper end with an opening through which the toothed end of said bar extends, a relatively fixed resilient pawl carried by said lever and cooperable with the teeth on said bar, and a pawl releasing means also carried by said lever.

2. A surgical instrument of the class described comprising an open ended tubular barrel, a sleeve threaded into the outer end of said barrel and disposed in alignment with the latter, a cylindrical rod extending slidably through and beyond said sleeve, a ligature on the outer end of said rod, a rack bar slidable in said barrel and connected with said rod, the toothed end of said rack bar extending beyond the inner end of said barrel, said barrel being formed in one side with an opening, a spring pressed latch mounted upon the barrel and having engagement with the teeth of said bar, a handle bifurcated at its upper end, said barrel having its inner end disposed between and pivotally connected to the furcations, a lever pivoted between its ends on the intermediate portion of said handle and provided at its top with a head through which the inner end of said bar is slidable, said head being formed at one side with an opening, a resilient finger fixedly mounted upon the upper end of said lever, a tooth carried by said finger and projecting through said opening and cooperable with the teeth of said rack bar, and a pin carried by said lever and engageable with said finger for disengaging said tooth, said pin being provided with a finger piece.

In testimony whereof I affix my signature.

ROBERT W. ARMSTRONG.