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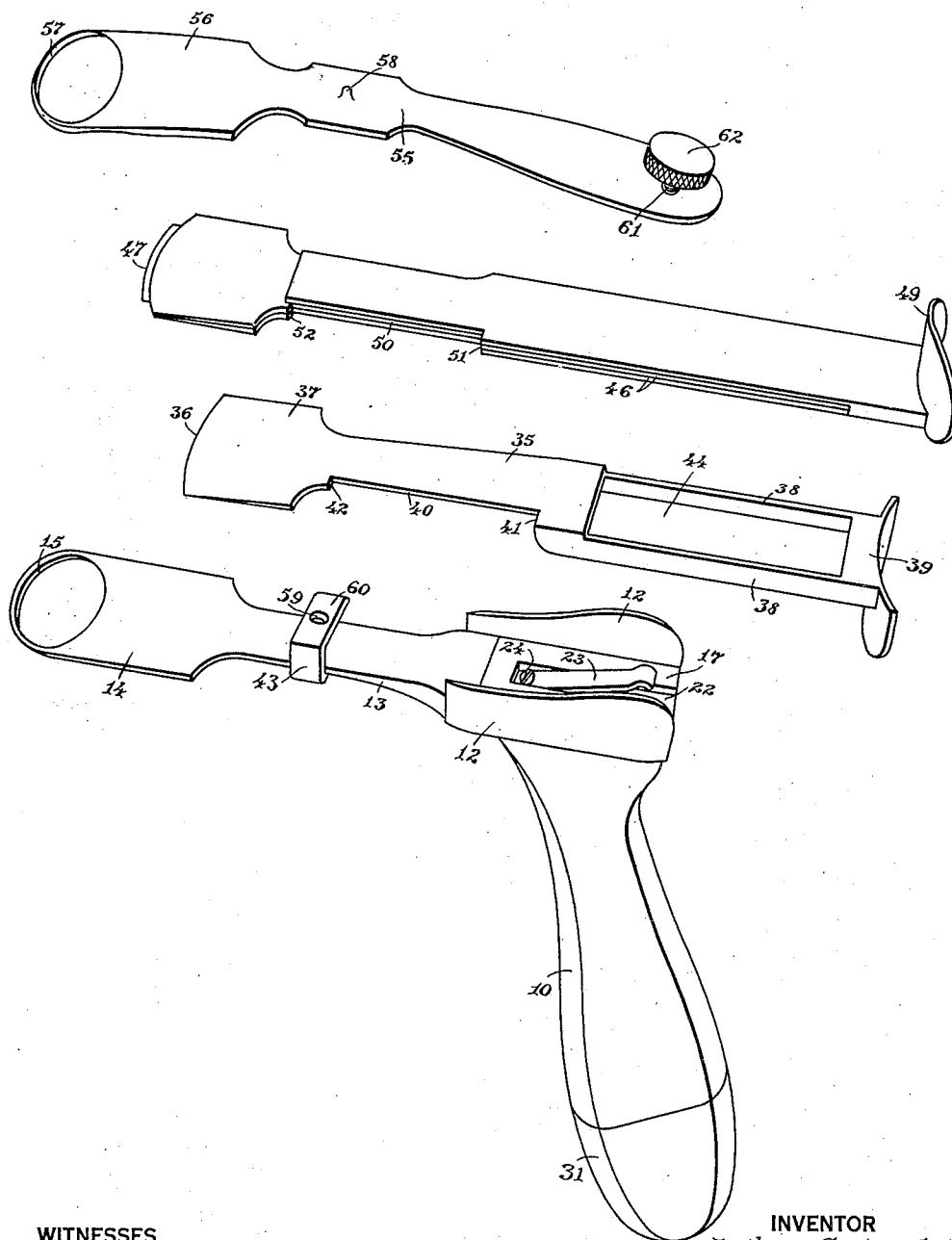
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TONSILLOTOME

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2 Sheets-Sheet 1

Fig. 1.



WITNESSES

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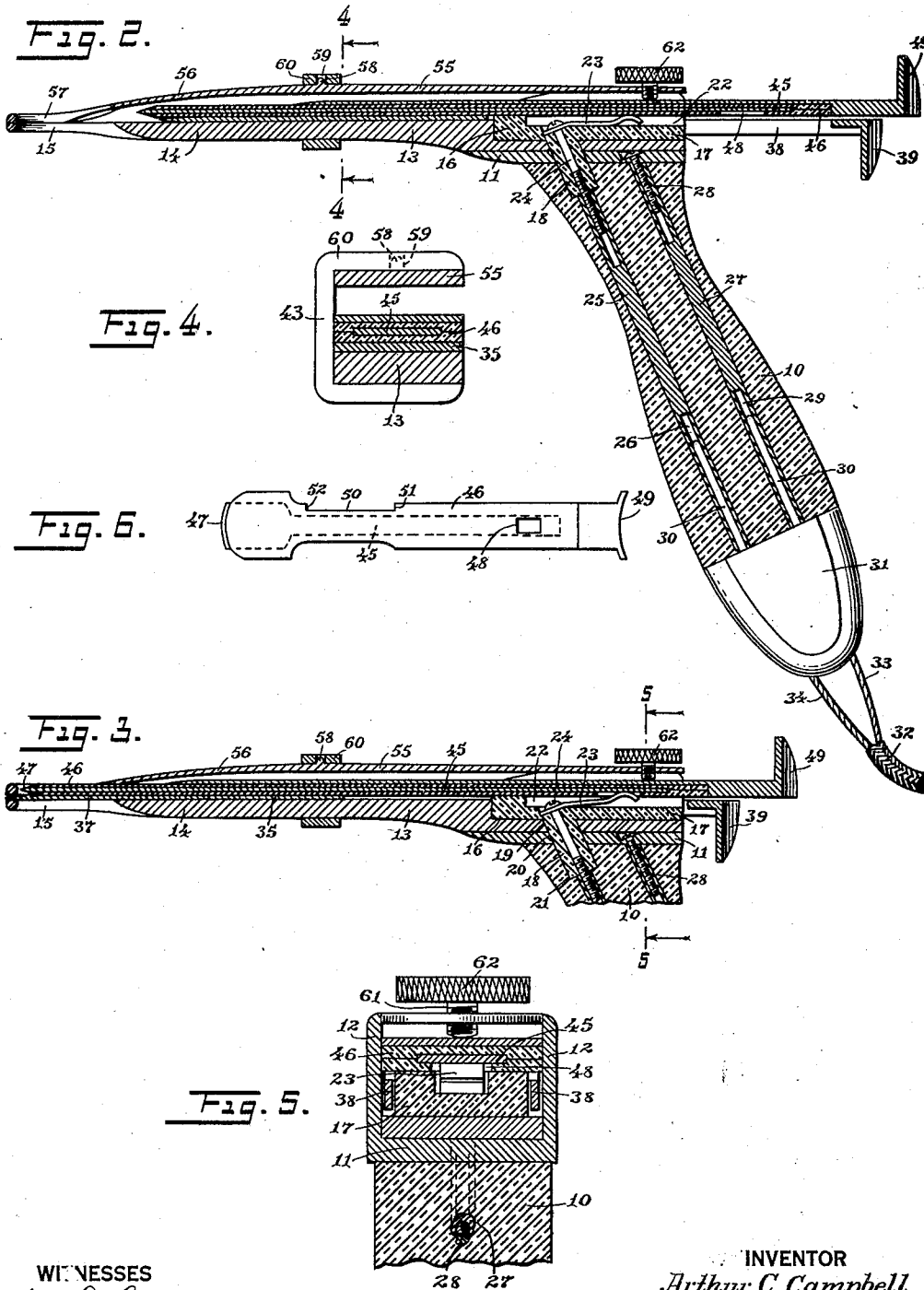
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TONSILLOTOME

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This invention relates to surgical instruments, and has particular reference to an improvement in tonsillotomes of the guillotine type, although in its broad aspect the invention is not limited to its use for the removal of tonsils, as it is to be understood that the principle may be applied to instruments for other purposes in so far as it is applicable.

The principal and outstanding object of the present invention is to provide an improved instrument of this character which includes means for directing a high frequency electrical current through the base of the tonsil prior to the final severing of the appendages in order to reduce bleeding to an absolute minimum by coagulation.

More specifically, the invention comprehends in a tonsillotome or analogous instrument, a pair of successively movable blades, one of which initially directs a high frequency electrical current to the base of the tonsil for causing coagulation of the appendages and the other of which is subsequently employed for severing the appendages.

The invention further resides in an instrument of the character set forth novel means for removably assembling the blades and adjusting the tension thereon whereby disassembly of the blades may be readily effected for the purpose of cleansing and sterilizing the parts.

Other features of the invention reside in the simplicity of construction and mode of use of the instrument, the economy with which it may be produced and the general efficiency derived therefrom.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings, in which there is exhibited one example or embodiment of the invention, while the claims define the actual scope of the same.

In the drawings:

Figure 1 is a collective perspective view illustrating the parts of the instrument disassembled and in juxtaposition.

Figure 2 is a longitudinal sectional view therethrough with the blades in retracted inactive position.

Figure 3 is a similar view with the blades moved to their active position.

Figure 4 is a transverse sectional view taken approximately on the line 4—4 of Figure 2.

Figure 5 is a fragmentary transverse sectional view taken approximately on the line 5—5 of Figure 3.

Figure 6 is a bottom plan view of the electrical blade.

Referring to the drawings by characters of reference, the instrument includes a handle 10 constructed of an insulating material which is of the pistol grip type and which has secured to its upper end a base 11 of substantially U-shaped formation in cross section presenting the upstanding side flanges 12. A fixed shank member 13 is secured to and superimposed upon the base 11 between the flanges 12 and projects forwardly therefrom, terminating in a head 14 at the free end edges formed with an opening 15. The anchored rear end of the shank member 13 is rabbeted out on its upper surface as at 16 to receive a block 17 of insulating material, it being understood that the base 11 and the shank member 13 are of metal or a material which will act as an electrical conductor. The insulator block 17 is formed with a depending tubular boss 18 which extends through registering openings 19 and 20 in the shank member 13 and the base element 11. The lower end of the tubular boss 18 seats in a recess 21 in the upper end of the hand grip or handle 10. The upper face of the insulator block 17 is formed with a longitudinally extending depression or recess 22 to accommodate a resilient contact finger 23 of a conducting material. The contact finger is anchored at one end by a screw 24 which passes there-through through the tubular boss 18 and is threadedly engaged in the upper end of a conductor tube or rod 25 which is imbedded within and extends longitudinally through the hand grip or handle 10, the lower end of said sleeve or tube presenting a socket 26. A conductor rod or sleeve 27 imbedded in the handle 10 and disposed parallel to the conductor sleeve or rod 25 has its upper end in electrical connection with the base 11 and the

shank member 13 through the medium of a screw 28 threadedly engaging its upper end and extending through an opening in the base 11. The lower end of the rod or sleeve 27 presents a socket 29 parallel to the socket 26 and the said sockets 26 and 29 are designed to receive the prongs 30 of a plug element 31 which is designed to be attached to the source of electrical energy through the medium of an extension cord 32 carrying the electrical conductors 33 and 34. A cutting blade 35 is superimposed on the shank element 13 for relative sliding movements in opposite directions to respectively advance the cutting edge 36 of its head 37 across the apertured portion 15 of the shank and to retract the same with respect to said apertured portion. The cutting blade 35 has its rear end formed with downwardly offset laterally spaced parallel arms 38, 38 which fit and are guided between the opposite side edges of the insulator block 17 and the marginal flanges 12 of the base 11. The rear ends of the arms 38 are joined by a thumb piece 39 which permits the advancement of the blade by the pressure of the thumb thereon. The cutting blade 35 is provided with an elongated notch 40 at one side edge which defines shoulders 41 and 42 adapted to selectively contact with the yoke 43 which is carried by the shank member 13 intermediate its length. The shoulders 41 and 42 serve to respectively limit the sliding movement of the blade in opposite directions. It will be observed that the arms 38, together with the main portion of the cutting blade 35 and thumb piece 39, define a slot or opening 44 which exposes the contact finger 23 irrespective of the position of the cutting blade.

In addition to the cutting blade, an auxiliary or supplemental coagulator blade is employed which serves as a means for conveying the current to a point closely adjacent the outer edge of the apertured portion 15 of the shank member. The coagulator blade includes a leaf 45 of an electrical current conducting material which is enclosed in a sheath 46 of an insulating material except for its terminal edge 47 which extends slightly beyond the outer end of the sheath. The under side of the sheath is provided with an opening 48 which is adapted to register with and receive therethrough the free terminal of the contact finger 23 when the coagulator blade is projected to its active position. The rear end of the coagulator blade is provided with a thumb piece 49 to permit of advancement or projection of said blade by the pressure of the thumb thereon, and normally the thumb piece of the coagulator blade is disposed rearwardly beyond the thumb piece 39 of the cutting or severing blade when said blades are in retracted position. The coagulator blade is provided with an elongated notch 50 in one of its side edges similar to

the notch 40 and which defines shoulders 51 and 52 at its opposite ends adapted to selectively coact with the yoke 43 for positively limiting the sliding movements of the blades in opposite directions.

In order to provide means for removably retaining the blades in place and for exerting a frictional tension on the same to prevent sliding movement thereof except when a positive pressure is exerted thereon, a covering shank member 55 is provided which terminates in a head 56 at one end adapted to overlie the head 14 of the fixed shank member and which covering shank member is provided with an aperture 57 designed to register with and overlie the aperture 15. Intermediate its ends, the covering shank member is formed with an upstanding substantially conical stud 58 which is designed to be received by a keeper opening 59 formed in the horizontal laterally projecting portion 60 of the yoke 43 which overlies the fixed shank and blade. The rear terminal of the covering shank member 55 is designed to be received between the marginal upstanding flanges 12 of the base, and a set screw 61 having a knurled head 62 is threaded through the rear terminal of the member 55 for adjustable impingement upon the upper ends of the coagulator blade.

In use and operation, with the blades retracted as shown in Figure 2, the user after positioning the openings 57 and 15 of the shank members over the tonsil, projects the coagulator blade by the pressure of the thumb on the thumb piece 49 until the exposed edge 47 of the conductor element 45 grips the base of the tonsil and its appendages and impinges the same against the outer end of the openings 57 and 15. Immediately upon assuming this position, the high frequency electrical current is directed through the base of the tonsil and the appendages, due to the closing of the circuit through the engagement of the contact finger with the leaf 45. The current dehydrates or coagulates the blood as it passes through the tissues, and as soon as this has been sufficiently accomplished the operator presses forward on the thumb piece 39 to project the cutting blade 35 for completely severing the tonsil and its appendages, thereby leaving the coagulated part in the throat so as to stop the bleeding.

When it is desired to remove the blades, they are retracted to the position illustrated in Figure 2 and the knurled screw 62 is unscrewed so as to reduce the tension on the upper shank member 55 which is then pressed down to disengage the stud 58 from the keeper opening 59. By projecting the member 55 forwardly until its rear terminal clears the flanges 12, said member may be removed laterally, after which the blades may be freely displaced.

What is claimed is:

1. In a tonsillotome of the guillotine type including an apertured shank and a tonsil severing blade slidable over the apertured end of the shank; an auxiliary coagulator blade initially movable to grip the base of the tonsil and operable to direct a high frequency electrical current through the base of the tonsil for effecting coagulation of the appendages prior to the actual severance of the tonsil by the severing blade.

2. In a tonsillotome of the guillotine including an apertured shank and a tonsil severing blade slidable over the apertured end of the shank; an auxiliary coagulator blade initially movable to grip the base of the tonsil and operable to direct a high frequency electrical current through the base of the tonsil for effecting coagulation of the appendages prior to the actual severance of the tonsil by the severing blade, said auxiliary blade including an electrical current conductor leaf insulated from the shank and means for automatically closing the circuit through said leaf when the auxiliary blade is moved to active gripping relation with the base of the tonsil.

3. In a tonsillotome of the guillotine type including an apertured shank and a tonsil severing blade slidable over the apertured end of the shank; an auxiliary coagulator blade initially movable to grip the base of the tonsil and operable to direct a high frequency electrical current through the base of the tonsil for effecting coagulation of the appendages prior to the actual severance of the tonsil by the severing blade, said auxiliary blade including an electrical current conductor leaf, a sheath of an insulating material enclosing the same and from which one extremity of the conductor leaf projects and means for automatically closing the circuit through said leaf when the auxiliary blade is moved to active gripping relation with the base of the tonsil.

4. A surgical instrument including superposed shank members having aligned apertured ends through which the tonsil or the like is received, a pair of independently movable blades slidable between the apertured ends of the shank members, one of said blades including a portion constructed of an insulating material and an electrical current conductor leaf enclosed thereby with one end extending beyond the insulated portion and means for automatically completing a high frequency electrical circuit through said leaf and the base of the tonsil when said blade is moved to an active gripping relation with the base of the tonsil.

5. A tonsillotome including a pair of superposed separable shank members having aligned apertures in adjacent ends, coagulator and severing blades mounted between said shank members for independent sliding

movement from a normally inactive retracted position to an active projected position across and between the apertured ends, said coagulator blade including an insulator sheath, an electrical current conductor leaf enclosed by the sheath with one end thereof exposed, a handle of an insulating material attached to one of the shank members having electrical conductors extending therethrough, one of which is electrically connected with the shank member and the other of which is insulated therefrom and means for establishing an electrical connection with the conductor leaf when the coagulator blade is fully projected to its active position.

6. A tonsillotome including a pair of superposed separable shank members having aligned apertures in adjacent ends, coagulator and severing blades mounted between said shank members for independent sliding movement from a normally inactive retracted position to an active projected position across and between the apertured ends, said coagulator blade including an insulator sheath, an electrical current conductor leaf enclosed by the sheath with one end thereof exposed, a handle of an insulating material attached to one of the shank members having electrical conductors extending therethrough, one of which is electrically connected with the shank member and the other of which is insulated therefrom and means for establishing an electrical connection with the conductor leaf when the coagulator blade is fully projected to its active position, said means comprising an apertured rear end of the sheath and a resilient contact finger connected with the other conductor and projectable through the apertured portion for engagement with the conductor leaf.

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