

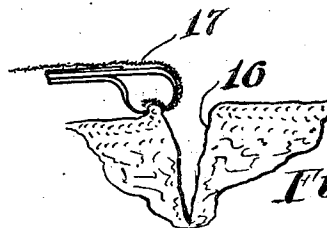
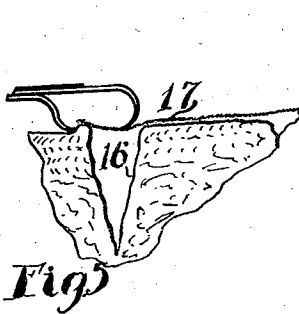
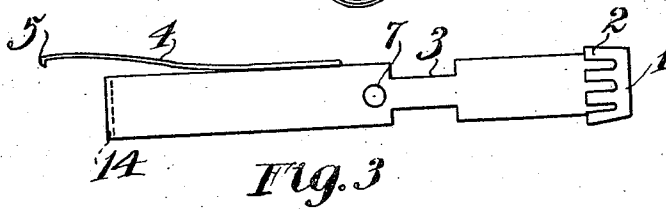
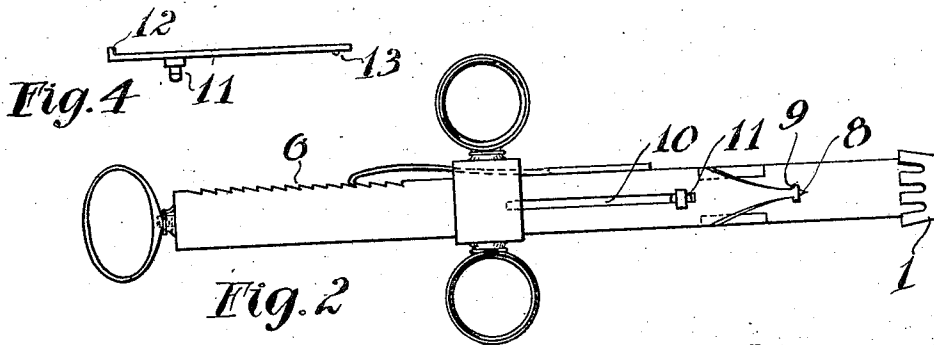
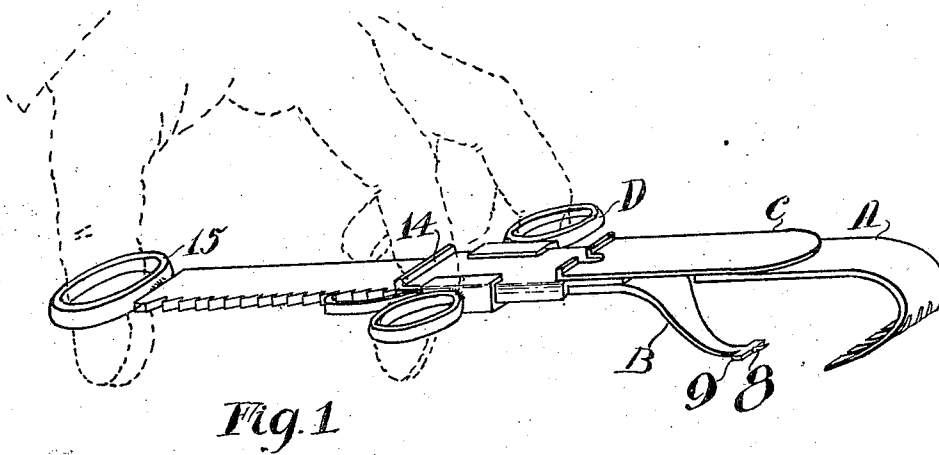
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W. W. NAUTH

INCISION OPENER

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INCISION OPENER.

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The present invention relates to a clamp or forceps to fasten a towel over the edge of an incision during an operation to insure a covering of the skin and protect the incision and its contents from contamination.

The clamp or forceps ordinarily used for this purpose consists of pivotally connected members having jaw and handle ends with ratchet means intermediate the handles operative to hold the jaws in a desired degree of compression to grip the skin and towel. With this construction the handles move in the same plane as the jaws, so that it is impossible to grip the edge of the incision without the instrument lying parallel to and close to the edge of the incision, or having the handles stand at right angles to the plane of the body, thus interfering with the operator's work.

Among the objects of the present invention is to provide a construction which in use will lie at right angles to the edge of the incision and with the entire instrument, including the handles, lying in the plane of the body of the patient, so as not to interfere with the operator.

A further object of my invention is to provide a construction in which the towel will be turned under the edge of the incision and smoothly held in such covering position.

Another object is to provide a construction in which the parts can be very easily taken apart for the purpose of cleaning and sterilizing.

The above and other advantages of the invention will be apparent from the accompanying specification and the following drawings, wherein:

Figure 1, is a view in isometric perspective of a device made in accordance with the present invention, the hand of an operator being indicated in dotted lines.

Figure 2, is a view in bottom elevation of the device illustrated in Figure 1.

Figure 3, is a view also in bottom elevation of one of the clamp members of the device.

Figure 4, is a view in side elevation of a spring stop and locking lug; and

Figures 5 and 6, are sectional views through a portion of flesh having an incision therein showing a method by which the device is used to grasp an edge of an incision.

Referring to the drawings in detail, the device comprises four principal elements as follows: a denticulated clamp member A, a

pointed lower clamp member B, a spring stop and locking member C, and a sliding clasp D. The structure of the upper clamp member A, as clearly shown in Figure 3, comprises a downwardly and inwardly curved outer end 1 having teeth 2 therein, the edges of the teeth being ground to somewhat less than a cutting edge. A cut-away portion 3 is provided in each side of the upper clamp member to permit the removal therethrough of the sliding clasp D. This structure permits the device to be readily assembled or taken down for cleaning. Attached to one side of the upper clamp member A is a rearwardly extending spring 4. The spring 4 is provided with a hooked outer end 5 to engage a ratchet 6 in the side of the inner clamp member B to hold the parts in a required degree of compression. An aperture 7 in the upper clamp member A permits the insertion therein of a locking lug to be later described.

The lower clamp member B is constructed of a flat piece of metal, the inner end thereof being curved downward and outward and being brought to a point 8, a transverse stop member 9 being provided rearwardly of the point to limit the penetration of the point. One side of the lower clamp member B is notched to form a ratchet 6 with which the hooked outer end of the spring 4 engages. The lower clamp member is provided with a longitudinal slot 10 in which a locking lug 11, carried by the spring stop member C is slidably mounted. The spring stop member is a flat sheet of spring steel having the end 12 thereof upturned to form a stop for the slidable clasp D. The locking lug 11 is integrally connected to the lower face of the spring stop member C and is provided with a rounded upper portion and a flattened lower portion. The lower portion of the locking lug is of a width to be insertable in the slot 10 in the inner clamp member B, when the spring stop member C is turned to lie at right angles with the clamp members A and B, the rounded upper portion of the locking lug 11 on the spring stop member C being of a size to be insertable in the opening 7 in the upper clamp member. A small stud 13 on the lower face of the spring stop member C seats in a depression, not shown, in the top of upper clamp member A to hold member C in position thereon. The slidable clasp D is of a size to receive the upper and lower clamp members in the manner shown

in Figures 1 and 2. The inner end 14 of the upper clamp member A is upturned to serve as a stop to limit the movement of the slidable clasp D during a compressive operation of the device, while the upturned end 12 of the spring stop member C serves to limit the movement of the sliding clasp D during a separative operation of the device.

It will be noted that the sliding clasp D encloses the spring 4 carried by upper clamp member A. Therefore, when the sliding clasp D is moved inwardly along the spring extension during a separative movement of the device, the spring extension is thereby released from engagement with the ratchet. During a compressive operation of the device, the slidable clasp D is moved outwardly toward the thumb of the operator until it comes in engagement with the stop 14 formed by the upturned end of upper clamp member A. This forces the hooked outer end of spring 4 into engagement with the ratchet 6 on the lower clamp member B. The parts may be then drawn to a required degree of compression, the spring 4 moving from tooth to tooth along the ratchet to hold the clamp members in any desired degree of compression.

To take the device apart, as for cleaning, the outer end of the leaf spring C is raised to release the small stud 13 from engagement with the depression in upper clamp member A. The spring stop member C is then turned with the locking lug 11 as a pivot to lie at right angles to the clamp members. This brings the flattened lower portion of the locking lug 11 into register with the longitudinal slot 10 in the inner clamp member. The locking lug may then be withdrawn. The sliding clasp D is then moved along the upper clamp member until the inward extensions of the clasp D are in register with the depressions 3 in the sides of upper clamp member A. The upper clamp member A may then be removed leaving the sliding clasp on the inner clamp member B. The sliding clasp D may be removed from the inner clamp member B by removing the ring 15 which is threadedly connected to the end of the inner clamp member B. This permits the sliding clasp to be withdrawn from the inner clamp member. To assemble the parts the process is reversed.

The method of use of the device is shown in Figures 5 and 6, wherein an incision 16 through the skin of the patient is indicated. A linen towel or napkin 17 is first laid over the incision, as shown in Figure 5, and the clamping device is positioned with the pointed end of the lower clamp member adjacent an edge of the incision, sufficient downward pressure being exerted to bring the point 8 of the lower clamp member below the edge of the incision and the toothed end of the

upper clamp member inside the incision and below the upper edge thereof. The parts are then drawn to a compressed position, as shown in Figure 6, causing the toothed end of the upper clamp member to roll the towel underneath the skin. As the parts are drawn together the point 8 penetrates the skin for its full length until stopped by the cross member 9. It will be noticed in Figure 1, especially, that the point 8 curves upwardly above the line of the teeth 2 so that when the parts are drawn to the closed position as shown in Figure 6, the point 8 is slightly above the plane of the ends of the teeth 2, causing the towel to be rolled under the edge of the incision. This rolling of the towel under the edge of the incision holds the towel closely to the edge of the incision between clamps, preventing the towel from looping up between the clamps, as frequently happens when the edge of the towel lies flat upon the edge of the incision, thereby permitting exposure of the edge of the incision. The towel or napkin is then folded back over the outer end of the clamp and back over the entire instrument, with the instrument itself extending outwardly from the incision and lying upon the body of the patient at right angles to the edge of the incision. As shown by the drawings the handle and all the operative parts of the device will lie flat upon the body of the patient, insuring the minimum of interference with the operator. The straight line operation of the parts, as indicated in Figure 1, it will be evident, greatly increases the ease of manipulation of the device.

What I claim is:

1. A device of the character described, comprising a member having an inwardly curved jaw, a second member having an oppositely curved jaw, removable clasp means slidably connecting said members and means acting intermediate the said members to resist separation of the jaws during an operative movement, and to free the jaws for separation during a retractive movement of the device.

2. A device of the character described, comprising a pair of flat members relatively slidable longitudinally of each other, clasp means removably embracing both members and having limited slidable movement with one of said members, and free slidable movement with the other of said members, a jaw carried by each of the flat members, and grip means carried by the clasp means and by the flat member with which the clasp means has free slidable engagement.

3. A device of the character described, comprising a planiform member having a curved jaw integral therewith, a second planiform member having an oppositely disposed jaw integral therewith and having a longitudinally extending track therein, a

locking lug penetrating the first member and being removably affixed in the longitudinal track in the second member to slidably connect the two members to each other, clasp means removably embracing both members and having limited sliding engagement with one member and free sliding engagement with the other member, and means acting intermediate the first and second members to lock the jaws against separation by an actuating movement of the clasp means, and to release said jaws for separation by a retractive movement of the clasp means.

4. A device of the class described, comprising a pair of flat members relatively slidable longitudinally of each other, hand operative clasp means removably embracing said members and having limited slidable movement with respect to one of said members and free sliding movement with respect to the other of said members, finger grips carried by said clasp means and by the slidable member with which the clasp means has free slidable engagement, and end jaws carried by said slidable members and directed toward each other.

5. A surgical device of the character described, comprising a pair of slidable jaw members, clasp means mounted to retain said jaw members in operative position, and locking means mounted on one of said jaw members to be normally disengaged from the other of said jaw members, and means to move said locking means into locking engagement with the other of said jaw members upon an actuation of the device.

6. A surgical device of the character described, comprising a pair of slidable jaw members, locking means carried by one of said jaw members and normally disengaged from the other of said jaw members, clasp

means embracing said jaw members and mounted to engage the locking means during an operative movement of the device to move the locking means into locking engagement with the other of said jaw members, and to release said jaw members upon a retractive movement of said device.

7. A surgical device of the character described, comprising a pair of slidable jaw members, clasp means embracing said jaw members to hold them in an operative position, one of said jaw members being provided with a cutaway portion to register with the clasp means to release the jaw members for separation, and removable spring means resiliently acting upon the jaw members to hold them in lateral engagement and normally withholding the clasp means from registration with said cutaway portion to prevent separation of said jaw members.

8. A towel clamp of the character described, having a pair of members relatively slidable longitudinally of each other, one of said members being provided with a downward and an inwardly directed jaw to roll a towel over the edge of an incision, the other of said members being provided with an oppositely disposed portion having a point thereon to penetrate the towel, and the edge of the incision.

9. A towel clamp of the character described, having a pair of slidably connected jaw members, one of said members having a downward and inwardly disposed jaw and the other of said members having a downward and outwardly disposed point, and a guard portion carried by said second member and being spaced from said point to limit the penetration thereof.

In testimony whereof I affix my signature.

WALTER W. NAUTH.