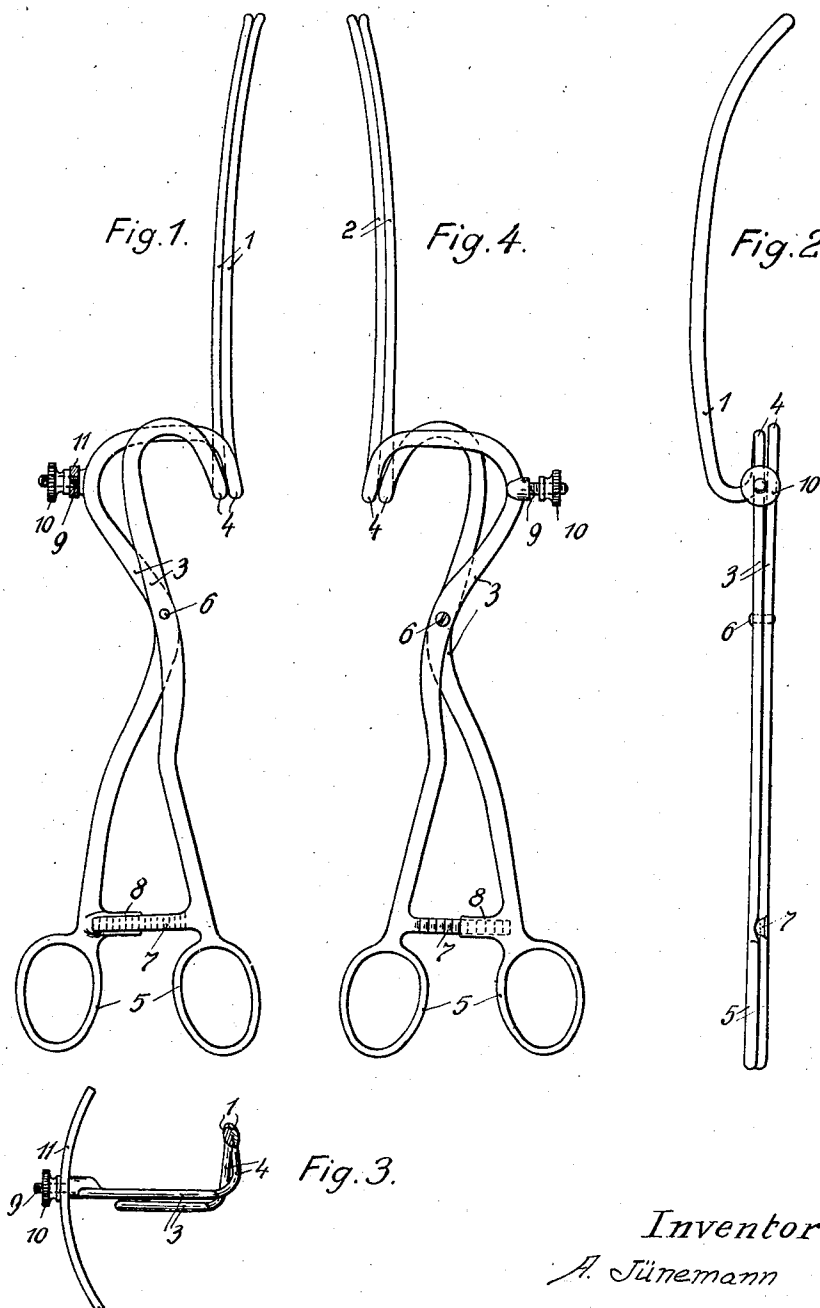


March 27, 1928.

A. JÜNEMANN
SURGICAL FORCEPS
Filed Nov. 2, 1927

1,664,112

2 Sheets-Sheet 1



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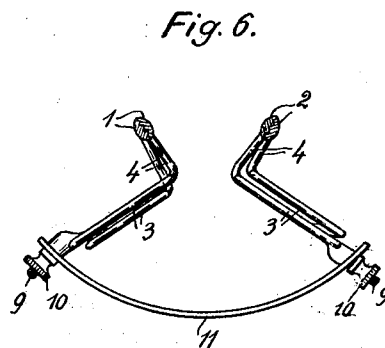
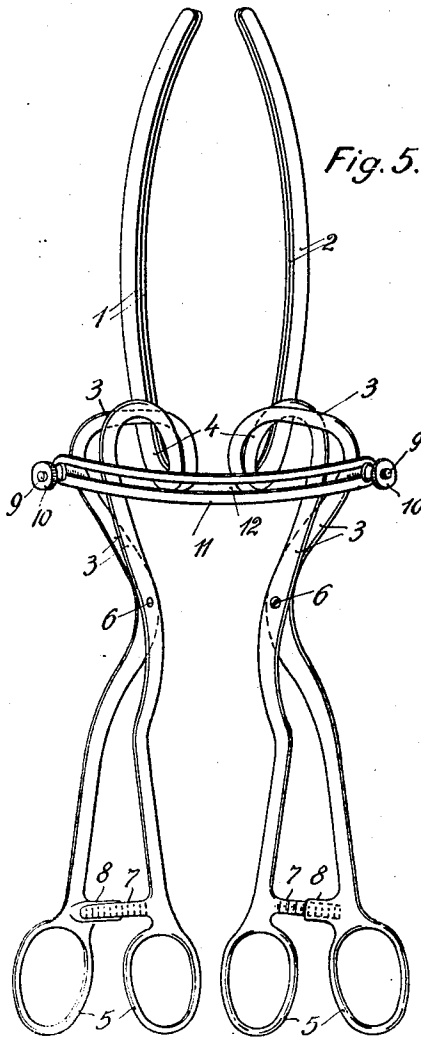
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

AUGUST JÜNEMANN, OF WITTENBERGE, GERMANY.

SURGICAL FORCEPS.

Application filed November 2, 1927, Serial No. 230,647, and in Germany October 18, 1926.

When opening cavities in the human body during an operation, hæmorrhage frequently occurs, which is difficult to staunch. More particularly in the so-called Cæsarian section, that is, the incision for opening the pregnant uterus, through which the child is removed, exceedingly heavy hæmorrhage occurs at the surfaces of section, which may frequently endanger life. Apart from the great injury to health caused by such a great loss of blood, the quantity of blood gushing out makes it difficult for the operator to obtain a proper view of the seat of operation. This disadvantage can be removed by repeatedly mopping the place in question, for which purpose an assistant is required. This will not staunch the flow of blood, however, and this flow will continue uninterruptedly while stitching is proceeding. As, however, more particularly in the case of the Cæsarian section, several layers of rows of stitches have to be put in, the closing of the wound will occupy a considerable time, during which the hæmorrhage will continue uninterruptedly, so that, as already stated, there must be a considerable loss of blood. Forceps for clipping arteries are known, of course, but cannot be used alone, more particularly in the Cæsarian operation.

The present invention has for its object to provide an appliance which is intended to be used in such operations, more particularly the Cæsarian operation, and which does not only cause the hæmorrhage to stop immediately, thus rendering the entire seat of operation visible, but so sets the edges of the wound with respect to one another that the operator can make the necessary stitches without trouble and without undue hurry, as is now the case.

The appliance according to the invention consists of two pairs of clamping jaws which are adapted as regards their length and curvature to the requirements in each case. Each of these pairs of clamping jaws are placed, after the uterus has been opened, along one of the edges of the wound in such a manner that a sufficient portion of the edge of the wound is left projecting beyond the jaws for applying the stitches. The two pairs of jaws are provided with joint parts with which they can be connected together, so that they can be turned with respect to one another for drawing the edges of the wound so close together that the stitches may be applied without trouble.

In the accompanying drawings a constructional example of the invention is illustrated.

Figures 1 and 4 show the pairs of clamping jaws in plan view;

Figure 2 shows the pair of jaws of Figure 1 in side elevation;

Figure 3 the same pair of jaws in front elevation;

Figure 5 shows the pair of clamping jaws united, but opened, in plan view; and

Figure 6 is a front elevation of Figure 5.

As will be seen from Figure 5, the appliance according to the present invention consists of two pairs of clamping jaws, the clamping jaws 1, 2, of which are of a length corresponding to the anticipated length of the incision. The clamping jaws may be curved in accordance with the shape of the organ to be operated on, or have any other shape. In cross section, the clamping jaws, as shown in Figures 3 and 5, have approximately the form of a flat ellipse, such that there are no sharp edges. The clamping jaws must be sufficiently elastic, so that the clamping pressure can act uniformly all over. The clamping jaws 1, 2, merge into the extensions 3 of the handles with such a curvature that each jaw has a part 4 extending beyond the handle extension, which serve the purpose, when the appliance is in use, of gripping the blood vessels lying beyond the end of the incision, and stopping hæmorrhage. On the handle extensions 3 are the handles 5. By this arrangement, the os pubis is, as it were, bridged over when applying the instrument during the Cæsarian operation, so that the instrument can be applied either from the lower or the upper end of the incision. In each pair of forceps, the handle extensions 3 are pivoted by means of the screw 6, so that the clamping jaws of each pair can be moved by means of their handles. For securing each pair of clamping jaws, after they have been applied to the edge of the wound, any suitable locking device may be provided. In the constructional example shown in the drawings, one handle has fixed to it an arcuate bar 7 which, as indicated, is provided with notches or incisions, in which a short bar 8, fixed to the other handle 5 of the same forceps, engages by means of a tooth, not shown in the drawing, so that the pair of clamping jaws can be locked in the required position, and held there. For connecting the two pairs of forceps together pivotally and releasably,

one handle extension of each pair of forceps has fixed to it a threaded pin or the like 9, on to which a nut is screwed. Over the two pins or the like 9 of the two pairs of forceps, there engages a bent member L having a slot 12, so that the pairs of forceps are thus connected together, and can be fixed in any desired position with respect to each other.

10 The appliance according to the invention is used in the following manner:—After the incision has been made, or the uterus has been opened by an incision, the two edges of the incision are clamped one after the other, by means of the two pairs of clamping jaws, 1 and 2, the clamping jaws being moved towards each other, so that the blood vessels are closed. Care must be taken that a sufficiently wide portion of the edge of the incision projects beyond the clamping jaws for making the necessary stitches. The hæmorrhage will have ceased immediately, so that the view of the seat of operation is unobscured, and, what is more important, the otherwise unavoidable loss of blood cannot take place. For closing the wound by stitching, the two pairs of clamping jaws are approached towards one another, whereupon the nuts 10 are tightened down on the pins 9, for clamping the member 11, when the two pairs of clamping jaws have been so adjusted relatively to one another that the edges of the wound are close together. The stitches are then put in in the usual manner almost to the end of the wound. For completing the stitching, the two pairs of clamping jaws are separated by releasing the nuts 10, and drawing them apart, so that they can be withdrawn separately out of part of the wound not yet stitched.

Any material, for instance, steel, may be used in the manufacture of the appliance or, for reducing the weight, any suitable light metal, as long as it has sufficient elasticity and strength. The means for locking each

pair of clamping jaws and the constructional form of the releasable pivotal connection for the two pairs of clamping jaws may of course be effected in any other suitable manner than that shown in the drawing.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An appliance for preventing hæmorrhage during operations involving incisions in the walls of cavities in the human body, comprising in combination two pairs of forceps, each pair of forceps comprising two pivoted members, a handle at one end of the member, a clamping jaw at the other end of the member, and a bridge member for connecting the two pairs of forceps such that they can be adjusted independently of one another and rotated with respect to one another for drawing the edges of the incision together, and can be taken apart for removing the clamping jaws from the incision, as set forth.

2. An appliance as claimed in claim 1, in which the jaws of the members of the two pairs of forceps are of length corresponding to the length of the incision, are curved in accordance with the curvature of the wall of the cavity, and extend backwards towards the handles beyond the part of the pivotal limbs remotest from the hinge, as and for the purpose set forth.

3. An appliance as claimed in claim 1, and in which a part for connecting the pivotal members and the jaws extends first in one plane and then in a plane at right angles thereto, as and for the purpose set forth.

4. An appliance as claimed in claim 1, and comprising locking means for securing the combined pairs of clamping jaws in any desired position with respect to one another, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification.

Dr. AUGUST JÜNEMANN.