Nov. 10, 1925. 1,560,687

A. H. HAUBER

UMBILICAL LIGATURE

Filed Oct. 2, 1924

Fig. 1.

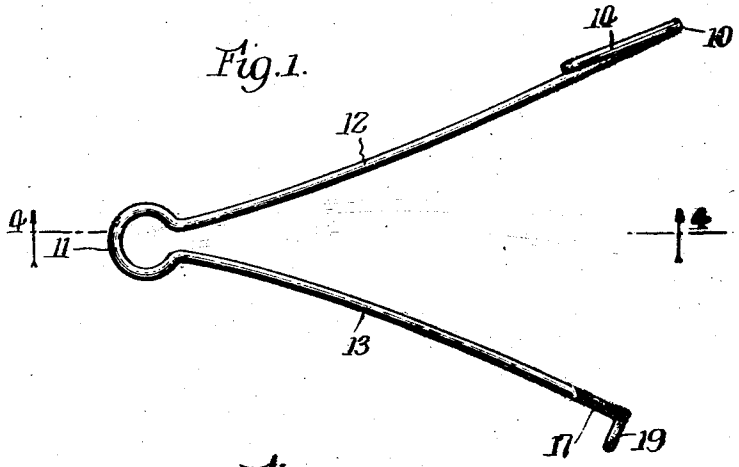


Fig. 2.

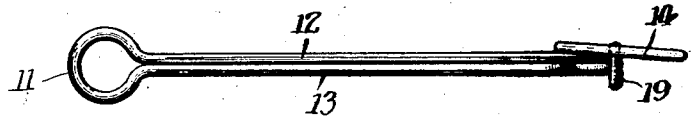


Fig. 3.

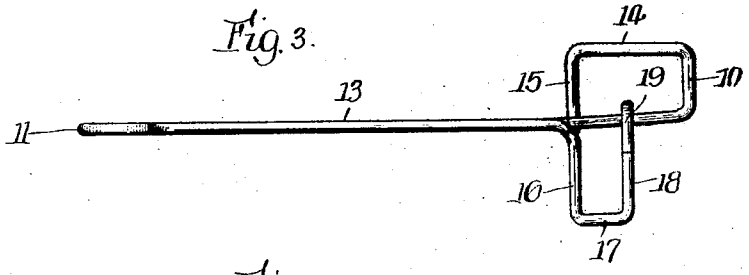


Fig. 4.

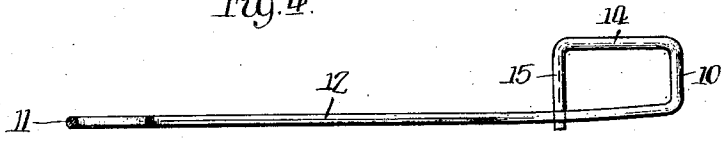
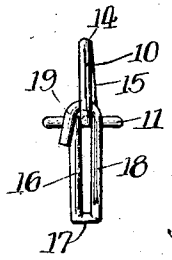


Fig. 5.



Witness:
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UNITED STATES PATENT OFFICE.

ARTHUR H. HAUBER, OF CHICAGO, ILLINOIS.

UMBILICAL LIGATURE.

Application filed October 2, 1924. Serial No. 741,102.

To all whom it may concern:

Be it known that I, ARTHUR H. HAUBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Umbilical Ligatures, of which the following is a specification.

My invention pertains to ligatures or clamps especially, but not restrictedly, adapted for satisfactory and efficient employment on umbilical cords, whereby to effectively compress, constrict and close the blood vessels thereof.

One object of the present invention is to provide a ligature of this character which will produce absolute and complete hemostasis by flattening and transversely squeezing the blood vessels of the cord without possibility of puckering, folding or creasing them, or forming them with furrows or wrinkles, the occurrence of which would prevent or tend to impede or hinder their perfect closure which is necessary to preclude leakage or bleeding with certainty.

Another aim of the invention is to supply an umbilical hemostat which is so constructed that there is no danger or likelihood of its becoming unintentionally unclasped or unfastened, which of course, if it could occur, would render the appliance unreliable and inadequate for the satisfactory performance of its functions.

A further salient purpose of the invention is the production of a constricting device of this type which can be easily rendered aseptic, which can be boiled, and which will not be capable of absorbing secretions or the like.

An added object of the invention is to furnish a clamp or ligature of this nature which may be quickly and easily applied to the cord or other part to be clamped.

An additional feature of the novel ligature resides in the fact that it can be manufactured economically and sold at such a price that it may be discarded after having been once used.

To enable those skilled in this art to have a full and complete understanding of the invention and its several benefits and advantages, in the accompanying drawing, forming a part of this specification, and throughout the several views of which like reference characters have been employed to designate the same parts, I have illustrated a desirable and preferred embodiment of the invention.

In this drawing:

Figure 1 is a plan view of the ligature in open condition;

Figure 2 is a top edge view of the same in closed or operative condition;

Figure 3 is a face view of the clamp in its closed state;

Figure 4 is a section on line 4—4 of Figure 1; and

Figure 5 is an end view of the device.

Referring to the several views of this drawing, it will be perceived that the ligature or clamping device is made of a single piece of suitable spring wire bent to proper or convenient form for the efficient performance of the intended functions.

Such piece of metal wire, which may be of steel or other metal uncoated or plated, as may be desired, is bent at 11, forming a small eye or loop in the closed or active condition of the device, to provide a pair of companion or correlated lengths 12 and 13, which, in the unclasped condition of the appliance, naturally spring apart and diverge from one another, as shown in Figure 1, thus facilitating and aiding in the application of the ligature to the umbilical cord which is received between such spreading arms.

The end or terminal portion of the arm 12 is bent up at 10, then toward the other end of the device at 14 and substantially parallel to the part 12, and then down at 15 to, or if desired, down back of the arm 12, thereby forming a rectangular loop constituting a handle which may be advantageously employed in applying the ligature and as a guard for the complementary hook of the other arm described hereinafter.

Such loop or handle stands up in a plane practically or substantially at right-angles to that of the two spring arms 12 and 13, all as is clearly illustrated.

The corresponding free end of the associated arm 13 is bent to form a downwardly projecting part 16, which joins with an outwardly-extended portion 17, which in turn connects with an upwardly-directed section 18 terminating in a forwardly-disposed hook 19, which, in the closed or operative condition of the appliance takes over that part of arm 12 between the sections 10 and 15 and locks or holds the ligature in clamping condition.

The sections 16, 17 and 18 form a small handle practically at right-angles to the plane of the spring arms and is of assistance and convenience in manipulating the ligature.

The hook 19, when catching through the loop of the other arm, maintains the two spring arms in practically parallel relation with capacity for sufficient flexure to accommodate themselves to the body clamped or grasped between them and, when this is an umbilical cord, these two arms compress the same adequately to flatten and seal or close the blood vessels precluding bleeding or loss of blood or leakage from the stump of the severed umbilical cord.

In order to close the ligature, the operator makes use of the bent portions of the two arms constituting the handles, and he can readily engage the hook around or over the wire of the companion member, and the appliance once thus closed and locked is safe against accidental unfastening, the ligature being employed with the assurance that, once having been properly applied, there will be no danger or possibility of unintentional displacement or removal.

An understanding of the construction and mode of operation of this device will show that it possesses all of the advantages above enumerated, but it is to be remembered that the invention is not limited and restricted to the precise and exact details of structure shown and described, because these may be varied more or less without departure from the heart and essence of the invention, as defined by the appended claim, and without the sacrifice of any of its substantial benefits and advantages.

I claim:

An umbilical ligature formed of a single piece of spring wire bent to provide two clamping sections tending to separate at their free ends, the end portion of one of said sections being bent up, rearwardly and then downwardly to form a loop handle at substantially right-angles to the plane of said sections, the end portion of the companion section being bent downwardly, then forwardly lengthwise the section, then upwardly and then laterally away from the loop of the other section in hook form, said hook in the closed condition of the ligature taking over the other section through said loop handle.

In witness whereof I have hereunto set my hand and seal.

ARTHUR H. HAUBER. [L. S.]