

No. 640,517.

Patented Jan. 2, 1900.

E. V. ACHESON.
UMBILICAL FORCEPS.

(Application filed June 12, 1899.)

(No Model.)

Fig. 1.

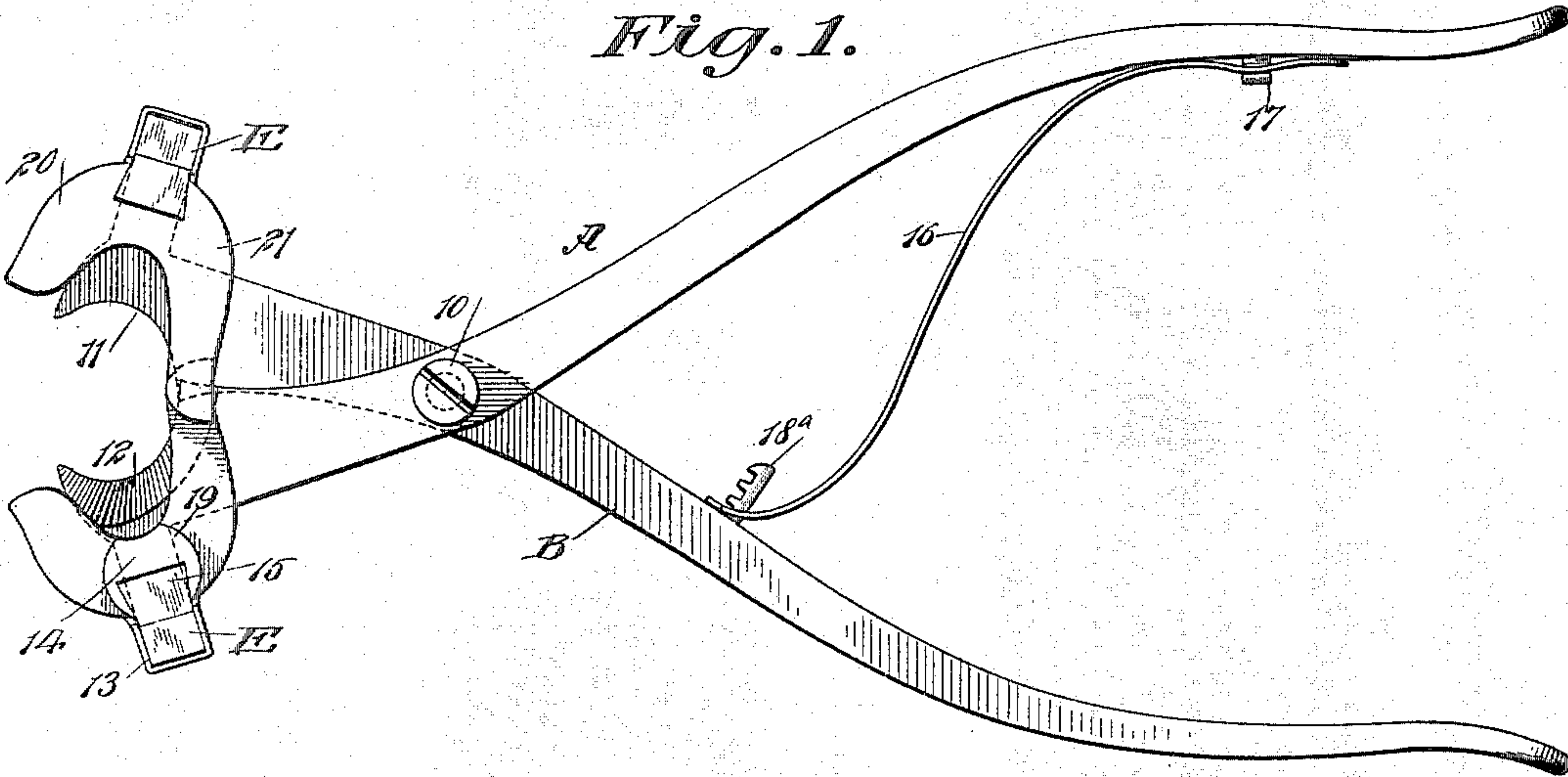


Fig. 2.

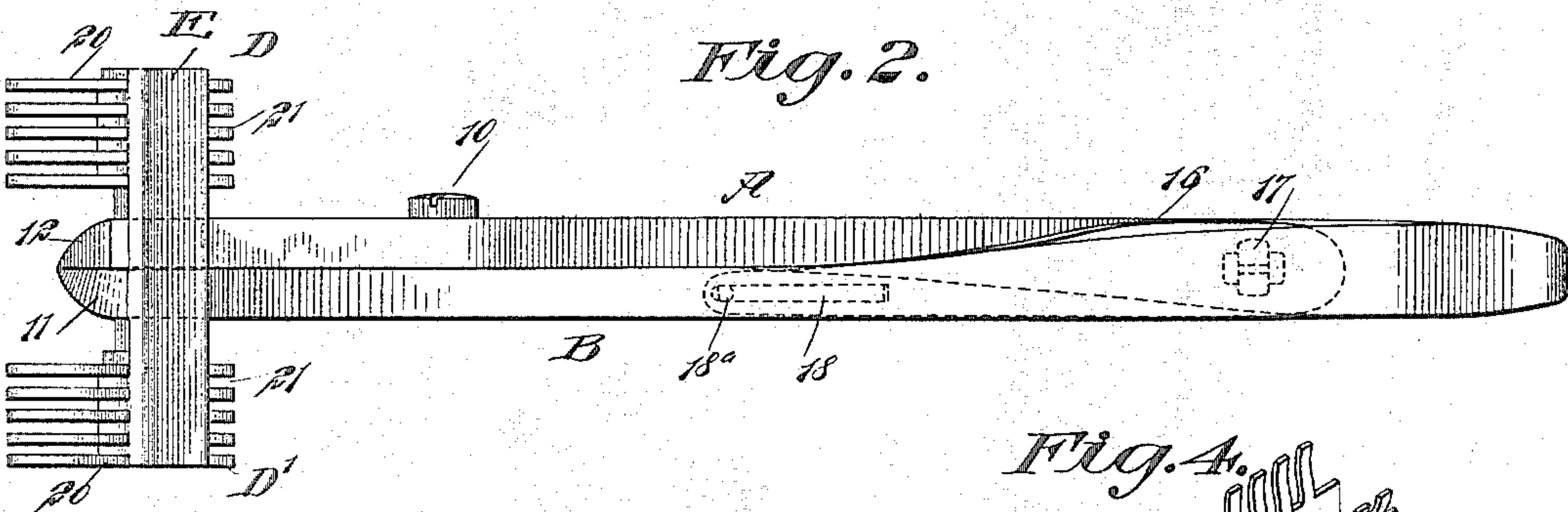


Fig. 3.

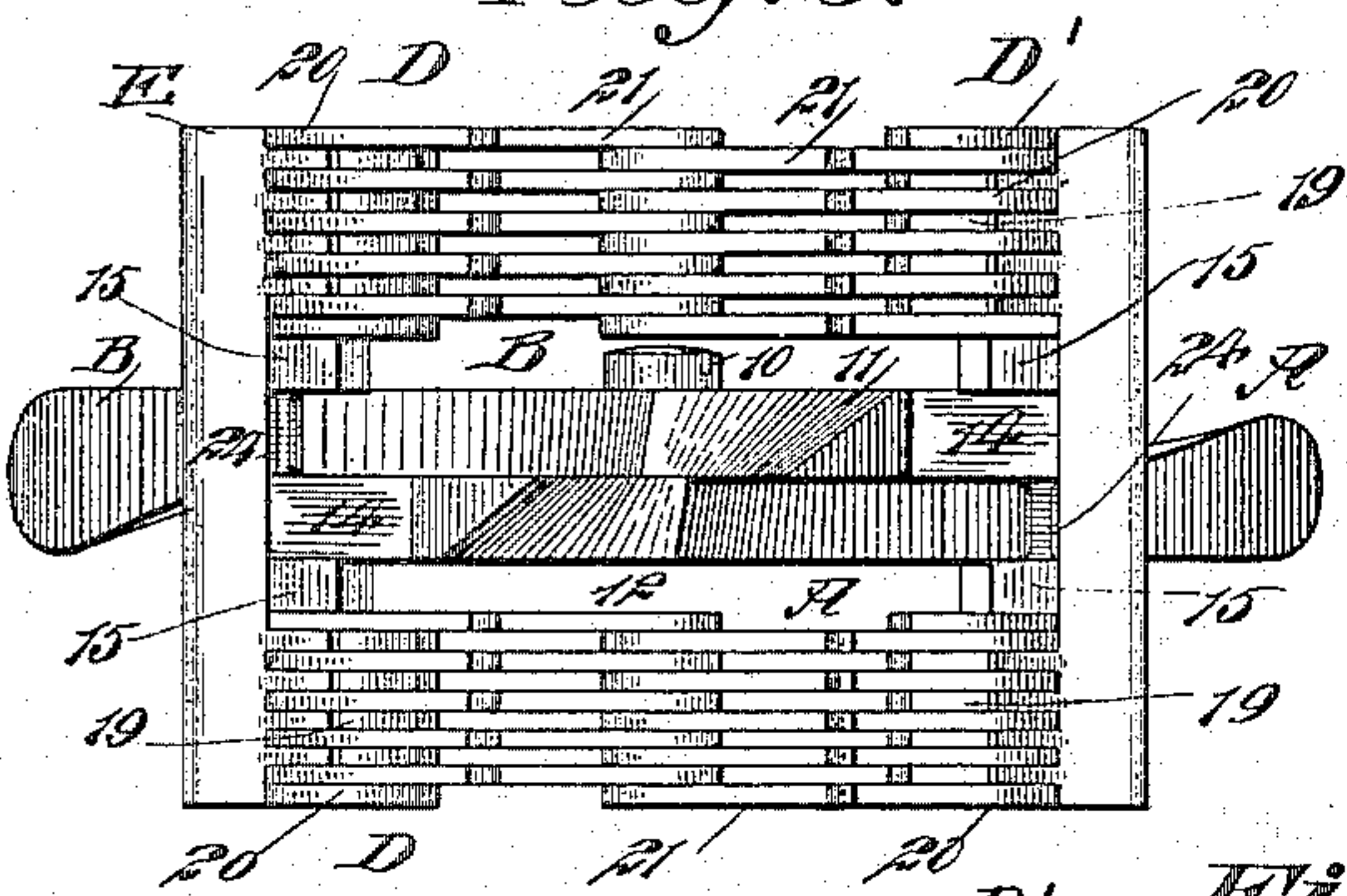


Fig. 4.

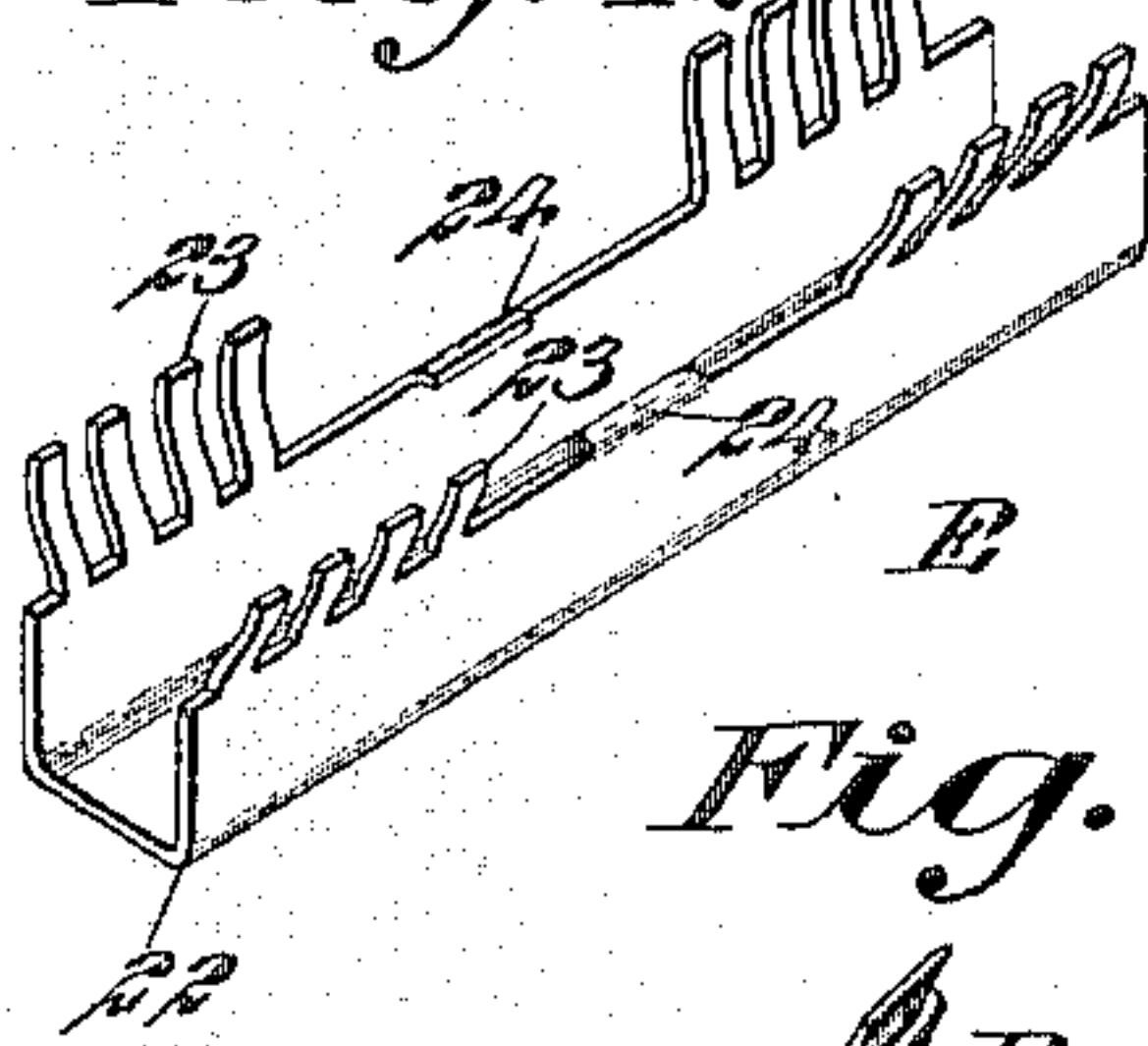


Fig. 5.

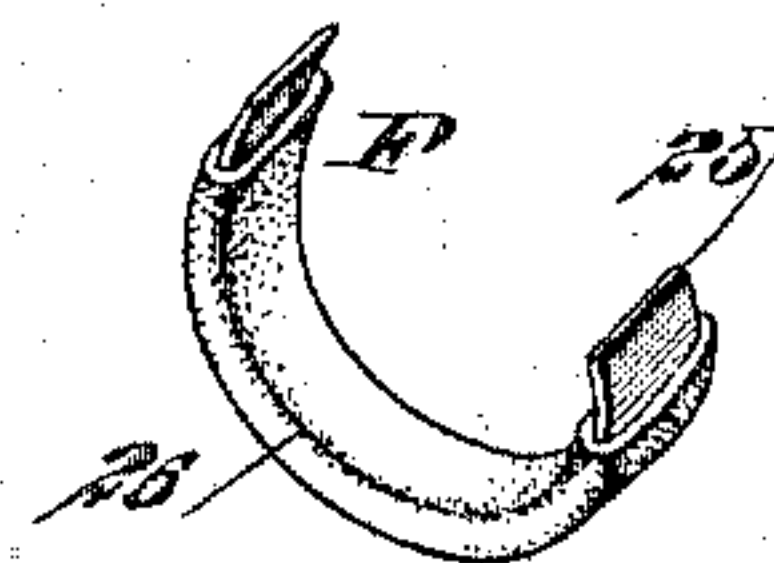
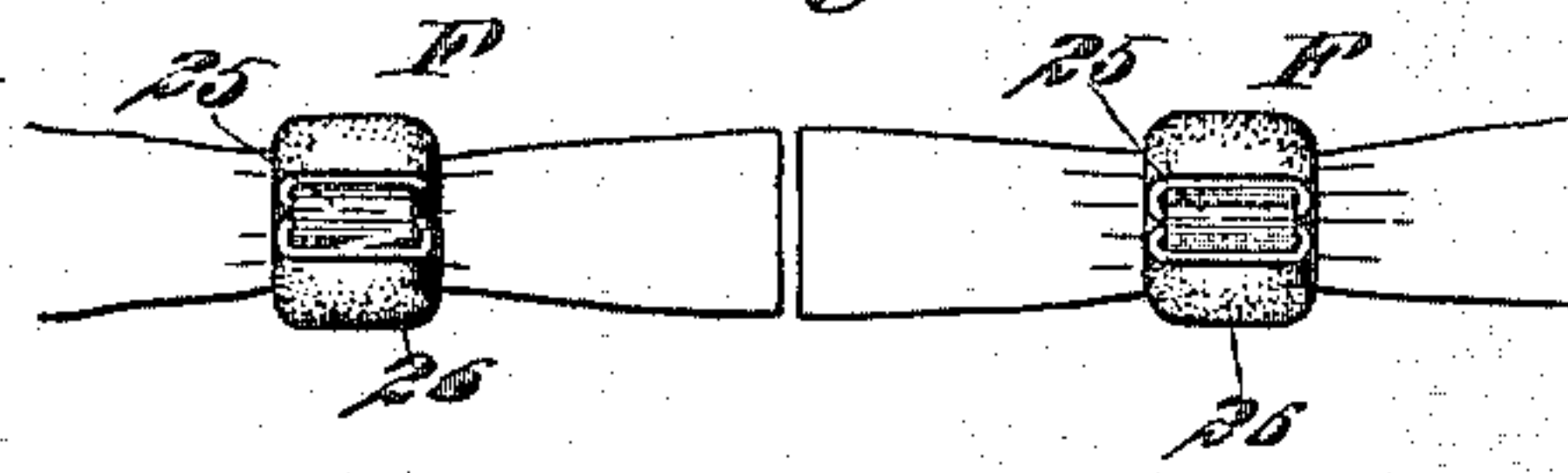


Fig. 6.

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UMBILICAL FORCEPS.

SPECIFICATION forming part of Letters Patent No. 640,517, dated January 2, 1900.

Application filed June 12, 1899. Serial No. 720,267. (No model.)

To all whom it may concern:

Be it known that I, ERNEST VICTOR ACHESON, of Salt Lake City, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Umbilical Forceps, of which the following is a full, clear, and exact description.

The object of the invention is to provide an instrument so constructed that the umbilical cord may be cut in two at one manipulation of the instrument and whereby the ends of the cord will be automatically fastened or sealed by the automatic and instant application of insulated aluminium, gold, silver, or wire bands.

A further object of the invention is to so construct the instrument that the various parts can be readily separated for the purpose of cleaning or sterilizing and as readily assembled and adjusted.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved instrument. Fig. 2 is a side elevation thereof. Fig. 3 is a front elevation of the instrument. Fig. 4 is a detail perspective view of one of the locking devices. Fig. 5 is a detail perspective view of the clamp or sealing device for the cord, and Fig. 6 illustrates the cord as cut and sealed or clamped at its abutting ends.

Two handles A and B are made to cross one another and are pivotally attached to each other near their forward ends by a pivot-pin 10. The handles at their forward extremities are made to terminate in curved jaws 11 and 12, each jaw having a curved cutting edge, a flat side surface, and an opposing concaved side surface, the flat side surfaces of the jaws being adapted for engagement. Thus by bringing the two flat surfaces of the jaws in contact a clean shear cut can be made. Each handle carries a head C, consisting of a cross-bar 13 and a shank 14, (shown in dotted lines in Fig. 1 and in positive lines in Fig. 3,) the said cross-bars being attached to or made an

integral portion of the back of the cutting-jaws 11 and 12. The cross-bar 13 of each head C is provided with an attached dovetail block or extension 15 upon its inner face, and these blocks are located one at each side of the shank 14. One block on each cross-bar is spaced some distance from the shank of the bar, while the other block 15 is quite close to the shank, and the block that is close to the shank of the cross-bar of the head of one handle is opposite the block that is farthest removed from the cross-bar of the head of the other handle, as shown in Fig. 3.

The handles A and B are normally held apart by means of a spring 16, which is usually S-shaped, as shown in Fig. 1. One end of this spring is held in detachable locking engagement with a stud 17, secured to the inner face of the handle A, near the extremity that is engaged by the hand of the operator, while the other end of the spring is arranged to travel against the inner face of the opposing handle B at a point near the pivot 10, and this forward loose end of the spring 16 is provided with a longitudinal slot 18, adapted to enter any one of a number of slots made in a keeper 18^a, that passes through the slot 18 and is secured to the handle B. Under this arrangement the spring 16 may freely slide at its forward end or the handles may be locked the necessary distance apart.

In connection with the cross-bar of the head of each handle clamping or sealing jaws are employed, one jaw, D, being located at one side of the shank of the cross-bar 13 of a head and the other sealing-jaw, D', at the opposite side of said shank, as shown in Figs. 2 and 3. Each clamping or sealing jaw consists of opposing members of like construction, and each member consists of a longitudinal body 19, having a dovetail slot in its outer side surface adapted to receive a dovetail block 15 on the cross-bar of a head C, and a series of prongs 20 and 21, that are curved inwardly from the front and the rear surfaces of the body. These prongs may be placed at any suitable distance apart, but are preferably so spaced that the prongs of one member of the sealing-jaws carried by one handle will enter the spaces between the prongs of the mating members carried by the opposing handle, thus providing for an interlocking engagement be-

tween opposing members of the sealing-jaws, as shown in Fig. 3. The members of the sealing-jaws D and D' are U-shaped upon their inner faces and are more or less oval upon their outer faces, and the forward prongs are about one-half an inch shorter than the rear prongs 21, so that the forward portions of the members of the sealing-jaws may be separated about half an inch or more and the rear prongs of the members of the sealing-jaws yet remain in interlocking engagement, as illustrated in both Figs. 1 and 3. After the clamping or compressing jaws have been properly adjusted on the heads of the handles they are held in their adjusted position by locking devices E, one of which is shown in detail in Fig. 4, and each locking device is preferably constructed of spring metal—steel, for example—and is U-shaped in cross-section, as shown at 22, being adapted to be sprung over a cross-bar 13 of a head C and held in position thereon by suitable clips or lugs 24, that extend inwardly from the edges at its open side, and these clips engage with the inner faces of the cross-bars 13 adjacent to the shanks 14 of said bars, as shown in Fig. 3. Each locking device is provided with a group of spring-fingers 23, that extend from each end portion at each edge at the open side of the device, and when a locking device is in position upon a head C these fingers 23 enter the spaces between the prongs of the clamping or compressing jaws, thus holding said jaws against lateral movement. Whenever the parts are to be separated, the locking devices E are pried off with a suitable instrument and the clamping or compressing jaws are then slid off from the dovetail retaining-blocks 15.

In connection with the instrument I employ a clamping-band F, consisting of a semi-circular body 25, made of gold, silver, or aluminium wire, the material employed being flat, as shown in Fig. 5, and said body 25 is provided with a casing 26 of an insulating material, such as rubber; but the casing 26 does not extend to the ends of the body 25, as is also shown in Fig. 5.

In order to operate the instrument, it is necessary that the spring 16 should be in proper place. One of the clamping-bands F is now placed between the front and rear prongs of opposing, clamping, or compressing jaws D and D', the upper portion of said band facing the front open portion of the jaws, the tips of the band being parallel with the forward tips of the prongs of the clamping or compressing jaws. A second clamping-band is then introduced in similar manner between the other set of opposing jaws D and D', and the bands are made to conform to the inner faces of said jaws by slightly compressing the bands with the thumb and forefinger, not enough, however, to interfere with the spring of the bands, but sufficiently to cause said bands to catch the sides of the clamping or compressing jaws.

The clamping-bands are then slid gently inward to the central portion of the clamping or compressing jaws of the instrument. The instrument is then placed on the cord the desired distance from the child and the handles are grasped firmly and drawn together as far as possible, whereupon the cord will be severed by the cutting edges 11 and 12, and the bands F will be firmly compressed around the cord, one at each side of the cut, as shown in Fig. 6, after which the handles are relieved from pressure and the instrument is removed.

In assembling the parts the body portions of the members of the jaws are slid upon the blocks 15, which are fixed upon the cross-bars 13. The members of the jaws are then adjusted so that the prongs of one member will interlock with the prongs of its mating member. Next a locking device E is sprung over each cross-bar 13, the fingers 23 of the locking devices entering between the prongs of the members of the jaws, thus holding the jaws in adjusted position. The spring-clamps 24 on the locking devices serve to hold said devices upon the cross-bars.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An umbilical forceps consisting of pivotally-connected handles, cutters carried by said handles, and clamping or compressing jaws, the respective jaws being provided with interlocking prongs, said jaws being located at each side of the cutters and connected with the handles, said cutters and jaws being also arranged for simultaneous action.

2. An umbilical forceps, consisting of pivotally-connected handles, each handle being provided with a head, the two heads facing one another, cutters carried by the heads, and clamping or compressing jaws also carried by said heads, each jaw consisting of a body and a series of curved prongs, the prongs of one jaw being arranged to enter the spaces between the prongs of an opposing jaw, for the purpose set forth.

3. An umbilical forceps, consisting of pivotally-connected handles, heads secured to the said handles, cutters rigidly secured to said heads, clamping or compressing jaws adjustably connected with the heads, and locking devices for said jaws.

4. An umbilical forceps, consisting of spring-controlled handles, heads secured to said handles, each head being provided with a fixed cutter and the two cutters being arranged to slide one past the other, jaws having curved inner faces, and comprising a body and series of prongs, the forward prongs being shorter than the rear prongs, and means for locking the said jaws on the said heads, for the purpose specified.

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Witnesses:

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