United States Patent [19]

Karman

[11] **3,779,248**

[45] **Dec. 18, 1973**

[54] **FORCEPS**

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[73] Assignee: **Medical Concepts, Inc.,** El Segundo, Calif.

[22] Filed: **Oct. 18, 1971**

[21] Appl. No.: **190,117**

[52] **U.S. Cl.** **128/321,** 128/017, 128/346

[51] **Int. Cl.** **A61b 17/28,** A61b 17/42, A61b 1/30

[58] **Field of Search** 128/321, 10, 11, 128/17, 18, 19, 321, 322, 323, 324, 340, 346, 351

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Primary Examiner—Channing L. Pace

Attorney—Ford W. Harris, Jr. et al.

[57] **ABSTRACT**

A forceps for medical use, particularly for gripping the cervix without tissue damage and having jaws with fixed or removable and disposable tips. A forceps with one tip having an inwardly turned smooth convex edge and the other tip having a smooth concave edge, preferably semicircular, with the one tip positionable within the arc of the other for cradling and gripping the cervix during interuterine medical procedures.

3 Claims, 9 Drawing Figures

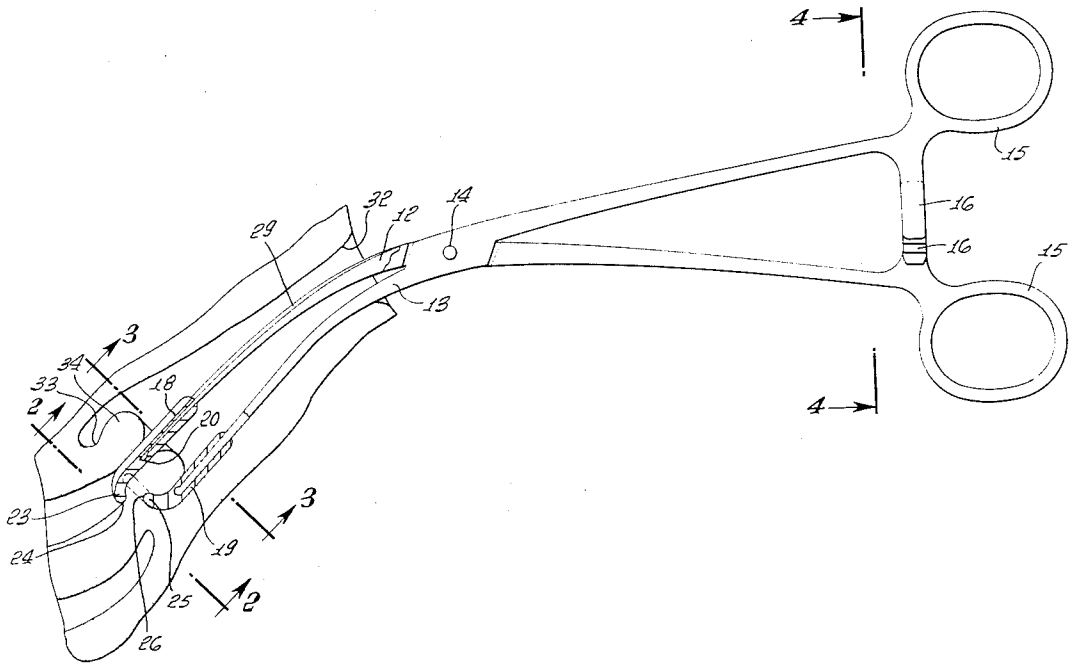

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FIG. 1.

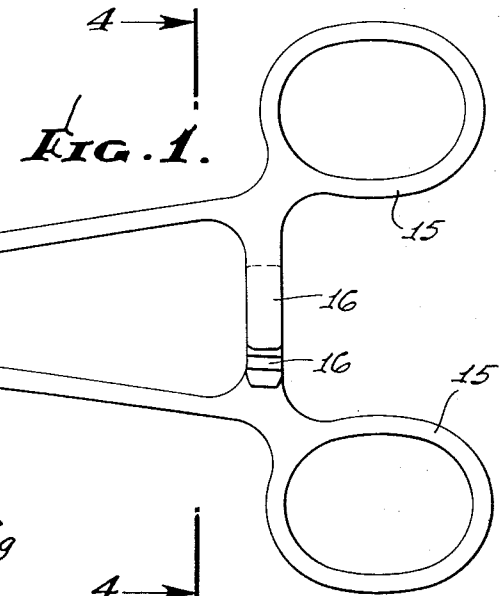


FIG. 2.

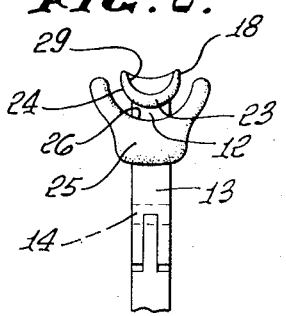


FIG. 5.

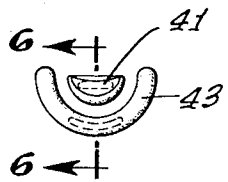
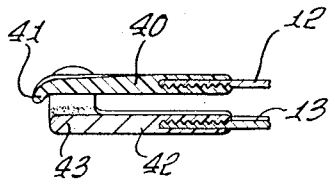


FIG. 6.



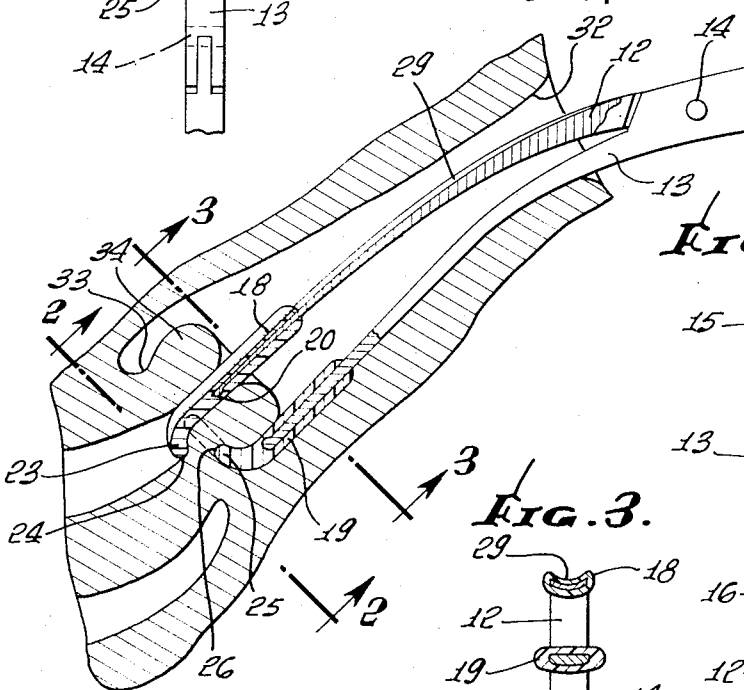


FIG. 4.

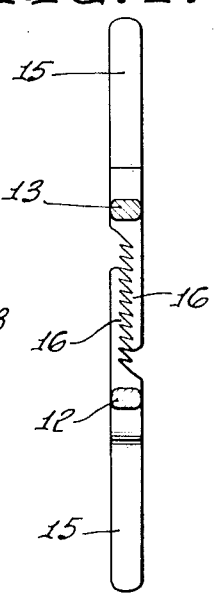


FIG. 8.

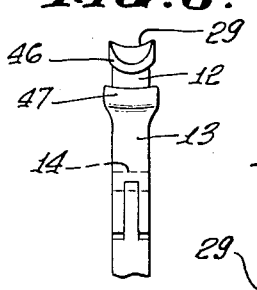


FIG. 3.

FIG. 7.

FIG. 9.

FORCEPS

This invention relates to a tenaculum or forceps for use in medical procedures. The new and improved forceps is particularly suitable for holding the cervix and stabilizing the cervical opening during interuterine procedures, all in a nontraumatic manner.

Prior art instruments have been of the clamping, pinching or piercing type which provide a firm grip between opposed toothed edges. While instruments of this type do provide a secure grip on the tissue, substantial tissue damage often occurs. Accordingly, it is an object of the present invention to provide a new and improved forceps which will cradle and position the cervix without injury to tissue. A further object is to provide such a forceps which will engage the cervix in a nontraumatic manner and retain the cervix in position for subsequent medical procedures and in particular, will provide a passage for insertion of a catheter or other instrument.

It is a particular object to provide such a forceps incorporating removable tips of a soft yet firm material, allowing for the individual packaging of pairs of sterilized tips and disposal of tips after use.

Other objects, advantages, features and results will more fully appear in the course of the following description.

In the drawings:

FIG. **1** is a side view, partly in section, illustrating the use of a forceps incorporating a presently preferred embodiment of the invention;

FIGS. **2, 3** and **4** are sectional views taken along the lines **2—2, 3—3,** and **4—4,** respectively, of FIG. **1;**

FIG. **5** is a view similar to that of FIG. **2** showing an alternative tip configuration;

FIG. **6** is a sectional view taken along the line **6—6** of FIG. **5;**

FIG. **7** is a partial view similar to that of FIG. **1** showing another alternative embodiment of the invention; and

FIGS. **8** and **9** are sectional views taken along the lines **8—8** and **9-9,** respectively, of FIG. **7.**

The forceps of FIGS. **1–4** includes jaw members **12, 13** pivoted together at **14,** each having a finger loop **15** and locking teeth **16.**

In the embodiment illustrated, the jaw member **12** has a removable tip **18** and the jaw member **13** has a removable tip **19.** Typically the main portions of the jaw members are made of stainless steel and the tips are made of a plastic such as polyethylene or polystyrene. The main portion of the jaw member may include a bulbous end **20** for positioning in an enlarged zone within the tip to lock the tip in position.

The tip **18** preferably has an inwardly turned end **23** with a smooth convex edge **24.** The tip **19** preferably has an inwardly turned end **25** with a smooth concave edge **26.** The end **25** preferably is semicircular in configuration, as best seen in FIG. **2,** and is dimensioned so that the tip **18** is positionable within the arc of the end **25.**

A groove **29** preferably is formed along the outer side of the jaw member **12** including the tip **18** providing a guide and cradle for a catheter or similar instrument.

The use of the forceps in holding the cervix and stabilizing the cervical opening is illustrated in FIG. **1.** The jaw members **12, 13** are inserted through the vaginal opening **32.** The end **25** of the tip **19** is positioned in the

groove **33** which occurs behind the muscle ring in the cervix **34.** At the same time, the end **24** of the tip **18** is inserted through the cervical opening. The jaw members are then brought together in the conventional manner by bringing the finger loops **15** toward each other and engaging the locking teeth **16.** This holds the cervix between the tips **18, 19,** with the edge **26** serving as a cradle for the cervix holding the cervix in the natural position, while the gripping action of the jaw members stabilizes and maintains the cervix in place. A catheter or other instrument may be readily inserted into the uterus along the groove **29.** The end **23** preferably projects slightly beyond the end **25,** as best seen in FIG. **1,** for optimum engagement with the cervix. It is preferred to have the locking teeth **16** quite long in order to engage while there is a gap between the edges **25, 26,** typically in the order of ⅜ inch, so that the forceps may be locked without exerting excessive pressure on the tissue.

When the medical procedure is completed, the locking teeth **16** are disengaged, releasing the cervix, and the forceps is withdrawn. With this instrument, there is no damage to the tissue and therefore no traumatic effects.

While relatively short disposable tips are shown in FIG. **1,** longer disposable tips can be utilized if desired. Also, the tips may be made integral with the remainder of the jaw members if desired and the entire instrument may be a disposable unit or may be a sterilizable and reusable unit. Also, the tips and the remainders of the jaw members may be made of different materials which are permanently joined together.

One alternative embodiment is illustrated in FIGS. **5** and **6.** The jaw member **12** has a tip **40** with an inwardly turned end **41** having a smooth convex edge. Jaw member **13** has a tip **42** with a semicircular end **43** having a smooth concave edge.

Another alternative embodiment is shown in FIGS. **7, 8** and **9,** with jaw member **12** having an inwardly turned integral end **46** with a smooth convex edge and with jaw member **13** having an inwardly turned end **47** with a smooth concave edge. The instruments of FIGS. **5** and **6** and of FIGS. **7–9** are used in the same manner as described in conjunction with the instrument of FIGS. **1–4.**

I claim:

1. Cervical forceps comprising first and second members having jaw ends and finger engageable ends, and interconnected at a pivot point for manual movement of the tip ends toward and away from each other,

said jaw members being curved in the plane of pivotal movement adjacent the pivot point, said first jaw member being at the convex side of the bend,

said first jaw member being of generally semicircular cross-sectional shape and defining a cannula guide groove in the outer side thereof away from said second member, with said groove extending from adjacent said pivot point all the way to the tip end which tip end terminates in a smooth convex end edge portion turned toward said second jaw member,

said second jaw member having a tip end with a transversely extending smooth concave edge projecting toward said first jaw member, with said first jaw member tip end positionable within the arc of said concave edge for cradling a cervix therebetween.

2. A forceps as defined in claim 1 wherein said first member end extends and overlys said second member end.

3. A forceps as defined in claim 1 wherein said second member end is turned inwardly toward said first member and is semicircular in configuration with said first member positionable within the arc of said second member end.

* * * * *

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,779,248 Dated December 18, 1973

Inventor(s) HARVEY KARMAN

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

[75] Inventor:, "Los Angeles" should be --Playa del Rey--;

and

Column 3, claim 2, line 2, after "extends", insert --beyond--

(claim 5, line 2 of original specification).

Signed and sealed this 17th day of September 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents