PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 3 :		(11) International Publication Number:
A61B 17/06	A1	WO 86/ 03396
		(43) International Publication Date: 19 June 1986 (19.06.86)

(21) International Application Number: PCT/US85/00211

(22) International Filing Date: 7 February 1985 (07.02.85)

(31) Priority Application Number: 679,992

(32) Priority Date: 10 December 1984 (10.12.84)

(33) Priority Country: US

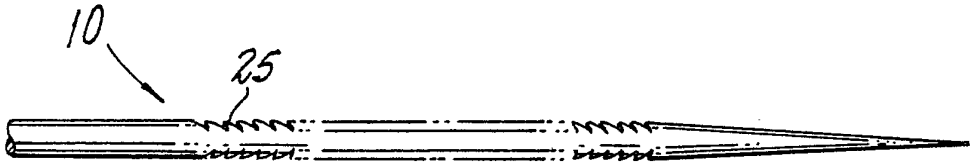
(71)(72) Applicant and Inventor: FRANCA, Fernando, E. [US/US]; 82 S. Royal Poinciana Blvd., Miami Springs, FL 33166 (US).

(74) Agent: SANCHELIMA, Jesus; Jesus Sanchelima, 2138 Biscayne Blvd., Suite 204, Miami, FL 33137 (US).

(81) Designated States: AT (European patent), AU, BR, CH (European patent), DE (European patent), DK, FI, FR (European patent), GB (European patent), JP, LU (European patent), MC, NL (European patent), NO, SE (European patent).

Published
With international search report.

(54) Title: SURGICAL NEEDLE



(57) Abstract

An improved surgical needle (10) having hooks (25) distributed along the periphery of its body and these hooks (25) extend rearwardly. The hooks are designed to provide a momentary detent as the needle (10) is inserted through the tissues being sutured so that the surgeon may release the needle from the rear where the force is being applied and reach the pointed end of the needle (10) to pull it through.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	**GA**	Gabon	**MR**	Mauritania
AU	Australia	**GB**	United Kingdom	**MW**	Malawi
BB	Barbados	**HU**	Hungary	**NL**	Netherlands
BE	Belgium	**IT**	Italy	**NO**	Norway
BG	Bulgaria	**JP**	Japan	**RO**	Romania
BR	Brazil	**KP**	Democratic People's Republic of Korea	**SD**	Sudan
CF	Central African Republic			**SE**	Sweden
CG	Congo	**KR**	Republic of Korea	**SN**	Senegal
CH	Switzerland	**LI**	Liechtenstein	**SU**	Soviet Union
CM	Cameroon	**LK**	Sri Lanka	**TD**	Chad
DE	Germany, Federal Republic of	**LU**	Luxembourg	**TG**	Togo
DK	Denmark	**MC**	Monaco	**US**	United States of America
FI	Finland	**MG**	Madagascar		
FR	France	**ML**	Mali		

SURGICAL NEEDLE

TECHNICAL FIELD

The present invention relates to improved surgical needles.

BACKGROUND ART

Applicant believes that the closest reference corresponds to U.S. patent No. 3,570,497, issued to Lemole. However, it differs from the present invention because it provides the latch notches 16 on cord 12 and not on the needle itself.

Another reference using raised projections or teeth on the surgical suture is U.S. patent No. 3,123,077 issued to J. H. Alcamo. Again, no teachings of introducing these teeth on the needle itself are found in this patent.

Other patents describing the closest subject matter provide for a number of more or less complicated features that fail to solve the problem in an efficient and economical way. None of these patents suggest the novel features of the present invention.

DISCLOSURE OF THE INVENTION

It is the main object of the present invention to provide a surgical needle that allows the surgeon to pass it from one tissue member to another without requiring the use of both hands to prevent the needle from slipping back.

Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Figure 1 represents a straight surgical needle of round cross-section having triangular hooks.

Figure 2 shows a straight surgical needle of round cross-section having hooks with the shape of fish scales.

Figure 3 illustrates a curved surgical needle of round cross-section having triangular hooks.

Figure 4 shows a curved surgical needle of round cross-section having hooks shaped like fish scales.

Figure 5 represents a straight surgical needle of triangular cross-section having triangular hooks on its edges.

Figure 6 is a cross-sectional view of figure 5 along line 6 - 6.

Figure 7 shows a curved surgical needle of triangular cross-section having triangular hooks.

Figure 8 shows a straight surgical needle of round cross-section.

Figure 9 is a cross-sectional view of the needle shown in figure 8 along line 9 - 9.

Figure 10 illustrates a straight surgical needle of round cross-section having hooks with the shape of fish scales.

Figure 11 is a cross-section of the needle represented in figure 10 along line 11 - 11.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, it can be observed that the improved surgical needles are generally referred to with numerals 10; 20; 30; 40; 50; 60; 70; and 80 corresponding to needles used for different purposes.

Needle 10 is a straight atraumatic or non-cutting needle. Needle 10 has two rows of scale hooks 25 projecting outwardly and rearwardly on the outer surface and disposed 180 degrees apart. In the preferred embodiment these scale hooks 25 have a substantially fish scale shape but a multitude of other shapes would also be suitable provided that the hook effect is achieved in a manner similar to the way that a fish is hooked. Scale hooks 25 in Fig. 2 on staight atraumatic needle 20 has an atraumatic (or non-cutting) shape so that the minimized and they are disposed along four rows on the surface, 90 degrees apart.

The surgeon, usually, uses one hand to hold the tissues being sutured together and with the other hand he inserts the needle through the tissues. Sometimes, specially when the suture is done to bulky tissues, the surgeon needs a third hand to pull the needle out through since it would slip back through its penetrating path if the force being applied by the surgeon is released, even momentarily, to reach and grab the pointed end of the needle on the other side of the tissues

being sutured. The present invention provides a momentary detent for the tissues.

In Figs. 3 and 4, the concepts illustrated in Figs. 1 and 2, and described above, for the straight atraumatic needles is utilized with curved atraumatic needles 30 and 40.

Figures 5 and 7 show cutting needles, straight and curved, with triangular hooks 55 and 65. It is possible to have scale hooks similar to the ones shown in Figs. 1 and 3, however, since they are cutting needles (triangular cross-sections with cutting edges as shown in Fig. 6) they do not need atraumatic or non-cutting hooks because they would not be used in those delicate tissues.

In Figs. 8 and 10, straight needles similar to the ones shown in Figs. 1 and 2 are illustrated with the exception of the pointed end which is conical in the former and triangular in the latter.

It is believed the foregoing description conveys the best understanding of the objects and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It is to be understood that all matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense, except as set forth in the following appended claims.

INDUSTRIAL APPLICABILITY

It is apparent from the previous paragraphs that an improvement of this type for such a surgical needle is quite desirable for expediting surgical operations as well as freeing up one hand of the user.

CLAIMS

What is claimed is:

1. An improved surgical needle comprising a plurality of hook means distributed over the outer surface of said needle so that said needle may pass easily through the tissues being sutured in one direction only thereby providing a temporary detent that allows the surgeon to pull said needle through from the pointed end and preventing it from slipping back.

2. The improved surgical needle set forth in claim 1 wherein said hook means include a triangle shaped outwardly and rearwardly extending hook member.

3. The improved surgical needle set forth in claim 1 wherein said hook means include a fish scale shaped outwardly and rearwardly extending hook member.

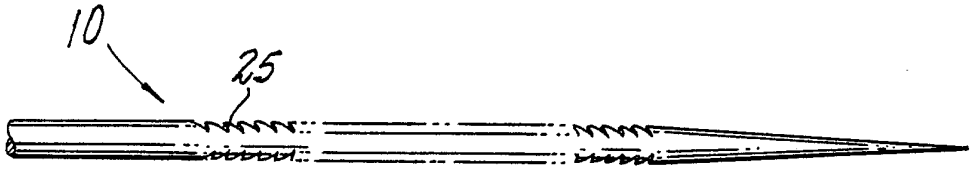


FIG. 1.

FIG. 2.

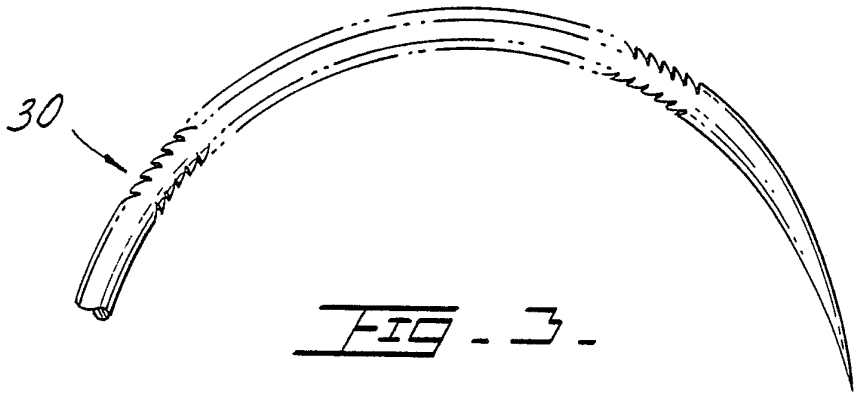


FIG. 3.

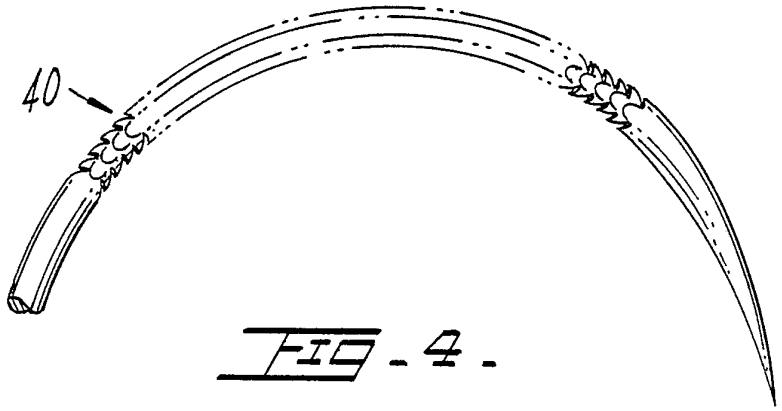


FIG. 4.

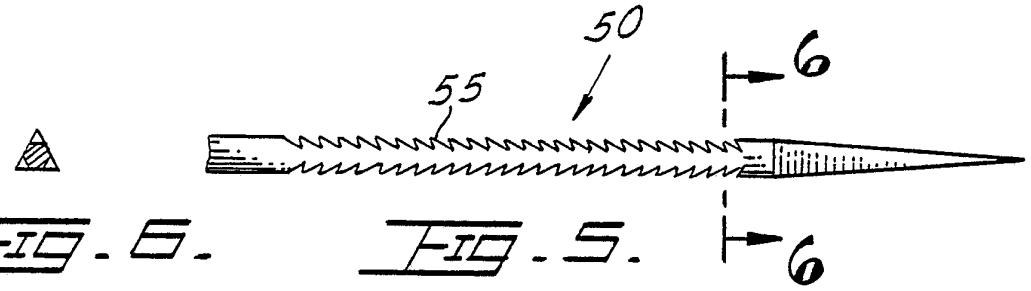


FIG - 6 - FIG - 5 -

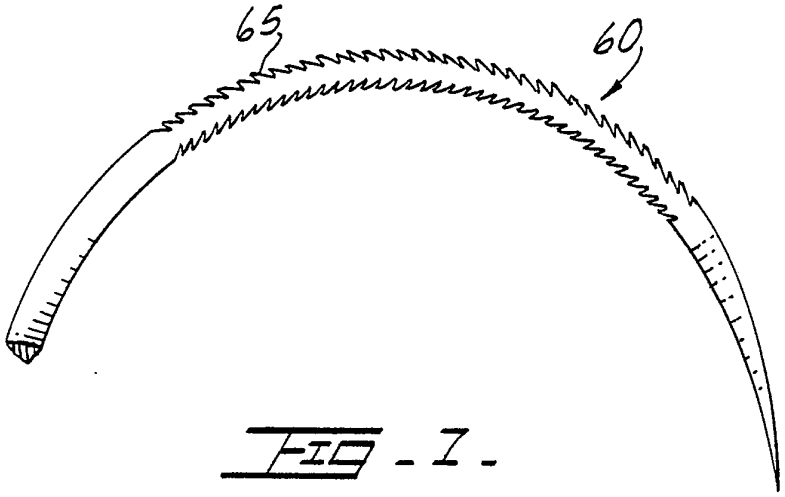


FIG - 7 -

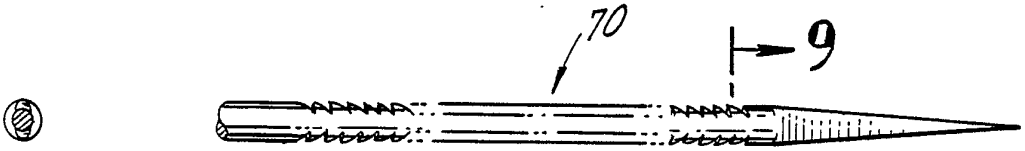


FIG - 9 - FIG - 8 -

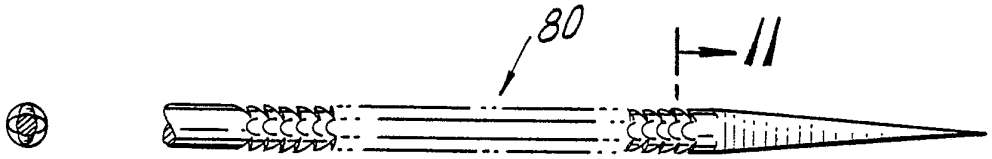


FIG - 11 - FIG - 10 -

INTERNATIONAL SEARCH REPORT

International Application No PCt/US85/00211

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC

INT. CL. 3 A61B 17/06
U.S. CL. 128/339

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
U.S.	128/339,340,337,335.5, 335,334C, 334R, 330,336; 223/102

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
X	DE, C, 53,368 17 December 1889, LUDWIGS	1-3
Y	US, A, 3,123,077 03 March 1964, ALCAMO	3
A	US, A, 469,762 01 March 1892 WHIPPLE	
A	US, A, 3,166,072 19 January 1965 SULLIVAN	

* Special categories of cited documents: [15]

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
16 April 1985	01 MAY 1985
International Searching Authority [1]	**Signature of Authorized Officer [20]**
ISA/US	Michael Peffer

Form PCT/ISA/210 (second sheet) (October 1981)