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(71) Applicant: **Vijn, Henderikus Willem Joseph
Verdiweg 663**

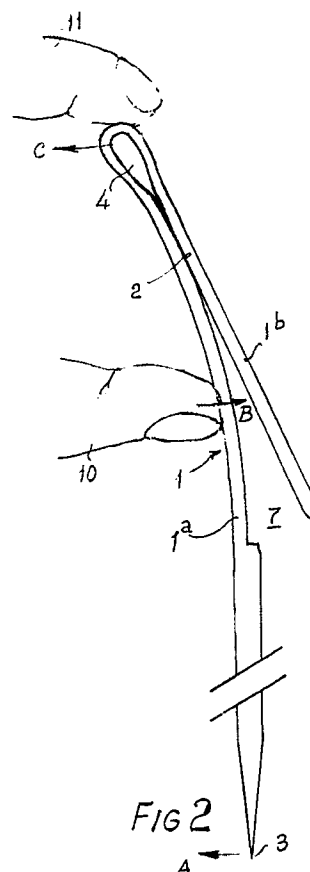
NL-3816 KW Amersfoort(NL)

(72) Inventor: **Vijn, Henderikus Willem Joseph
Verdiweg 663
NL-3816 KW Amersfoort(NL)**

(74) Representative: **Boelsma, Gerben Harm, Ir. et
al
Octrooibureau Polak & Charlouis Laan
Copes van Cattenburch 80 80
NL-2585 GD Den Haag(NL)**

(54) **A needle adapted for manual use.**

(57) A needle adapted for manual use, comprising a shaft (1) which is pointed at one end and provided with a thread receiving eye (4) at the other end. An axial cut (2) which extends from the inner end of the eye (4) and is connected to a cross cut (5) opening into the circumferential shaft surface, divides the shaft (1) into a long leg (1a) and a short leg (1b). When bending the needle the short leg (1b) will remain straight and form with the bending long leg (1a) a wide-angle opening for catching the thread.



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A NEEDLE ADAPTED FOR MANUAL USE.

The invention relates to a needle adapted for manual use, comprising a shaft which is pointed at one end and provided with a thread receiving eye at the other hand, an axial cut extending through the shaft from the inner end of said eye, said cut being connected at its end turned away from said eye to a cross cut which merges into the circumferential surface of the needle shaft.

Such a needle is known from U.S.-A-2.872.092. With this well-known needle the longitudinal cut has a very small length, viz. a length in the order of that of the thread eye. The cross cut, which functions as a thread catching opening, extends from the circumferential surface of the shaft inwardly and towards the needle point. The insertion of the thread into the eye is effected by sliding a length of thread, which is kept taut between thumb and index finger, downwardly along the longitudinal edge of the cross cut containing eye portion of the needle until the thread is caught into the cross cut and gets at the lower end of the longitudinal cut. Thereafter the thread length is pulled through said longitudinal cut upwardly into the eye.

Admittedly the alternative way of threading a thread into the eye of a needle, involved with the well-known needle, means a certain simplification and facilitation with respect to the conventional way of threading, but a certain handyness in handling the thread on one hand and the needle on the other hand will still be required. It is also disadvantageous that a reliable catching of the thread to be inserted requires the (cross) cut to be open all the time. This means that the longitudinally opposing outer edges, which confine the opening of said cross cut, are forming projections on which, in normal use, fabric threads may be caught when inserting the needle in a piece of fabric. For this reason the cross cut is inclined towards the needle point, so as to reduce the risk of being caught when inserting the needle into the fabric. However, once a needle being inserted through the fabric beyond the cross cut, it will not be possible to retract the needle although the needle head is still projecting beyond the outer side of the fabric - because the needle will then certainly stick in the fabric.

The invention aims at providing an approved needle of the type above referred to, which facilitates the insertion of the thread and, when in use, functions as a conventional needle (without any cuts) in all respects.

According to the invention this aim is achieved in that the axial cut extends through a length, which is a multiple of the length of the eye, so that the needle shaft is divided into a long leg merging

into the needle point, and a short leg terminating in an intermediate area of the shaft, in such way, that the walls confining said cuts lie flush against one another in the straight, untensioned condition of the needle, but will move apart when bending the needle about a bending axis turned away from said short leg, while the short leg is remaining straight and takes a diverging position relative to said bending long leg under an angle which increases towards the needle point.

Just like any conventional, resilient needle, the needle of this invention may be readily bent against spring action, for example by supporting the needle on the middle one of three finger tips and then depressing the needle ends by means of the two other finger tips. This causes the long shaft leg to take an arcuate shape, but the short shaft leg will remain straight and get positioned laterally of said long leg. In this situation it will be easy for the second hand to sling a loop of the thread to be inserted across the offset leg and then pull said loop along said short leg into the eye.

An elimination of the external forces will cause the needle to return to its untensioned, generally straight condition, in which the short leg lies along its entire length flush against the long shaft leg so that the needle shaft shows a smooth circumferential surface, without any projections.

It is to be noted that GB-A-290431 discloses a needle adapted for manual use, with which a longitudinal slit is extending across the major part of the needle length, said cut dividing the needle shaft into two lengths legs of equal lengths, which are interconnected at the needle end and the needle head respectively. In this case, in fact, a thread receiving eye is involved, which extends from the needle head up to a slight distance from the needle point. The shaft legs are meant to be pulled apart at the center of the needle so as to provide a wider inserting opening for the thread at that location. Thread insertion, however, remains difficult.

The invention will be hereinafter further described by way of example with reference to the drawing.

Fig. 1 is an elevational view, on an enlarged scale, of the needle of the invention in a straight, untensioned position and

fig. 2 is an elevational view of the same needle, but now in arcuate shape, caused by external forces.

The shaft 1 of the needle shown in the drawing is provided with a dividing cut 2 lying in the longitudinal mid plane of the needle and extending along a substantial part of its length. The dividing cut 2 extends from the end of the eye 4 which is

faced to the needle point 3, towards a location x between the needle point and the eye 4, from where the dividing cut 2 merges laterally into the circumferential surface of the needle shaft 1 through a cross cut 5. At this location the circumferential surface of the needle is slightly and smoothly recessed at 6. The longitudinal and cross cuts 2 and 5 respectively divide the needle shaft 1 into a long leg 1a merging into the needle point 3, and a short leg 1b which intends up to the cross cut 5.

In the bent position shown in fig. 2 the short shaft leg 1b has retained its straight shape and is tangent to the arcuate long shaft leg 1a. A wide angle opening has been created between the two shaft legs 1a and 1b, through which a thread may be easily inserted and then moved or pulled into the eye 4. Fig. 2 schematically shows how the arcuate shape may be realized, e.g. by placing the needle on a supporting surface, which applies a reaction force A on the needle, whereas transverse forces B and C are exerted by thumb 10 and index finger 11 respectively.

The needle of the invention may be formed of either metal or plastic, the manufacture taking place e.g. according to existing manufacturing methods and making use of modern laser cutting techniques.

Claims

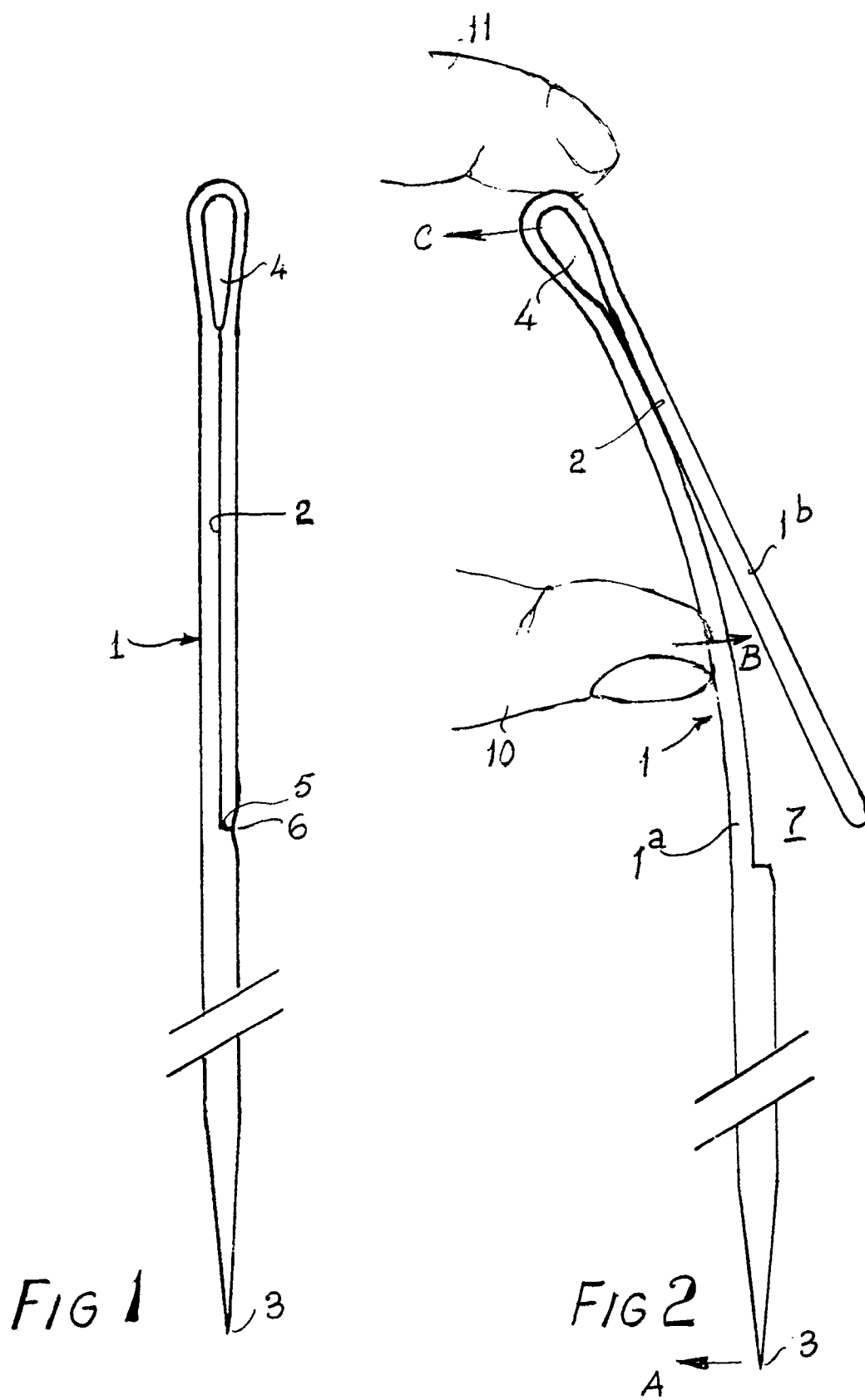
1. A needle adapted for manual use, comprising a shaft which is pointed at one end and provided with a thread receiving eye at the other hand, an axial cut extending through the shaft from the inner end of said eye, said cut being connected at its end turned away from said eye to a cross cut which merges into the circumferential surface of the needle shaft, characterized in that the axial cut extends through a length, which is a multiple of the length of the eye, so that the needle shaft is divided into a long leg merging into the needle point, and a short leg terminating in an intermediate area of the shaft, in such way, that the walls confining said cuts lie flush against one another in the straight, untensioned condition of the needle, but will move apart when bending the needle about a bending axis turned away from said short leg, while the short leg is remaining straight and takes a diverging position relative to said bending long leg under an angle which increases towards the needle point.

2. A needle according to claim 1, characterized in that the circumferential surface of the needle shaft is slightly and smoothly recessed at the location where the dividing cut merges.

Amended claims in accordance with Rule 86(2) EPC.

1. A needle adapted for manual use, comprising a shaft (1) which is pointed at one end (3) and provided with a thread receiving eye (4) at the other end, an axial cut (2) extending through the shaft from the inner end of said eye (4), said cut (2) being connected at its end turned away from said eye (4) to a cross-cut (5) which merges into the circumferential surface of the needle shaft (1), characterized in that the axial cut (2) extends through a length, which is a multiple of the length of the eye (4), so that the needle shaft (1) is divided into a long leg (1a) merging into the needle point (3), and a short leg (1b) terminating in an intermediate area of the shaft (1), in such way, that the walls confining said cuts (2,5) lie flush against one another in the straight, untensioned condition of the needle, but will move apart when bending the needle about a bending axis turned away from said short leg (1b), while the short leg (1b) is remaining straight and takes a diverging position relative to said bending long leg (1a) under an angle (7) which increases towards the needle point (3).

2. A needle according to claim 1, characterized in that the circumferential surface of the needle shaft (1) is slightly and smoothly recessed at the location (7) where the dividing cut (5) merges.





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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 2021

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-1607479 (J. T. RAPER) * page 1, lines 32 - 57; figures 1-3 * ---	1, 2	D05B85/02
A	BE-A-398087 (J. TAVERNIER) * page 2, paragraph 5 * * abstract; figure 2 * ---	1, 2	
A	DE-C-258774 (F. REIMERS) * page 1, lines 25 - 53; figures 1, 2 * ---	1, 2	
D,A	US-A-2872092 (F. SEHLOW) * column 1, lines 44 - 70; figures 1-4 * ---	1, 2	
A	US-A-2513235 (C. J. CURRIER) * column 2, line 38 - column 3, line 38; figures 1-11 * ---	1, 2	
D,A	GB-A-290431 (J. C. ROUND) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			D05B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 OCTOBER 1990	Examiner BOURSEAU A.M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document I : theory or principle underlying the invention F : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document			