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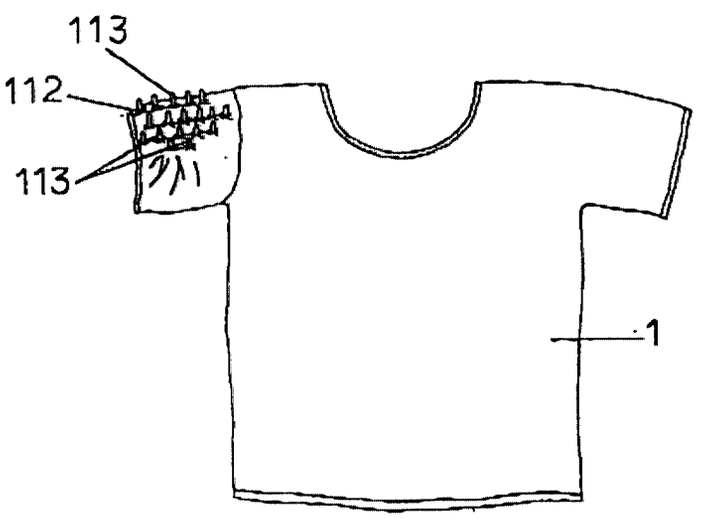
(54) Method for tie-dyeing and shrinking of clothing

(57) A clothing fabric (1) as a whole is subjected to hand tying processing and a tying and shrinking clothing fabric (2) is formed, and the tying and shrinking clothing fabric (2) is subjected to tie-dyeing and fulling processing so that a tie dyeing and shrinking clothing fabric (3) is formed. Afterward the tying of the tye dyeing and shrinking clothing is released and a tie-dyeing and shrinking clothing (4) is formed. Flexibility throughout about 360 degrees is secured in the tie-dyeing and shrinking clothing (4).

Fig. 6



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to tie dyeing and shrinking clothing utilizing hand tying processing.

Prior Art

[0002] In the prior art, tie dyeing products are formed freely in that dye stuff does not enter individual portions, such as tied portions by various tying processings or covered portions, and the undyed portions are expressed as patterns, otherwise the individual portions, such as the tied portions by various tying processings or the covered portions, are previously dyed or the individual portions are dyed afterward. It is known well that expression methods of patterns and dyeing methods are quite various.

[0003] In the present situation, these tie dyeing processings are adopted in order that while patterns or figures are expressed and succession of traditional technical art of hand tie-dyeing is intended, ornamental property, aesthetic sense and elegance as tie dyeing article (clothing) are raised. In cotton products (cotton stuff) such as a bathrobe or a blouse, advantage capable of providing sense of high quality and advantage of enabling as, for example, an outdoor dress or a visiting dress by providing the sense of high quality are useful for the practical benefit.

[0004] As above described, in the present situation, the tie dyeing processing is adopted so as to raise the ornamantal property, the aesthetic sense and the elegance as the tie dying article, and in cotton products such as a bathrobe or a blouse, the tie dyeing processing has advantage of providing sense of high quality and enabling utilization as an outdoor dress or a visiting dress. However, the utilization in such manner is that of the tie dyeing article only in one aspect

[0005] As the prior art, JP-A 54-68484 "a process of applying tie dyeing patterns with flexibility to clothing" and JP-A 54-68500 "a process of forming undyed sections with flexibility on a fabric" are disclosed. The subject-matter of the references is in that sections of a fabric are tightly bound with thread and the tied fabric is cut out and sewn and clothing is manufactured, and suitable sections of the clothing is provided with flexibility. Consequently the invention in the references is characterized in that the suitable sections of the clothing can be expanded or shrunk corresponding to bending and stretching motion of a human body. In this invention, however, since the clothing is manufactured in cutting and sewing, a problem exists in that tying in the sewn sections may be broken and the breakage causes inferior product.

[0006] When the breakage of tying in the sewn sections is eliminated and the flexibility based on the dyeing processing of the clothing as a whole and the physical property by the clothing fabric are utilized effectively, the tie dyeing article has more excellent characteristics and the value as an article for commerce is improved and the field of utilization can be developed. That is, the tie dyeing processing is utilized entirely as changing of size of the clothing, and clothing such as a blouse with flexibility is manufactured in the state that the size of the clothing is shrunk greatly. The clothing is fitted to a human body and can express line of the human body gently without producing creases (can express the beautiful and womanly line fully), or utilizing the small dimension of the blouse, the clothing can be accommodated compactly. That is useful for a journey, accommodating or the like, and is advantageous.

SUMMARY OF THE INVENTION

[0007]

(a) A clothing fabric (refer to Fig. 1) as a whole is subjected to miura tie-dyeing among hand tying described later and a clothing fabric is formed (refer to Fig. 3). The lying and shrinking clothing fabric is subj ectcd to dyeing such as immersion as in the prior art and heat treatment (fulling processing) thereby a tie-dyeing and shrinking clothing fabric is formed (refer to Fig. 4). For example, in the case of polyester fabric, the heat treatment is performed in tempersture of a boiler in about 130°C to 140°C for time of about 30 minutes to 40 minutes and shrinking is performed. After the heat treatment, finishing processing is performed and a tie-dycing and shrinking clothing is manufactured (Fig. 5).

(b) A clothing fabric (refer to Fig. 1) as a whole is, subjected to dapple tie-dyeing among hand tying described later and a clothing fabric is formed (refer to Fig. 7). After the hand tying processing is performed, dyeing such as immersion is performed as in the prior art. The dyed clothing fabric is subjected to heat treatment. For example, in the case of polyester fabric, the heat treatment is performed in similar manner to that as above described. By this treatment, a tie-dyeing and shrinking clothing is manufactured (Fig. 9).

(c) When the clothing fabric in the above-mentioned (a), (b) is cotton or others, shrinking is performed by cheminal processing such as alkali processing.

BRIEF DESCRIPTION OF DRAWINGS

[0008]

Fig. 1 is a diagram showing developed state of a clothing fabric;

Fig. 2(a) is a diagram showing a clothing fabric with marks, and Fig. 2(b) to (b6) are schematic diagrams

explaining processes of miura tie-dyeing respectively;

Fig. 3 is a diagram showing a tying and shrinking clothing fabric by miura tie-dyeing processing;

Fig. 4 is a diagram showing a tie-dyeing and shrinking fabric by miura tie-dyeing processing;

Fig. 5 is a diagram showing a tie-dyeing and shrinking clothing by miura tie-dyeing and shrinking processing;

Fig. 6 is a diagram showing miura tie-dyeing by other method;

Fig. 7(a) to (a8) arc schematic diagrams explaining processes of dapple tie-dyeing respectively;

Fig. 8 is a diagram showing a tying and shrinking clothing fabric by dapple tie-dyeing processing;

Fig. 9 is a diagram showing a tie-dyeing and shrinking clothing fabric by dapple tie-dyeing processing;

Fig. 10 is a diagram showing a tie-dycing and shrinking clothing by dapple tie-dyeing processing;

Fig. 11 is a diagram showing a tie-dyeing and shrinking clothing 4 with variation;

Fig. 12 is a diagram showing an example where the tie-dyeing and shrinking clothing shown in Fig. 5 is worn by a child;

Fig. 13 is a diagram showing an example where the tie-dyeing and shrinking clothing shown in Fig. 5 is worn by an adult;

Fig. 14 is a diagram showing dimension indication of the tie-dyeing and shrinking clothing shown in Fig. 5;

Fig. 15 is a diagram showing dimension indication that tic-dyeing and shrinking clothing shown inFig. 5 is in enlarged state; and

Figs. 16 and 17 show enlarged views of part of a garment or item of clothing in the region of a projection produced by the tying process.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0009] An embodiment of the present invention will be described based on the accompanying drawings as follows.

[0010] A clothing fabric 1 as a whole is subjected to hand tie-dyeing processing or hand-dyeing processing by sewing tying.

[0011] In an embodiment shown in Figs. 2 to 5, process that a tie-dyeing and shrinking clothing by miura tie-dyeing la is manufactured utilizing hand tying processing. For example, as shown in Fig. 2(a), marks 111 of sections to be tied are applied to the clothing fabric 1 (printing). As shown in Fig. 2(b) to (b5), tying processing is performed bytcchnique of hand tying. Explaining an example, a tying tablc A shown in (b) and a hook B provided on the tying table A are utilized. Explaining an example of the technique, as shown in (b1), while a fingertip H is covered by the clothing fabric 1, thread 112 is loosely wound in one turn. From this state, while the fingertip H is pulled gradually, sections of the fabric I are tightly bound by pulling the thread 112 in sequence (b2), (b3). In the state that the fingertip H is pulled out, the sections of the clothing fabric 1 are further bound tightly (b4), (b5). Finally, as shown in (b6), the sections of the fabric 1 are tightly bound or bound up with the thread 112, and a projection 113 (in shape of a nearly conical or needle-shaped nib in writing materials) is produced.

[0012] When the projections 113 are formed throughout the whole clothing fabric 1 uniformly, a tying and shrinking clothing fabric 2 is formed as shown in Fig. 3. The tying and shrinking clothing fabric 2 is dyed in immersion or other dyeing method, and a tie-dyeing and shrinking clothing fabric 3 as shown in Fig. 4 is formed. The tie-dyeing and shrinking clothing fabric 3 is subjected to fulling processing, for example, heat treatment or chemical processing thereby the tie-dyeing and shrinking clothing 4 is manufacturecd.

[0013] In the tie-dyeing and shrinking clothing 4 manufactured by means of the tie-dyeing and fulling processing, flexibility is secured and dimension of the whole tie-dyeing and shrinking clothing fabric 3 is nearly equal to that of the tying and shrinking clothing fabric 2 as above described. Regarding the tie-dyeing and fulling processing of the tie-dyeing and shrinking clothing 4, in a constitution example as shown in Fig. 5, the tie-dycing and shrinking clothing 3 as a whole is processed, or in a constitution example as shown in Fig. 11, the tie-dyeing and shrinking clothing 4 is provided with variation. As usually called in Japan, the hand tying product by the technique is an article of miura tie-dyeing 1a as shown in Fig. 5.

[0014] As shown in Fig. 6, the clothing fabric 1 may be directly bound or bound up, and a projection 113 may be formed. Subsequent treatment by this method is similar to that as above described.

[0015] In an embodiment shown in Figs. 7 to 10, process that a tie-dyeing and shrinking clothing by dapple tie-dyeing 100a is manufactured utilizing hand tying processing. For example, marks 111 of sections to be tied are applied to the clothing fabric. As shown in Fig. 7(a) to (a8), tying processing is performed by technique of hand tying. Explaining an example, a tying table A shown in (a), a guide rod C provided on the tying table A and a hook B1 provided on the guide rod C are utilized. Explaining an example of the technique, as shown in (a1) to (a3), the clothing fabric 1 is folded by a fingertip H, and front of the fabric 1 is hung to the hook BI. In this state, wound thread 112 is wound in one turn utilizing the guide rod C (a4). Subsequently the wound thread 112 is wound in one turn utilizing the guide rod C in similar manner to that as above described, and tying is performed in overlaying on the wound thread 112 in one turn as above descibed (a5 to a7). Finally, sections of the fabric are bound or bound up by the thread 112, and a projection 113 is produced. Subsequent treatment is substantially similar to that as above described. As usually called in Japan, the hand tying product by the technique is an article of dapple tie-dyeing 111a as shown

in Fig. 9. In addition, times of the winding tying of the thread 112 are arbitrary.

[0016] In the tie-dyeing and shrinking clothing 4 manufactured by means of the tie-dyeing and fulling processing, flexibility through subsequently 360 degrees is secured and dimension of the whole tie-dyeing and shrinking clothing fabric 3 is nearly equal to that of the tying and shrinking clothing fabric 2 as above described. Regarding the tie-dyeing and fulling processing of the tie-dyeing and shrinking clothing 4, as in each constitution example, the tie-dyeing and shrinking clothing 3 as a whole is processed, or in a constitution example as shown in Fig. 11, the tie-dyeing and shrinking clothing 4 is provided with variation by other tying 101a.

[0017] In addition, explaining an example of size (dimension indication) of the clothing fabric 1 shown in Fig. 1, shoulder width is 55cm, width in breast and body is 70cm, height is 80cm and whole shoulder width with sleeves developed is 115cm. Explaining an example of size (dimension indication) of the tie-dyeing and shrinking clothing 4 shown in Fig. 14, shoulder width is 16cm, width in breast and body is 20cm, height is 25cm and whole width with sleeves developed is 33cm. Also explaining an example of size (dimension indication) of the tie-dyeing and shrinking clothing 4 shown in Fig. 15 in the enlarged state, shoulder width is 52cm, width in breast and body is 63cm, height is 75cm and whole shoulder width with sleeves develped is 105cm. Consequently, in the embodiment, since a blouse of prescribed size with flexibility can be manufactured in state that it can be fined to a human body, for example, the blouse of the prescribed size (a suit of the blouse) can be utilized by an adult and a child.

[0018] In the present invention, a clothing fabric as a whole is subjected to hand tying processing, and size of the clothing fabric as a whole is reduced and a tying and shrinking clothing fabric is formed, and then the lying and shrinking clothing fabric is subjected to tic-dyeing and fulling processing and a tie-dyeing and shrinking clothing is formed. Afterward since the tying of the tie-dyeing and shrinking clothing fabric is removed and a tie-dyeing and shrinking fabric is formed, dimension of the tie-dyeing and shrinking clothing is nearly equal to that of the tying and shrinking clothing fabric and flexibility throughout about 360 degrees is secured in the tie-dyeing and shrinking clothing.

[0019] Consequently size of the tie-dyeing and shrinking clothing can be greatly reduced utilizing the flexibility throughout about 360 degrees based on the tie-dyeing and fulling processing. Since size of the tie-dyeing and shrinking clothing can be greatly reduced utilizing the flexibility based on the tie-dyeing and fulling processing, the value as an article for commerce can be improved and the field of utilization can be developed. Also utili2ing the great shrinking of the tie-dyeing and shrinking clothing, the tie-dyeing and shrinking clothing can be fitted to a human body. Further utilizing the great shrinking of the tie-dyeing and shrinking clothing, the clothing can be accommodated compactly. In addition, utilizing the great shrinking of the tie-dyeing and shrinking clothing, the tie-dyeing and shrinking clothing has more excellent characteristics that the clothing can express line of the human body gently without producing creases in the body and the position as a whole.

[0020] The invention enables clothing of one size to be provided which can fit any wearer (small persons, big persons, thin persons, fat persons, etc.).

[0021] Figures 16 and 17 show the flexibility of the clothing. Figure 16 is an enlarged view of an area of an item of clothing in a shrunk state, and Figure 17 is an enlarged view of the same area of an item of clothing in enlarged state. The clothing stretches by the extension of the projection produced by the tie-dyeing process.

Claims

1. A tie dying and shrinking clothing utilizing hand tying processing,

   wherein a whole clothing fabric is subjected to hand tying processing and a tying and shrinking clothing fabric is formed in order to reduce dimension of the clothing fabric,
   the tying and shrinking clothing fabric is subjected to tie-dyeing and fulling processing and a tie dyeing and shrinking clothing fabric is formed,
   the tying of the tie dyeing and shrinking fabric is released so that a tie dyeing and shrinking clothing is formed, and
   dimension of the tie-dyeing and shrinking clothing is nearly equal to that of the tying and shrinking clothing fabric, and the tie dyeing and shrinking clothing is constituted to secure flexibility throughout about 360 degrees.

2. A method of producing a tie-dyed and shrunk garment utilizing hand tying processing, comprising:

   subjecting a garment to hand tying processing and shrinking the garment fabric in order to reduce the dimensions of the garment fabric;
   subjecting the tied and shrunk garment fabric to tie-dyeing and fulling processing to form a tie-dyed and shrunk garment fabric; and
   releasing the tying of the tie-dyed and shrunk garment fabric to form a tie-dyed and shrunk garment,
   whereby the dimensions of the tie-dyed and shrunk garment are nearly equal to those of the garment prior to the hand tying processing, and
   wherein the tie-dyed and shrunk garment has flexibility across the length and breadth of the fabric.

3. A method of imparting flexibility to the fabric of a garment, comprising:

subjecting a garment to hand tying processing;
shrinking the hand tied garment to reduce the dimensions of the garment fabric;
subjecting the hand tied and shrunk garment to fulling processing; and
releasing the tying to form a garment of puckered fabric,
whereby the dimensions of the thus-processed garment are nearly equal to those of the garment prior to processing, and wherein the fabric of the garment is capable of being stretched across the length and breadth of the fabric by straightening the puckering.

Fig. 1

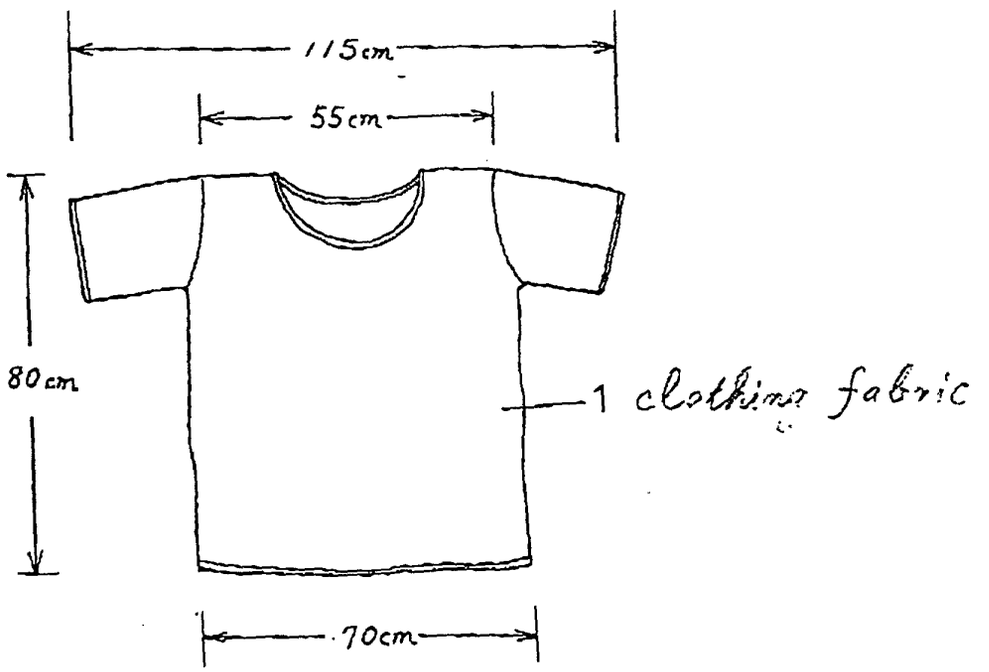

Fig. 2

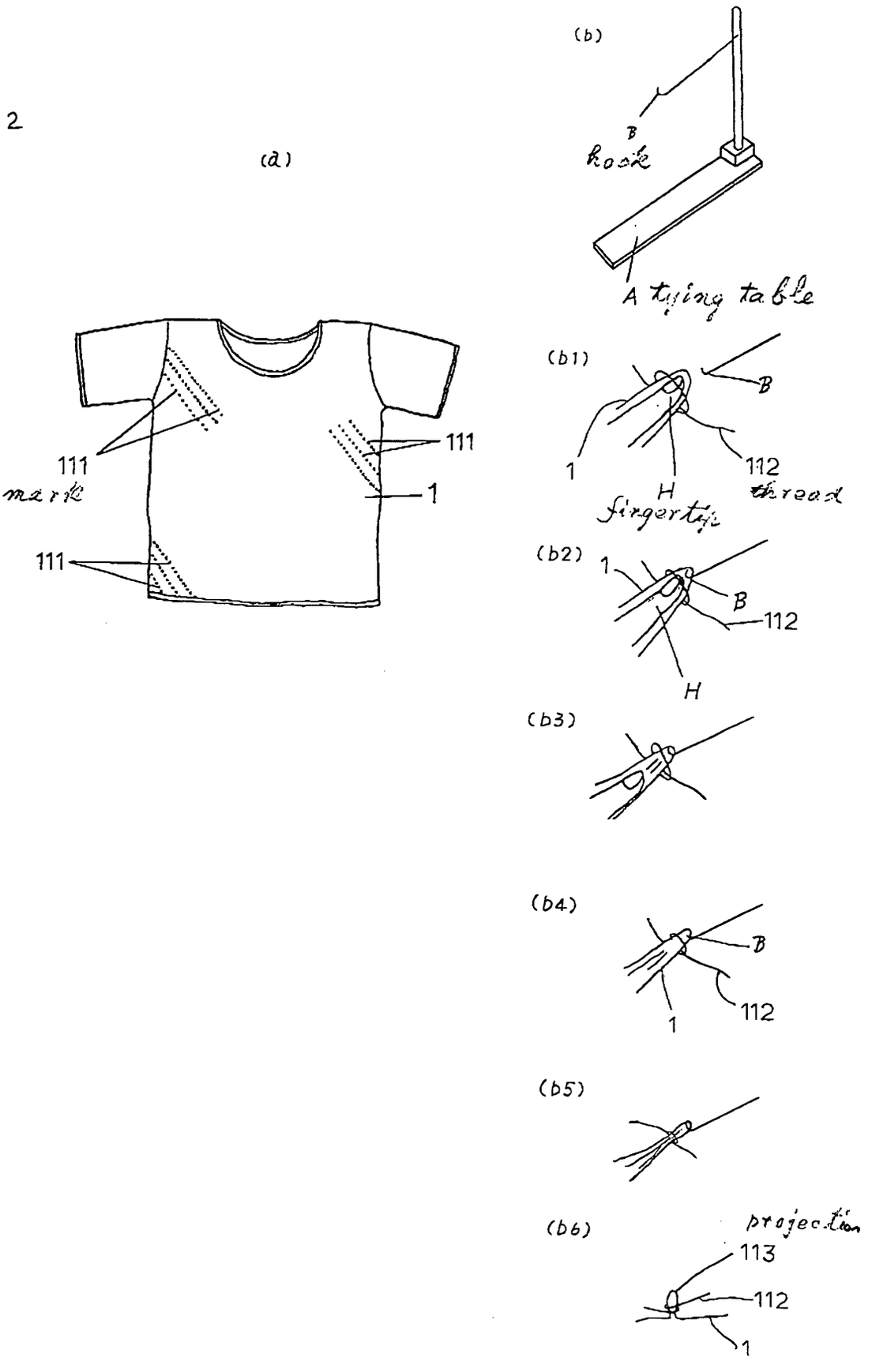
(a)
111
mark
111
111
1
(b)
B
Rock
A tying table
(b1)
B
1
H
112
thread
fingertip
(b2)
1
B
112
H
(b3)
(b4)
B
1
112
(b5)
(b6)
projection
113
112
1

Fig 3

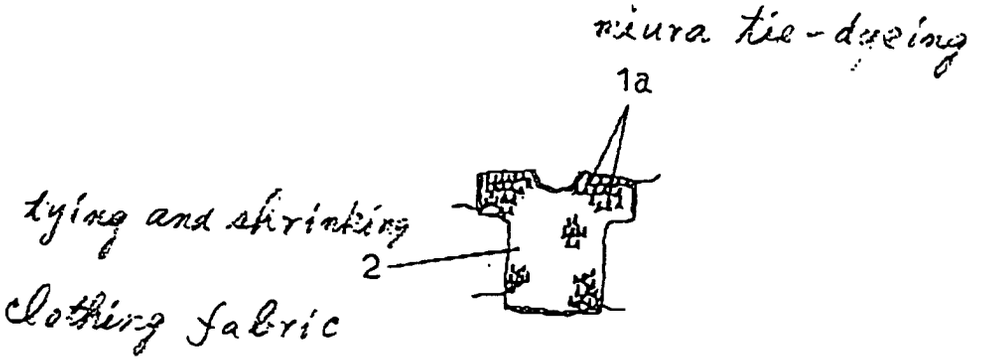
nixura tie-dyeing
1a
tying and shrinking
2
clothing fabric

Fig. 4

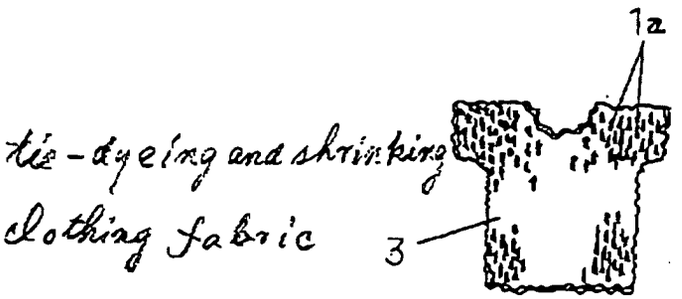
1a
tie-dyeing and shrinking
clothing fabric
3

Fig. 5

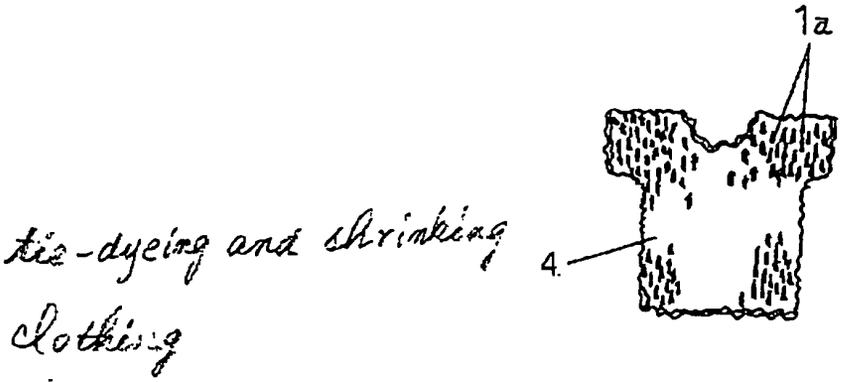

Fig. 6

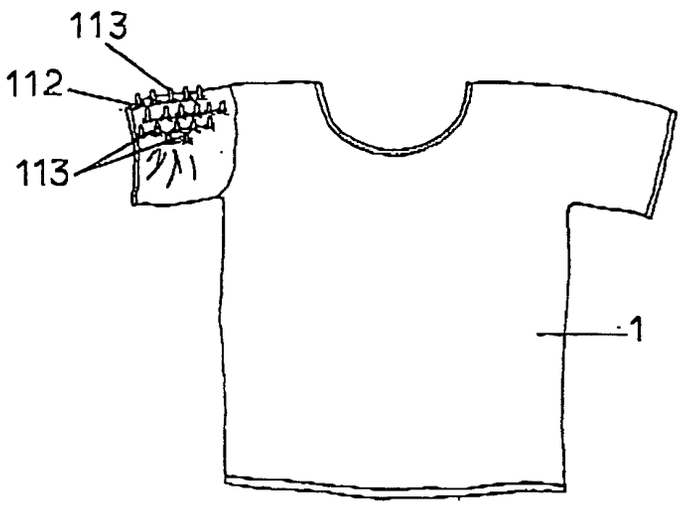

Fig. 7

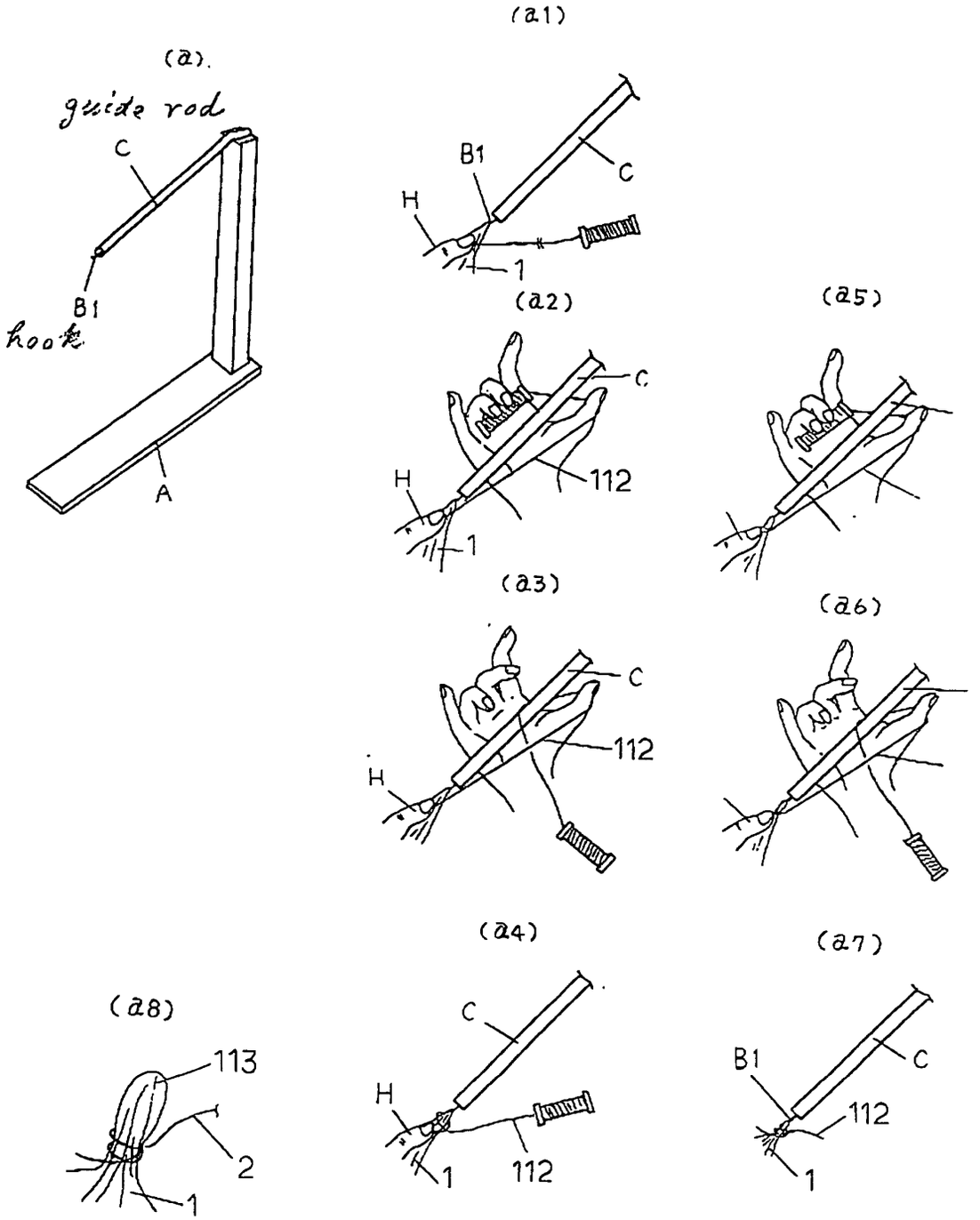
(a).
guide rod
C
B1
hook
A
(a1)
B1
C
H
1
(a2)
C
H
112
1
(a3)
C
112
H
(a4)
C
H
1
112
(a5)
(a6)
(a7)
B1
C
112
1
(a8)
113
2
1

Fig. 8

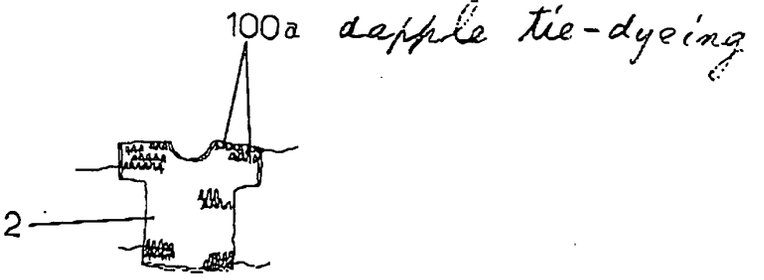

Fig. 9

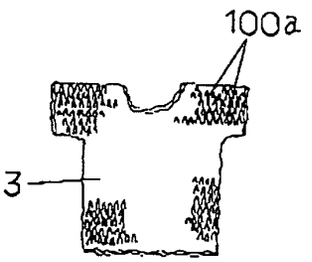

Fig. 10

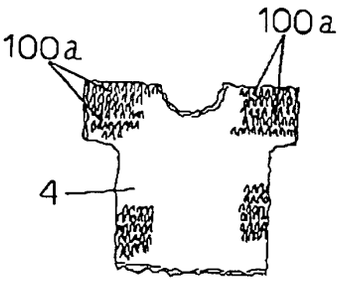

Fig. 11

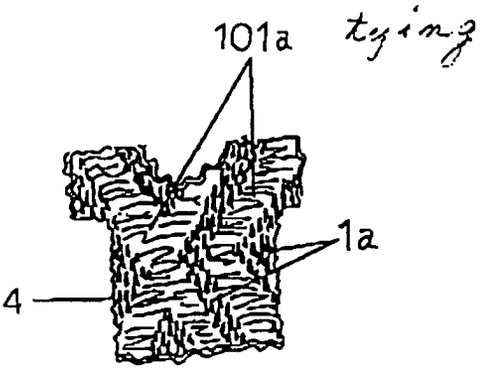

Fig. 12

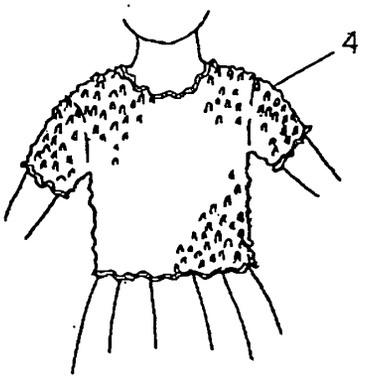

Fig. 13

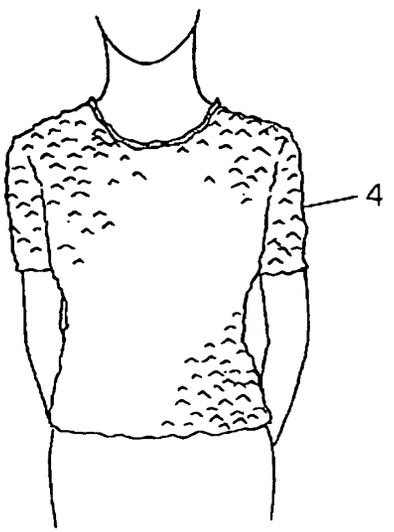

Fig. 14

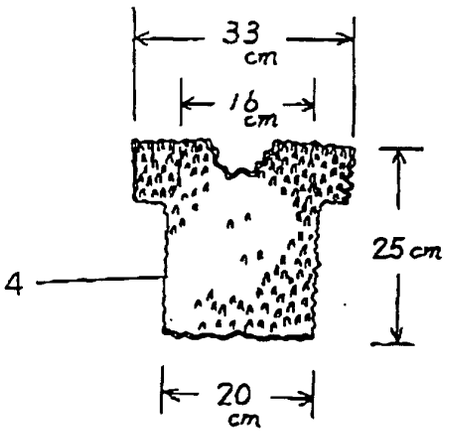

Fig. 15

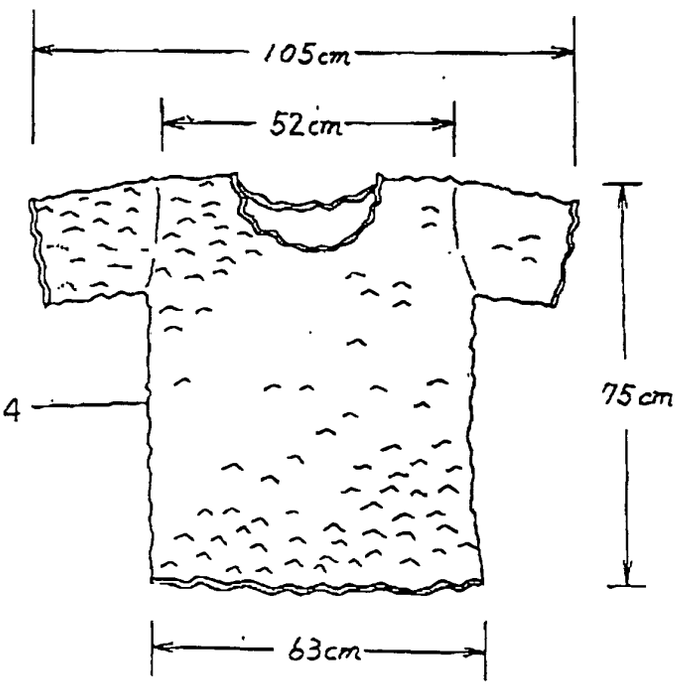

Fig. 16

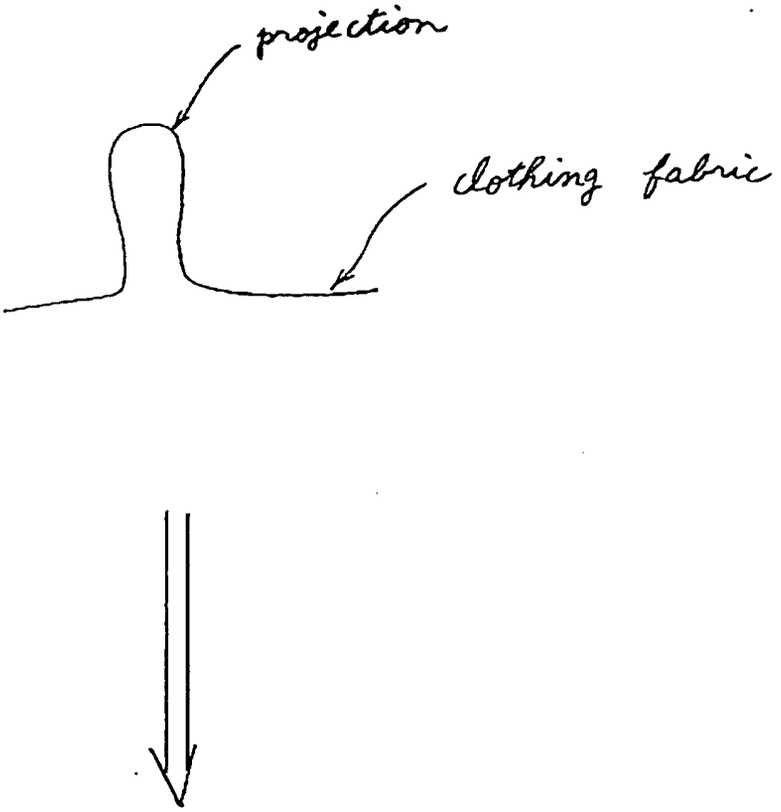

Fig. 17

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 30 1993

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.7)
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A	EP 0 529 766 A (MIYAKE DESIGN JIMUSHO K.K.) 3 March 1993 (1993-03-03) * column 8, line 27 - column 9, line 37 *	3	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

D06B
D06C
D06J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 July 2000	Goodall, C

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
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L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 30 1993

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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26-07-2000

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82