

THE JOINT EXAMINATION BOARD

PAPER P4

AMENDMENT OF SPECIFICATIONS FOR UNITED KINGDOM PATENT  
APPLICATIONS IN PROSECUTION, REVOCATION PROCEEDINGS OR OTHERWISE

6th NOVEMBER, 1997

10.00 A.M. – 1.00 P.M.

Please read the following instructions carefully. This is a **THREE HOUR** paper.

1. In the appropriate boxes at the top of each sheet please enter the designation of the paper, the question number (if appropriate), and your Examination number. Write on one side of the paper only, using **BLACK** ink. You must **NOT** staple pages together. You must **NOT** state your name anywhere in the answers.
2. **NO** printed matter or other written material may be taken into the examination room.
3. Answers **MUST** be legible. If the examiners cannot read a candidate's answer no marks will be awarded.

THIS PAPER CONSISTS OF

**23 PAGES INCLUDING THIS FRONT SHEET**

## INSTRUCTIONS TO CANDIDATES

In this paper, you should assume that a United Kingdom patent application comprising the attached specification (identified as GB9555555.5) has been filed and that the UK Patent Office has issued the attached Official Letter. You have reported the Official Letter to your client and have received instructions for response in the form of the attached letter.

Your task is to prepare the following:

1. A letter to the UK Patent Office in response to the Official Letter, accompanied by a set of amended claims if appropriate. (Please note that for the purposes of this examination you are **not** required to propose any amendments to the description of the patent application.)
2. A memorandum consisting of notes to provide the basis of advice and comment to your client explaining the actions you have taken and the reasons for those actions. These notes should be restricted to patent matters; you are **not** required to consider any other matters such as copyright or design protection.

You should accept the facts given in the paper and base your answer on those facts. In particular, you should **not** make use of any special knowledge that you may have of the subject matter concerned, and you must assume that the prior art referred to is in fact exhaustive. Where only extracts of documents are presented, you should assume that those extracts contain all relevant material.

If your advice to your client includes a suggestion that one or more divisional applications should be filed, you should draft independent claim(s) for the or each divisional and your memorandum should indicate your grounds for believing the filing of such a divisional application to be advisable. You should **not**, repeat **not**, draft a description for a divisional application, or any dependent claims.

### LETTER FROM CLIENT

"Thank you for your recent letter reporting the objections raised by the Patent Office and enclosing copies of the documents cited by the Examiner. Please file a response as best you can, bearing in mind our wish to have a granted patent as soon as possible. Trials of our new bandage have gone very well, and there is considerable interest in the product. We are also working on designs similar to the one illustrated in our patent application, though with one or two changes which have not yet been finalised. Any new design will, however, have the central guideline feature which we have described in our specification. In these circumstances, we want to have as broad a degree of protection as possible, and you have our authority to proceed as you think best to achieve this objective.

"We have looked at the documents you provided and we have come to the conclusion that neither document discloses our invention. The British Patent Specification is concerned with indicia printed onto a bandage, suggesting that the patterns may be applied, for example, while the bandage is under tension; this, of course, cannot be done with our product, where the geometric patterns are actually incorporated into the fabric of the bandage during its manufacture. Also, this patent does not recognise the need to have two or more components in the pattern so that the user can adjust the tension in the bandage to match the two most commonly used tensions. There may be other differences, but I leave it to you to expand on this topic.

"The article from "Nursing Times" is very general and doesn't really add anything to what is disclosed in the document just discussed.

"Incidentally, I noticed when reading through our own patent specification once again that we refer to nylon as one of the components of the fabric from which our bandage is made. We should have referred to nylon-6, a specific form of the polymer, but unfortunately I forgot to tell you this when I gave you the material which formed the basis of our patent application. Is there anything we can do now to correct this?

"Please proceed on the basis of these instructions. Since I am about to go on holiday, I would prefer you to make a prompt response, using your own discretion if necessary, rather than waiting until I get back. I remember from previous cases that it is sometimes necessary to split up an application to cover all of the different versions of a product. If you think we need to do the same this time, then please go ahead.

"I look forward to hearing from you soon."

OFFICIAL LETTER

**Application No:** GB9555555.5                      **Examiner:** E. Pflaster  
**Applicant:** Stretchcure Limited                **Date of Report:** 25 August 1996

**Latest date for reply:**

25 February 1998

**Patents Act 1977**  
**Examination Report under Section 18(3)**

**Basis of the examination**

My examination is based on the specification as filed.

**Novelty**

It appears, as a result of a search under Section 17, that your application does not meet the requirements of Sections 1(1)(a) and 1(1)(b) in that the invention as claimed is not new and/or does not involve an inventive step having regard to the matter contained in the patent specifications or other documents cited below:

GB 2 000 002A  
Nursing Times, September 1992, page 6

CLIENT'S PATENT APPLICATION

GB 955555.5 Title: BANDAGES

5 This invention relates to bandages, in particular  
to elasticated bandages of the type which have to be  
applied in such a way as to exert a pre-determined sub-  
bandage pressure.

10 Bandages applied to certain wounds, e.g. leg  
ulcers, have to be applied in such a way as to exert a  
predetermined sub-bandage pressure. The optimum  
pressure will be determined by medical or nursing staff  
according to the nature and severity of the wound. The  
15 bandages which are applied are elasticated and the  
pressure exerted is a function of the degree of  
extension of the bandage and the circumference of the  
limb to which it is applied. For one commercially  
available bandage, for example, the following table is  
published:

20

Table 1

25

Extension	Pressure exerted (mm Hg) for a Limb circumference (cm) of:		
	18-26	27-35	36-50
50%	36-25	24-18	
75%	50-37	37-28	28-19

30

In use, a nurse faced with the task of applying  
such a bandage must first measure or estimate the  
circumference of the patient's limb and then apply the  
bandage with the correct degree of extension to achieve  
the prescribed pressure. This is a difficult operation  
to perform with any degree of accuracy, with the result  
that incorrect pressure is often achieved. This may

cause sub-optimal healing, or discomfort for the patient.

5 It has been proposed (see Nursing Times, September 1992, page 6) to print on a bandage a visual aid in the form of similar rectangles which, when the bandage is stretched to a predetermined extension, take the shape of squares. A disadvantage of this arrangement is that the nurse must still estimate the circumference of the limb and then try to choose the extension which will give rise to the required sub-bandage pressure for that limb. Since the extension at which the rectangles become square will be appropriate for only one limb size, the visual aid is of limited utility.

15

A further disadvantage of this arrangement is that the printing of the pattern on the bandage results in a non-uniform, non-smooth surface having "high spots" which may give rise to irritation of the wound or other harmful effects. There is also a risk that the printing ink or marker substance may give rise to allergic reactions with some patients, which cannot be predicted. The problem is particularly acute, since printing ink is generally inflexible and may therefore crack when the bandage is extended and particles of ink may become dislodged, thereby contaminating the wound.

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There has now been devised an improved form of elasticated bandage which overcomes or substantially mitigates the above-mentioned disadvantages.

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According to the invention, there is provided an elasticated bandage bearing a geometrical pattern which adopts a recognisable configuration when the bandage is extended to a predetermined degree.

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The pattern may comprise two components which adopt recognisable configurations when the bandage is extended by corresponding predetermined amounts.

5           The tension in the applied bandage leads to a proportional pressure being applied to the underlying skin, the actual pressure being decided also by the circumference of the bandage.

10           It is particularly preferred that the different amounts of extension at which the two components attain their recognisable configurations should correspond to the bandage tensions most commonly required in practice. To quantify such tensions, we shall  
15           hereinafter use units which correspond to the force required to generate a given tension (the force being applied uniformly across the width of the bandage and in the direction of the longitudinal axis of the bandage). Thus reference to a tension of 1 Newton (N)  
20           means the tension obtained in a bandage when a force of 1 N is applied uniformly across the width of the bandage and in the direction of the longitudinal axis of the bandage.

25           We have found that bandage tensions in the range 1 Newton (N) to 1.5 N (corresponding to extensions of 50% and 75% respectively) are suitable for a wide range of limb sizes. In a preferred embodiment, therefore, the two components of the pattern adopt their recognisable  
30           configuration when the bandage tension is 1 N and 1.5 N respectively. The lower tension is appropriate for smaller limbs, and the higher tension for larger limbs. A nurse applying the bandage need only made a  
35           qualitative assessment of the limb size as being either 'large' or 'small' and extend the bandage until the respective recognisable configuration is attained.

According to a second aspect of the invention, therefore, there is provided an elasticated bandage bearing a geometrical pattern which adopts a recognisable configuration when the bandage is extended to a predetermined tension.

Preferably, the bandage when applied to an ankle gives rise to a pressure of at least 40mm Hg.

The geometrical pattern borne by the bandage most preferably comprises rectangles, the short sides of which lie parallel to the longitudinal axis of the bandage, and the longer sides transverse to the bandage. Extension of the bandage along its long axis will elongate the short sides of the rectangle. A point is reached at which the short sides are the same length as the long sides. In this condition, the rectangle has become a square which is recognisable as such and thus indicates that the required extension has been reached.

Experience has shown that the point at which the rectangle becomes a square is readily detectable by the user, and achieving substantially the requisite tension is reproducible. If the requisite tension is attained at 50% extension, the ratio between the lengths of the long and short sides of the rectangle should be 3:2 in the unstretched condition. If the requisite tension is attained at 75% extension, the ratio should be 7:4.

The rectangles (or other components of the pattern) may be discrete or linked. The components are preferably provided on the same side of the bandage, though they may alternatively be on opposite sides of the bandage.



When applying bandages to, for example, a patient's leg, it is necessary for the bandage to make several overlapping courses around the limb. In order to achieve the optimal sub-bandage pressure, each successive course should overlap its predecessor by a constant amount, generally by 50%. It is therefore advantageous for the bandage to carry means whereby the degree of overlap between successive courses can be controlled.

10

It is therefore preferred that the rectangles (or other components of the pattern) cooperate to define a guide line which extends parallel to the longitudinal axis of the bandage substantially mid-way between opposite edges thereof. Such a central guide line is preferably continuous, although it may be intermittent provided that the gaps are sufficiently small not to impede the function of the line.

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It is particularly preferred to utilise a pattern having two components in the form of alternating large and small rectangles. Most preferably, the large and small rectangles are arranged with collinear short edges. Together, the collinear short edges then generate a continuous line running the length of the bandage. Advantageously, the said line is located half-way between the bandage longitudinal edges, and performs the function of the central application guide line. As indicated above, this application guide line is important since the sub-bandage pressure depends on the degree of overlap with which the bandage is applied, and 50% overlap is conventionally used.

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Of course, apart from rectangles, any other geometrical pattern may be used, e.g. lozenges, patterns of dots etc. However, for the reasons given

above, rectangles are preferred.

Although two components in the pattern are generally sufficient for practical purposes, e.g. to indicate the two extremes of an operating range or two predetermined tensions, it is of course possible for further components to be provided. One example would be rectangles of three different proportions, indicating three different predetermined tensions.

The geometrical pattern may be printed on the bandage. However it is preferred that the pattern should be part of the structure of the fabric i.e. it should be knitted or woven into the fabric. This prevents any real or perceived differences in the thickness or feel of the bandage, and eliminates the problem of physiological reactions to the printing ink used.

According to a further aspect of the invention, there is provided a knitted elasticated bandage having knitted therein a geometrical pattern formed with yarn of a colour contrasting to that of the remainder of the bandage, the pattern being such that it adopts a recognisable configuration when the bandage is longitudinally extended by a predetermined amount.

In colour, the bandage will generally be white or flesh-coloured. Most preferably, the geometrical pattern is yellow or orange since this colour is easily visible on such a light background and is also easily seen by persons who suffer from colour-blindness.

Apart from the provision of the geometrical pattern, the bandage of the present invention may be generally conventional in construction, and may be

manufactured using techniques, e.g. machine knitting, which are conventionally used for the manufacture of elasticated bandages. In line with conventional machine-knitting practice, the pattern may be formed using pattern bars which are driven to reciprocate by suitable camming arrangements.

The invention will now be described in greater detail, by way of illustration only, with reference to the accompanying drawings in which:

Figure 1 is a plan view of part of an elasticated bandage according to the presently preferred embodiment of the invention in the unstretched condition,

Figure 2 shows the bandage of Figure 1 extended to a first predetermined tension, and

Figure 3 shows the bandage of Figure 1 extended to a second, greater, predetermined tension.

Referring to Figure 1, an elasticated bandage (generally designated 1) comprises a band approximately 10cm wide of elasticated knitted fabric. The preferred bandage is made from a Lycra elastomer, a cotton-viscose blend yard, and nylon.

Knitted into the structure of the bandage 1, longitudinally of the bandage, is a geometrical pattern comprising a line of alternating small and large rectangles (2, 3 respectively). The longer sides of both small and large rectangles 2, 3 are arranged transverse to the longitudinal axis of the bandage 1, the shorter sides being parallel to that axis. The pattern of rectangles 2, 3 is knitted in yellow yarn,

the remainder of the fabric band being "off-white",  
i.e. flesh-coloured.

5 The smaller rectangles 2 measure 11mm x 7.5mm; the  
larger rectangles 3 measure 21mm x 12mm. When the  
bandage 1 is stretched, the shorter sides of the  
rectangles 2, 3 become longer. When the bandage is  
stretched to the first predetermined tension (as shown  
in Figure 2), which in this case occurs at 50%  
10 extension, the longer and shorter sides of the smaller  
rectangles 2 become approximately equal in length and  
the smaller rectangles 2 become square. Similarly,  
when the bandage is stretched to a second, greater,  
predetermined tension, in this case occurring at 75%  
15 extension, the larger rectangles 3 become square, as  
shown in Figure 3.

The first predetermined tension is approximately  
1 N (i.e., that tension resulting when a force of  
20 approximately 1 N is exerted uniformly across the full  
width of the bandage in the direction of the  
longitudinal axis of the bandage. At this tension, the  
sub-bandage pressure for a patient with a relatively  
small limb circumference is about 45 mm Hg. Hence, for  
25 such a patient, to apply a compressive force of 45 mm  
Hg, the bandage 1 is stretched until the smaller  
rectangles 2 become square, i.e. to the first  
predetermined tension. For a higher compressive force,  
say of 68 mm Hg, the bandage is stretched until the  
30 larger rectangles 3 become square, i.e. beyond the  
point at which the smaller rectangles 2 become square.  
For a patient with a relatively-large limb  
circumference, a sub-bandage pressure of about 45 mm Hg  
is achieved at the second predetermined tension, i.e.  
35 at the extension at which the larger rectangles 3  
become square.

In the known bandage in which a pattern is printed on the bandage material, the recognition of the rectangles changing to squares is provided to assure the bandager that the extension achieved is a desired amount, e.g. 50%. In contrast, in the present invention as particularly described the recognition of the rectangles taking up square configurations assures the bandager that the right amount of tension, and thus a suitable sub-bandage pressure, e.g. 40 mm Hg or above, has been applied. Only a qualitative estimation of the limb circumference is required.

CLAIMS

1. An elasticated bandage bearing a geometrical pattern which adopts a recognisable configuration when the bandage is extended to a predetermined degree.
2. A bandage as claimed in Claim 1, wherein the pattern comprises two components which adopt recognisable configurations when the degrees of extension correspond to bandage tensions generated by exerting forces of approximately 1 N and 1.5 N across the width of the bandage.
3. A bandage as claimed in Claim 1 or Claim 2, wherein the bandage when applied to an arm gives rise to a pressure of at least 40mm Hg.
4. A bandage as claimed in any preceding claim, wherein the geometrical pattern borne by the bandage comprises rectangles, the short sides of which lie parallel to the longitudinal axis of the bandage, and the longer sides transverse to the bandage.
5. A bandage as claimed in Claim 4, wherein the rectangles are linked.
6. A bandage as claimed in claim 4, wherein the rectangles are discrete.
7. A bandage as claimed in any preceding claim, wherein the pattern is knitted into the structure of the fabric.
8. A knitted elasticated bandage having knitted therein a geometrical pattern formed with yarn of a colour contrasting to that of the remainder of the

bandage, the pattern being such that it adopts a recognisable configuration when the bandage is longitudinally extended by a predetermined amount.

- 5      9.    An elasticated bandage bearing a geometrical pattern which adopts a recognisable configuration when the bandage is extended to a predetermined tension.
- 10     10.   An elasticated bandage substantially as hereinbefore described with reference to the drawings.

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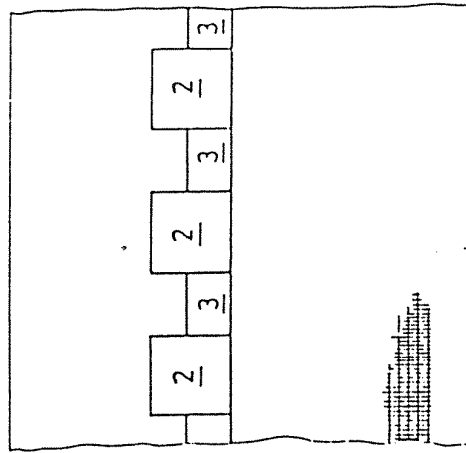


FIG. 3

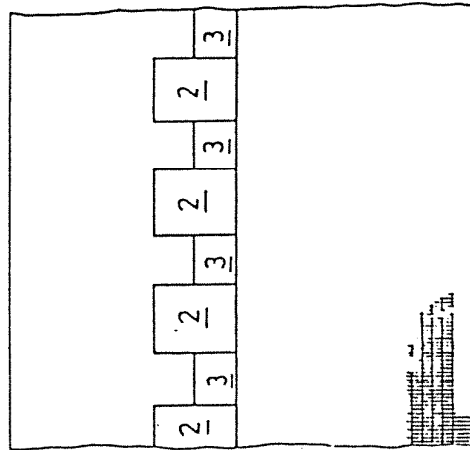


FIG. 2

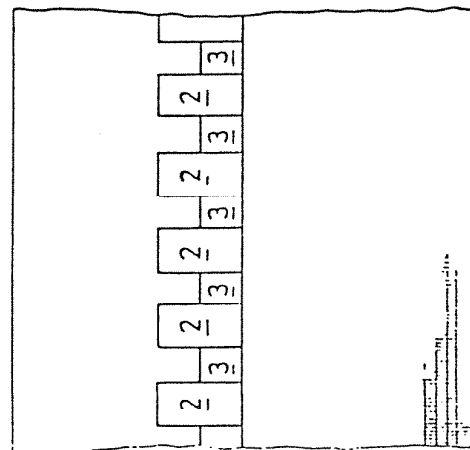


FIG. 1



(PRIOR ART) GB 2 000 002 PUBLISHED 22/4/1993

(Description and drawings only)

5 This invention relates to bandages. In the invention, a selected figure or combination of figures or other indicia is imprinted on to the surface of the bandage at intervals throughout the length of the bandage. The figure or figures may be of a geometric form, such as a rectangle, square, circle or ellipse. Or they may be of a conventionalized form, such as a star or an abstract or decorative form such as a flower. Or they may be lines or dots or a combination of these. The figures may appear in a single line along the centre of the bandage, or they may appear in two or more rows, one near each side, in which case they are more readily visible when the bandage is wrapped in successive turns in overlapped relation. It will be understood that regardless of the shape or form of the individual figures or the manner in which they are placed along the course of the bandage, the resulting pattern will be related to the elastic properties of the bandage in such a way that it will provide a visual indication of varying amounts of tension. This constitutes a point of reference whereby the user may maintain the same tension throughout the wrapping process, or may adjust the tension to suit. In addition, if the bandage has been initially wrapped too tightly or too loosely, the point-of-reference feature will enable the user to rewrap the bandage without repeating the error. The tension existing in the bandage when the figures are altered and/or displaced to a predetermined extent may be printed on the bandage or may be supplied on a printed form enclosed in the package in which the bandage is sold.

35 For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the

accompanying drawings, in which:-

Figure 1a is a plan view of a section of an elastic bandage embodying one form of the invention, the bandage being in relaxed condition;

5 Figure 1b shows a portion of the bandage of Figure 1 in stretched condition;

Figures 2, 3, and 4 are fragmentary views showing the use of different geometric figures;

10 Figure 5 is a view of a fragment of bandage on which appears a flower form which has been distorted by compression, the bandage being in a relaxed condition;

15 Figure 6 is a representation of a flower form, such as it might appear on or in the package in which the bandage is sold or on a clip, slide or other accessory device provided for use with the bandage;

Figure 7 is a view of the piece of bandage shown in Figure 5 after being stretched;

20 Figure 8 is a view of a fragment of bandage showing the use of a pattern composed of intersecting lines; and

Figure 9 is a view of the piece of bandage shown in Figure 8 after being stretched.

25 The embodiment of Figures 1a and 1b illustrates a multielement pattern which consists of a single row of crosswise rectangles 10 extending lengthwise of a section of elastic bandage 11. These rectangles are preferably uniformly spaced as shown. In Figure 1b the bandage 11 has been stretched until rectangles 10 have become squares 12. At this point a predetermined  
30 amount of force is required to stretch the bandage to this extent, and this corresponds to the tension existing in the bandage. The pressure applied by the bandage will be proportional to such tension.

35 The amount of this tension may correspond with the average tension and pressure which is acceptable in conventional use of the bandage. Should the bandage be

stretched to some point between the shape of rectangle 10 and square 12 this will indicate a looser-than-average tension, and should the bandage be pulled more tightly than illustrated in Figure 1b the square 12 will be elongated into a rectangle extending lengthwise of the bandage, and this will indicate a tighter-than-average tension in the bandage.

In Figure 2 instead of making the multielement pattern by the use of crosswise rectangles, crosswise ellipses 14 are used which become circles when the bandage is stretched to average tension.

In Figure 3 an ellipse 14 is placed within a similar sized rectangle 15, and upon stretching these become respectively a circle and a square simultaneously.

In Figure 4 a rhombus 16 is placed within the rectangle 15 instead of the ellipse 14. When a bandage is provided with multielement pattern made according to Figure 4, and the bandage is stretched, to the average tightness condition of Figure 1b, both the rhombus 16 and the rectangle 15 will become squares simultaneously.

In Figure 5, the flower form appears distorted by compression, the bandage being in a relaxed state and the flower form having been applied to the bandage under tension.

In Figure 6, the flower form 25 represents the appearance of the figure which was applied to bandage 11 of Figure 5, under tension. This form, duplicated on an instruction sheet, clip, slide or other device, is provided for the purpose of serving as a standard.

In Figure 7, the bandage fragment shown in Figure 5 has been stretched to the point where the distorted flower form 24 has become flower form 26, which in turn is similar to the standard form shown as 25 in Figure 6. This similarity is an indication of the amount of

tension existing in the bandage.

5 The advantage of the embodiment described and  
illustrated by Figures 5, 6 and 7 is that it  
compensates for variations and irregularities in the  
bandage. If the figures are imprinted on to the  
bandage while the bandage is under a predetermined  
amount of tension, the contours of the figures will be  
distorted by compression when the tension is removed  
and will return to their original form only when the  
10 bandage is again subjected to the same amount of  
tension. This will insure a greater degree of accuracy  
in the indication of tension and this accuracy will be  
retained until and unless the elastic properties of the  
bandage are changed.

15 In Figure 8, points 27 have been defined by  
intersecting lines 28. In Figure 9, the bandage shown  
in Figure 8 has been stretched, causing displacement of  
points 27. The degree of this displacement is an  
indication of the tension existing in the bandage.

20 It will be understood that regardless of the shape  
of the multielement patterns, they will be applied to  
the bandage in a colour which appropriately contrasts  
with the colour of the bandage itself. Furthermore,  
while all of the elements of the patterns may be of the  
same colour, if desired, different colours may be used  
25 in different arrangements. For example, in the series  
of the rectangles 10 of Figure 1a alternate rectangles  
may have a contrasting colour with the intermediate  
rectangles. also, every third or fourth etc.,  
30 rectangle may have a colour which contrasts with the  
remaining rectangles. The same, of course, may be true  
of the colours of the ellipses 14, or of the geometric  
figures shown in Figures 3 and 4.

35 In order for the tension-indicator bandage to be  
of optimum value, it is important that the original  
dimensions of the multielement patterns illustrated and

described above be retained after the laundering of the bandage and throughout the life of the bandage.

Accordingly, it desirable to utilize in the construction of the bandage, a material which will not shrink during laundering. The ability of a fibre sold under the trade name XE to retain dimensions makes it uniquely suited for the purpose.

While it is true that the patterns would still serve to indicate relative amounts of tension even after shrinking, the change in dimensions would alter the degree of tension required to bring about the looked for change in contour or placement of the pattern, thus rendering original instructions inaccurate. The use of a fibre such as described above or its equivalent is therefore desirable.

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FIG. 1a

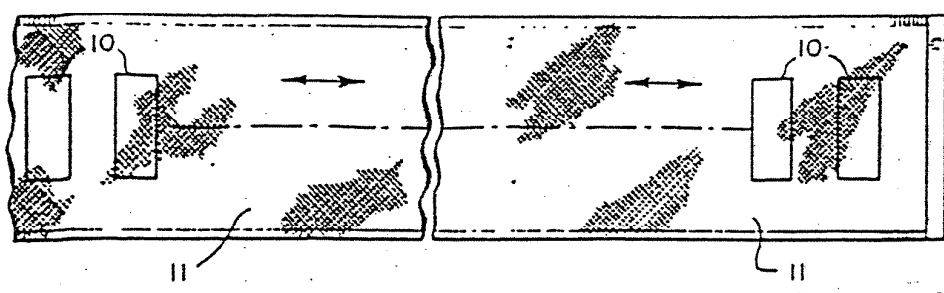


FIG. 1b

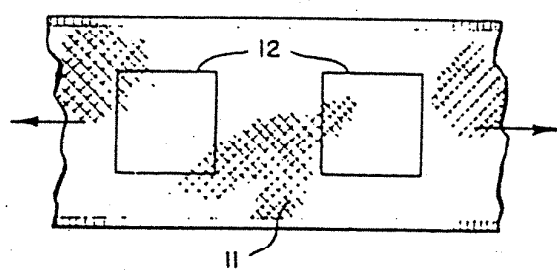


FIG. 2

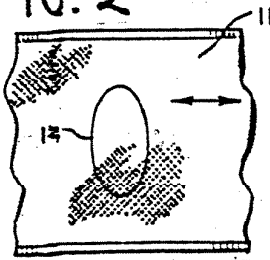


FIG. 3

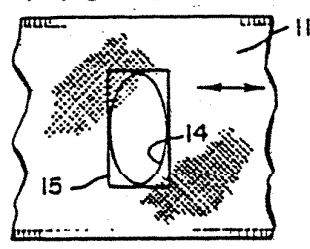


FIG. 4

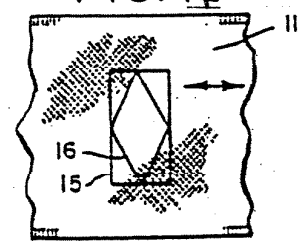


FIG. 5

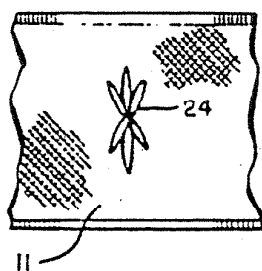


FIG. 6

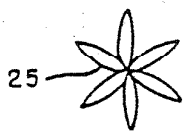


FIG. 7

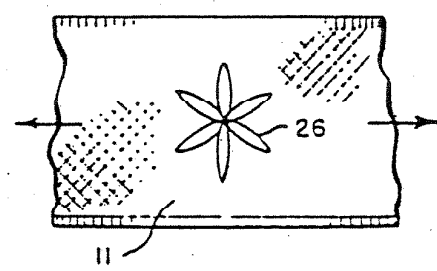


FIG. 8

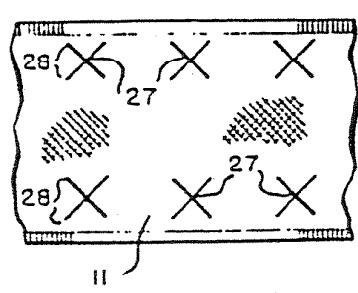
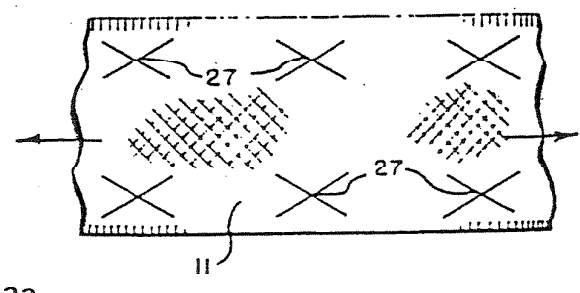


FIG. 9



EXTRACT FROM "NURSING TIMES", Sept. 1992

One of the most awkward tasks faced by nurses today is the correct application of bandages to limbs. This is particularly the case when dealing with leg ulcers, where it is known that the pressure exerted by the bandage has an effect on the rate of healing of the ulcer, other things being equal. A correspondent from Bristol, Mr. Ivor Pain, has written to us suggesting that bandages should have printed on them a visual aid to help the nurse to tighten the bandage to the required degree. He proposes a series of similar rectangles spaced along the bandage, the idea being that these, when stretched, become squares. We heartily endorse this idea, and hope that it will be received enthusiastically by manufacturers.

Mr. Pain's idea has stimulated our own "think tank"; their lateral thinkers have suggested that bandages of differing degrees of elasticity might be produced with coloured marks along their edges, a given colour denoting a particular elasticity. Who knows, they may even get a patent one day!