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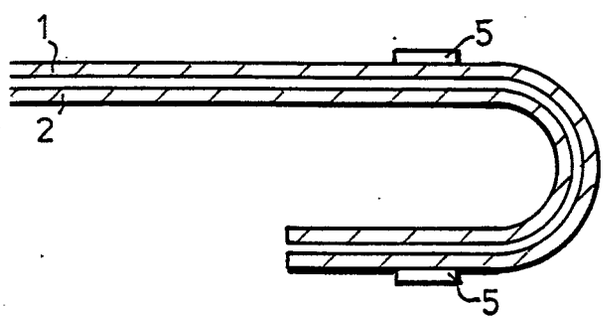
(54) **Method for sealing a bag and a bag produced by that method.**

(57) According to the invention a seam of a pocket of flexible material is sealed by placing on it a strip (5) of circularly woven tube having a filling of spun polymer, and by applying a sewing thread (6) with a needle (7) that is tapered and round to such an extent that the filling adheres to said needle and is entrailed through the textile that is to be sealed.




EP 0 232 928 A1

Dutch patent application no. 86 00061

# Method for sealing a pocket as well as a pocket obtained by applying said method

The invention has reference to a method for sealing a seam of a pocket of flexible material such as textile by means of a sewing needle, a strip being placed on either side of the pocket in the direction of the seam that is to be made, said strip being stitched on by making a sewing thread of the seam, which seam is sealed by means of an adhesive.

A similar method and pocket are known from the Dutch patent specification 20571 granted in 1930. In this known method the sealing of the seam takes place by immersing it in a bowl of liquid glue which then also fills up the holes, which came about when the seam was made, to a certain degree. According to the Dutch patent specification 32904 that was granted five years later, it proved to be better to heat the adhesive strips before taking them up in the seam.

The general problem that arises when making a seam in a pocket, i.e. applying the stitching in such a way that it is not to taut, in order to prevent the pocket material from tearing, has still not been solved, however.

It is the object of the invention to change this for the better.

According to the invention this improvement has been achieved on account of the fact that the strip consists of a circularly woven

tube having a filling of spun polymer, and that the sewing needle is tapered and round so that the sewing needle and the sewing thread acquire such a temperature as a result of the generated frictional heat that the filling adheres to the needle and is entrailed through the textile that is to be sealed.

In this respect it is remarked that a square and blunt needle is used in normal cases.

In a possible embodiment of the invention the strip consists of a circularly woven tube having a filling of polyamide that is form-retaining until 200°C and furthermore conforms to the following requirements:

- specific mass between 1 and 1.4;
- maximum melting temperature approximately 200°C;
- maximum working temperature 80°C at constant load, and
- specific heat 1.4 kJ/kgK.

The pocket itself preferably consists of synthetic fibre.

The invention will be illustrated in more detail below with the help of the drawing, in which an embodiment of a method according to the invention is depicted by way of example.

In the drawing:

fig. 1 shows a cross section through a pocket's bottom during the first phase of the method according to the invention;

figures 2 - 4 show cross sections as in fig. 1, but they have bearing on the second up to and including the fourth phase of the method according to the invention;

and fig. 5 shows a longitudinal view of a sewing needle on a larger scale.

Two widths of synthetic fibre 1, 2, which are to form the front and rear sides of a pocket, are placed on top of each other and are both folded in such a way to form a pocket bottom, that a narrow air gap 3 is created between widths 1 and 2 and a broader air gap 4 is created between the opposed widths 2, 2.

Parallel strips 5 are applied on widths 1, 1 that face away from each other and a sewing thread 6 is pricked through these strips as well as through the intermediate doubled up widths 1 and 2 in the second phase of the method.

As a result of the generated frictional heat, which is influenced by the shape of the needle, the sewing needle and the sewing thread 6 acquire an initial temperature that is such that the filling of the cord starts adhering. The filling is then entrailed through the synthetic fibre of the upper width 1, which fibre is to be sewn, and as a result the filling acquires shape 5'. After the needle has been pricked through the lower width 1 of fig. 2, the lower strip 5 acquires shape 5'' at that place. In the meantime the temperature has risen to the melting point of the filling, while, at the same time, the material of the filling acquires a solid form after pricking has taken place, on account of the fact that the needle also forms a channel. On account of the frictional heat the entrailed lower thread was subjected to the same effect as the thread at the upper side, so that the situation of fig. 3 comes about. As a result of the fact that the upper and lower thread are drawn tightly, shape "' (see fig. 4) comes into being, in addition to which both the soft polyamide linings are compressed. With this the powder compactness of the pocket is obtained. This method entails that the sewing thread must be able to retain its shape and strength at a temperature that lies above 200°C.

The sewing needle 7 depicted in fig. 5 consists of a cylindrical shank 8 having a thread hole 9 that debouches in a thread groove 10 in the known way. An ordinary sewing needle has a tip with cutting edges as indicated by the dotted lines in fig. 5. The needle that is to be used in the invented method is, on the other hand, tapered and round, in other words it has a concial tip, so that the hole formed by the needle in widths 1 and 2 does not consits of notches but of deformations.

Other embodiments besides the one described above also lie within scope of the claims.

HV/EtM

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Claims

1. A method for sealing a seam of a pocket of flexible material such as textile by means of a sewing needle, a strip being placed on either side of the pocket in the direction of the seam that is to be made, said strip being stitched on by making a sewing thread of the seam, which seam is sealed by means of an adhesive, characterized in that said strip consists of a circularly woven tube (5) having a filling of spun polymer, and in that the sewing needle (7) is tapered and round so that said sewing needle (7) and said sewing thread (6) acquire such a temperature as a result of the generated frictional heat that the filling starts adhering to said needle and is entrailed through the textile that is to be sealed.

2. A method according to claim 1, characterized in that the strip consists of a circularly woven cotton tube having a filling of polyamide that is form-retaining until 200°C and furthermore conforms to the following requirements:

   - specific mass between 1 and 1.4;
   - maximum melting temperature approximately 200°C;
   - maximum working temperature 80°C at constant load, and
   - specific heat 1.4 kJ/kgK.

3. A method according to claim 1 or 2, characterized in that the pocket itself is made of synthetic fibre.

4. A pocket obtained with the method according to any of the preceding claims.

5. A method as described above and/or elucidated by means of the drawing.

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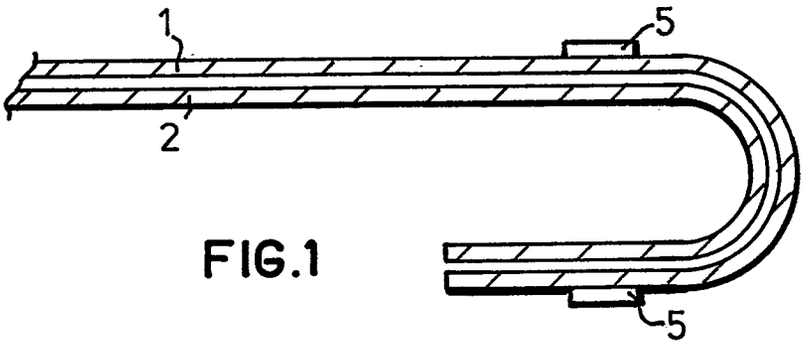


FIG.1

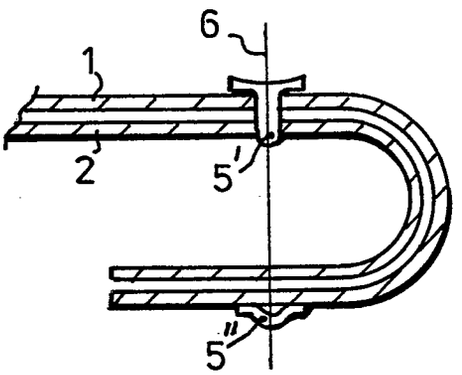


FIG.2

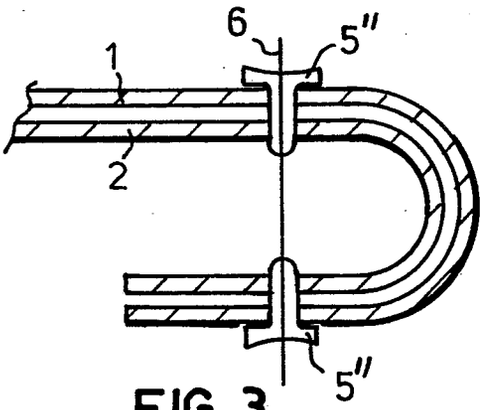


FIG.3

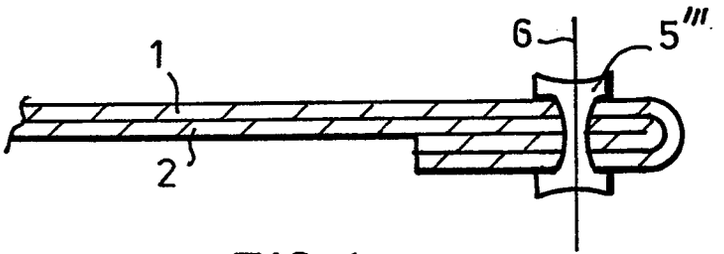


FIG.4

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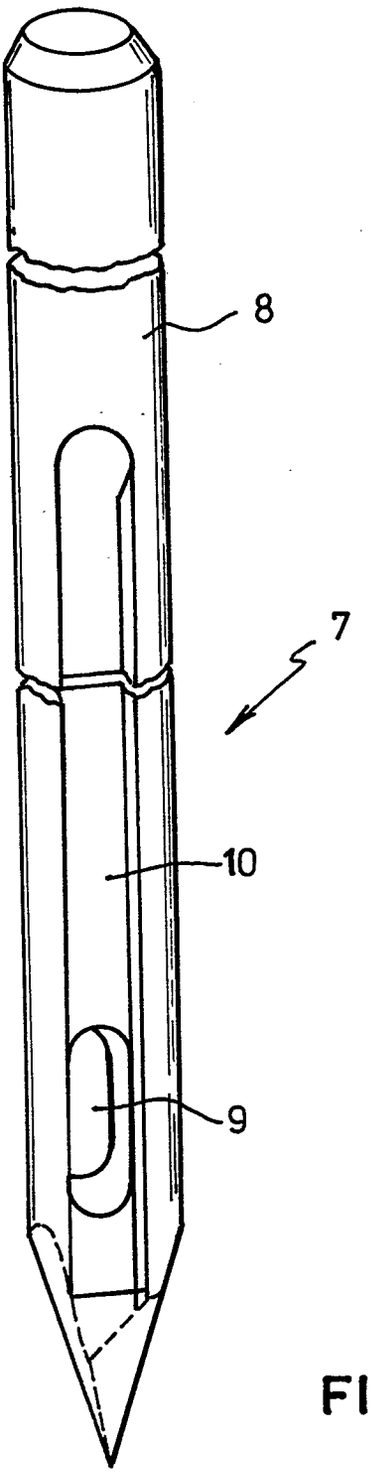


FIG.5

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# EUROPEAN SEARCH REPORT

Application number

EP 87 20 0040

## 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.4) |
|---|---|---|---|
| A | US-A-2 403 756 (R. READ)<br>* Column 3, line 24 - column 4, line 2; figures 2-5 * | 1 | B 65 B 51/07<br>B 65 D 30/08<br>B 31 B 1/68 |
| A | DE-C- 598 177 (W. ROWE)<br>* Page 4, line 54 - page 5, line 92; figures 11-18 * | 1 | |
| A | FR-A-2 437 925 (IMPRIMERIE ET PAPETERIE DE L'EST)<br>* Page 2, line 24 - page 3, line 25; figures * | 1,3 | |
| A | GB-A- 690 677 (ST REGIS PAPER)<br>* Page 3, lines 24-79; figures * | 1 | |

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 65 B
B 65 D
B 31 B

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 10-04-1987 | JAGUSIAK A.H.G. |

CATEGORY OF CITED DOCUMENTS

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