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(54) Method for affixing strings of alphanumeric characters, symbols or the like on fabrics

(57) A method for affixing strings of alphanumeric characters, symbols or the like on fabrics, comprising the following steps:
- a first step (101) of positioning a string (1) of alphanumeric characters, symbols or the like (2) in bas-relief on a first presser (11) of a press (50),
- a second step (102) of positioning a string (21) of supporting elements (22) on a second presser (31) of the press (50) that correspond to the alphanumeric characters, symbols or the like (2) in bas-relief,
- a third step (103) of positioning a fabric (41) onto which the alphanumeric characters, symbols or the like (2) in bas-relief are to be fixed between the first and second pressers (11, 31),
- a press closing step (104) for pressing the alphanumeric characters, symbols or the like (2) in bas-relief on the corresponding supporting elements (22) with the fabric (41) interposed for the mutual fixing of the alphanumeric characters, symbols or the like (2) in bas-relief with the corresponding supporting elements (22),
- a step (105) of opening the press in order to extract the fabric (41) from the press (50).

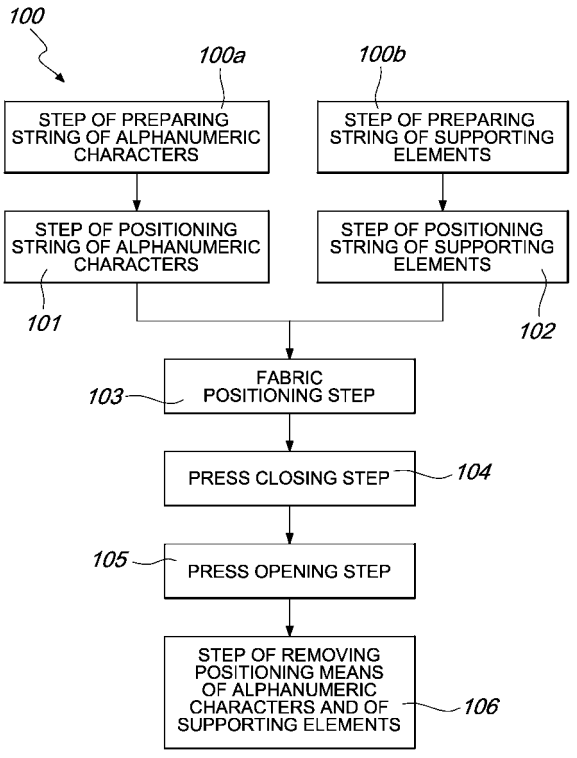


Fig. 1

EP 2 151 169 A1

Description

[0001] The present invention relates to a method for affixing strings of alphanumeric characters, symbols or the like on fabrics, particularly on items of clothing and the like.

[0002] In the fashion field, and not only, the technique is widespread of fixing to the item of clothing, or generally to the fabric, strings of alphanumeric characters that represent words, trademarks, logos or more generally alphanumeric codes.

[0003] These alphanumeric codes typically consist of a set of letters, numerals and symbols made, according to the requirements, of metal or plastics, which can be fixed to the fabric according to several known methods.

[0004] If the string is constituted by a single rigid part, these known methods can comprise the fixing of the entire string to the fabric in a single operation by way of known methods, such as for example punching or riveting.

[0005] This affixing method, however, suffers the drawback of eliminating locally the elasticity and flexibility of the fabric where the string has been fixed, since the string is a rigid element or is in any case less flexible than the fabric to which it is applied.

[0006] An alternative to this affixing method can consist for example in sewing or otherwise fixing one character at a time if the string is not monolithic, so as to make the characters independent one another.

[0007] In this manner, the fabric retains its elasticity and flexibility substantially unchanged.

[0008] This last known type of method is not devoid of drawbacks, which include the fact that the fixing of one character at a time to the fabric entails long affixing times, with the possibility of losing alignment among characters.

[0009] The aim of the present invention is to eliminate the drawbacks noted above by providing a method for affixing strings of alphanumeric characters, symbols or the like on fabrics, which allows the characters that define the string to be fixed to a fabric in a single operation and independently of each other without thus altering the elastic characteristics of the fabric.

[0010] Within this aim, an object of the present invention is to provide a method that uses apparatuses and machines that are typical of the sector.

[0011] This aim, as well as these and other objects that will become better apparent hereinafter, are achieved by a method for affixing strings of alphanumeric characters, symbols or the like on fabrics, **characterized in that** it comprises:

- a first step of positioning a string of alphanumeric characters, symbols or the like in bas-relief on a first presser of a press,
- a second step of positioning a string of supporting elements on a second presser of said press that correspond to said alphanumeric characters, symbols or the like in bas-relief,
- a third step of positioning a fabric onto which said alphanumeric characters, symbols or the like in bas-relief are to be fixed between said first and second pressers,
- a press closing step for pressing said alphanumeric characters, symbols or the like in bas-relief on said corresponding supporting elements with said fabric interposed for the mutual fixing of said alphanumeric characters, symbols or the like in bas-relief with said corresponding supporting elements,
- a step of opening the press in order to extract said fabric from said press.

[0012] Further characteristics and advantages of the present invention will become apparent from the description of a preferred but not exclusive embodiment of a method for affixing strings of alphanumeric characters, symbols or the like on fabrics, according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a block diagram of an embodiment of a method for affixing strings of alphanumeric characters, symbols or the like on fabrics, according to the present invention;
Figure 2 is a perspective view of a press for affixing a string of alphanumeric characters, symbols or the like in bas-relief on a fabric, according to the present invention;
Figure 3 is a front elevation view of a string of alphanumeric characters, symbols or the like in bas-relief according to the present invention;
Figure 4 is a sectional view of the string shown in Figure 3, taken along the line IV-IV;
Figure 5 is a sectional view of the string shown in Figure 3, taken along the line V-V;
Figure 6 is a front elevation view of a string of supporting elements according to the present invention;
Figure 7 is a sectional view of the string shown in Figure 6, taken along the line VII-VII;
Figure 8 is a sectional view of the string shown in Figure 6, taken along the line VIII-VIII;
Figure 9 is a front elevation view of a first presser according to the present invention;
Figure 10 is a sectional view of the first presser shown in Figure 9, taken along the line X-X;
Figure 11 is a side elevation view of the first presser shown in Figure 9;
Figure 12 is a front elevation view of a second presser according to the present invention;
Figure 13 is a sectional view of the second presser shown in Figure 12, taken along the line XIII-XIII;
Figure 14 is a perspective view of a fabric on which a string of alphanumeric characters according to the present invention is affixed.

[0013] With reference to the figures, the method for affixing strings of alphanumeric characters, symbols or

the like on fabrics, generally designated by the reference numeral 100, comprises a first step 101 for positioning a string 1 of alphanumeric characters, symbols or the like 2 in bas-relief on a first presser 11 of a press 50, which for example can be arranged on the ram of the press 50.

[0014] More precisely, the string 1 can be defined by a plurality of alphanumeric characters 2 that are molded and aligned according to a predefined layout and held in position with respect to each other by first positioning means 3.

[0015] The positioning means 3 can be defined, for example, by at least one first positioning bar 5, which is obtained monolithically with the alphanumeric characters 2 and is connected to them by means of wings 6 that are thinner than the alphanumeric characters 2 for facilitated removal of said first positioning bar 5.

[0016] In order to have higher versatility, it is possible to provide two positioning bars 5 arranged respectively at the top and at the bottom of the alphanumeric characters 2.

[0017] As already mentioned, the string 1 is arranged in the first presser 11, which consists of a ram that has such a shape as to accommodate the string 1 and defines a plurality of punches that are adapted to deform plastically the alphanumeric characters 2 of the string 1 in order to obtain a plurality of engagement pins 4 that protrude from the rear face of the alphanumeric characters 2.

[0018] As will be explained in greater detail hereinafter, the engagement pins 4 are adapted to engage supporting elements 22 for contrast abutment of the alphanumeric characters 2.

[0019] Once the string 1 has been positioned, one moves on to the second step 102 for positioning a string 21 of supporting elements 22 that correspond to the alphanumeric characters 2.

[0020] This second string 21 is arranged on a second presser 31 of the press 50, which can be located for example on the anvil of the press 50.

[0021] More precisely, the string 21 can be defined by a plurality of supporting elements 22 that are molded and aligned according to a layout that corresponds to the layout of the string 1 and the second presser 31 also has such a contour as to be able to accommodate the string 21.

[0022] For the string 21 also, the positioning of the supporting elements 22 with respect to each other is achieved by way of second positioning means 23, which can be defined by at least one second positioning bar 25 obtained monolithically with the supporting elements 22 and connected to them by means of wings 26 that are thinner than the supporting elements 22 for the facilitated removal of the second positioning bar 25.

[0023] As for the string 1, in order to have higher versatility it is possible to provide two positioning bars 25 that are arranged respectively at the top and at the bottom of the supporting elements 22.

[0024] It must be stressed that a plurality of holes 24 for the forced insertion of the engagement pins 4 are defined in the supporting elements 22.

[0025] The step 101 and the step 102 need not be performed with a precise mutual sequence. Performing one or the other first, or performing them simultaneously, is the same.

[0026] A further very important aspect resides in that if both the string 1 and the string 21 each have both positioning bars 5 or 25, it is necessary to perform respectively a first step 100a for preparing the string 1 and a second step 100b for preparing the string 21 prior to the respective steps 101 and 102.

[0027] This is necessary for mutual noninterference between the positioning bars 5 and 25.

[0028] Having two positioning bars 5 for the string 1 and two positioning bars 25 for the string 21 during the step 104 for closure of the press in fact would not cause the generation of the correct pressure between the alphanumeric characters 2 and the supporting elements 22, since much of the load would be discharged between the generic positioning bar 5 and the corresponding positioning bar 25.

[0029] More precisely, the step 100a and the step 100b consist in eliminating a positioning bar 5 and the noncorresponding positioning bar 25.

[0030] This is possible simply by breaking the wings 6 or 26 that join the positioning bar 5 or 25 respectively to the alphanumeric characters 2 or to the supporting elements 22; keeping them in the correct position is entrusted to the other remaining positioning bars 5 and 25.

[0031] Once the two strings 1 and 21 have been placed on the appropriately provided pressers 11 and 31, it is possible to perform a third step 103 for positioning a fabric 41 onto which the alphanumeric characters 2 are to be fixed.

[0032] The fabric 41 is thus placed between the first presser 11 and the second presser 31 and kept in position, even manually, while the press closure step 104 is performed in order to press the alphanumeric characters 2 onto the corresponding supporting elements 22, with the fabric 41 interposed, for their mutual fixing.

[0033] More precisely, during the step 104 the punches work on the alphanumeric characters 2, generating the engagement pins 4, which are forced together with the fabric 41 into the holes 24 of the corresponding supporting elements 22.

[0034] After this, it is possible to perform the press opening step 105 in order to extract the fabric 41 from the press 50 and proceed with the fourth step 106 for removal of the first positioning means 3 and of the second positioning means 23.

[0035] More precisely, this last step 106 consists in removing the positioning bars 5 and 25 that remain on the two strings 1 and 21 by breaking respectively the wings 6 and 26 and disengaging the alphanumeric characters 2 from each other.

[0036] In practice it has been found that the method for affixing strings of alphanumeric characters, symbols or the like on fabrics and the corresponding apparatus

necessary for implementing said method, according to the present invention, fully achieve the intended aim and objects, since they allow to fix a string of alphanumeric characters, symbols or the like onto a fabric according to a preset layout, keeping substantially unchanged the elastic and flexibility properties of the fabric, since at the end of the process the alphanumeric characters, symbols or the like are disengaged with respect to each other.

[0037] Another advantage of the method according to the present invention consists in that it is possible to fix all the alphanumeric characters, symbols or the like simultaneously, therefore using an amount of time that is independent of the number of alphanumeric characters, symbols or the like comprised within the string to be fixed to the fabric.

[0038] Another advantage of the method according to the present invention consists in that it uses, for its execution, equipment that is commonly used in the field, with a consequent containment of costs.

[0039] The method for affixing strings of alphanumeric characters, symbols or the like on fabrics and the corresponding apparatus required for implementing said method, thus conceived, are susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0040] All the details may further be replaced with other technically equivalent elements.

[0041] In practice, the materials used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to requirements and to the state of the art.

[0042] The disclosures in Italian Patent Application no. MI2008A001509, from which this application claims priority, are incorporated herein by reference.

[0043] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A method for affixing strings of alphanumeric characters, symbols or the like on fabrics, **characterized in that** it comprises:

   - a first step (101) for positioning a string (1) of alphanumeric characters, symbols or the like (2) in bas-relief on a first presser (11) of a press (50),
   - a second step (102) for positioning a string (21) of supporting elements (22) on a second presser (31) of said press (50) that correspond to said alphanumeric characters, symbols or the like (2) in bas-relief,
   - a third step (103) for positioning a fabric (41) onto which said alphanumeric characters, symbols or the like (2) in bas-relief are fixed between said first and second pressers (11, 31),
   - a press closing step (104) for pressing said alphanumeric characters, symbols or the like (2) in bas-relief on said corresponding supporting elements (22) with said fabric (41) interposed for the mutual fixing of said alphanumeric characters, symbols or the like (2) in bas-relief with said corresponding supporting elements (22),
   - a step (105) for opening the press in order to extract said fabric (41) from said press (50).

2. The method according to claim 1, **characterized in that** it comprises a first step (100a) for preparing said string (1) of alphanumeric characters, symbols or the like (2) in bas-relief in order to position it on said first presser (11), said first preparation step (100a) being performed before said first positioning step (101).

3. The method according to one or more of the preceding claims, **characterized in that** it comprises a second step (100b) for preparing said string (21) of corresponding supporting elements (22) to position it on said second presser (31) and for the mutual non-interference of said first means (3) for positioning said alphanumeric characters, symbols or the like (2) in bas-relief with second means (23) for positioning said corresponding supporting elements (22), said second preparation step (100b) being performed before said second positioning step (102).

4. The method according to one or more of the preceding claims, **characterized in that** it comprises a fourth step (106) for removing said first positioning means (3) and said second positioning means (23), said fourth removal step (106) being performed after said press opening step (105).

5. A string of alphanumeric characters, symbols or the like, **characterized in that** it comprises a series of alphanumeric characters, symbols or the like (2) in bas-relief that form a plurality of engagement pins (4) that protrude from the rear face of said alphanumeric characters, symbols or the like (2) in bas-relief, said alphanumeric characters, symbols or the like (2) in bas-relief being kept in position with respect to each other by first positioning means (3).

6. The string of alphanumeric characters, symbols or the like according to claim 5, **characterized in that** said first positioning means (3) comprise at least one first positioning bar (5), which is obtained monolithically with said alphanumeric characters, symbols or the like (2) in bas-relief and is connected to them by means of wings (6) which are thinner than said alphanumeric characters, symbols or the like (2) in bas-relief for the facilitated removal of said first po-

sitioning bar (5).

7. A string of supporting elements, **characterized in that** it comprises a series of supporting elements (22) that correspond to a plurality of alphanumeric characters, symbols or the like (2) in bas-relief, said supporting elements (22) forming a plurality of holes (24) for the forced insertion of engagement pins (4) formed by said alphanumeric characters, symbols or the like (2) in bas-relief and being held in position with respect to each other by second positioning means (23).

8. The string of supporting elements according to claim 7, **characterized in that** said second positioning means (23) comprise at least one second positioning bar (25), which is obtained monolithically with said supporting elements (22) and is connected to them by virtue of wings (26) which are thinner than said supporting elements (22) for the facilitated removal of said second positioning bar (25).

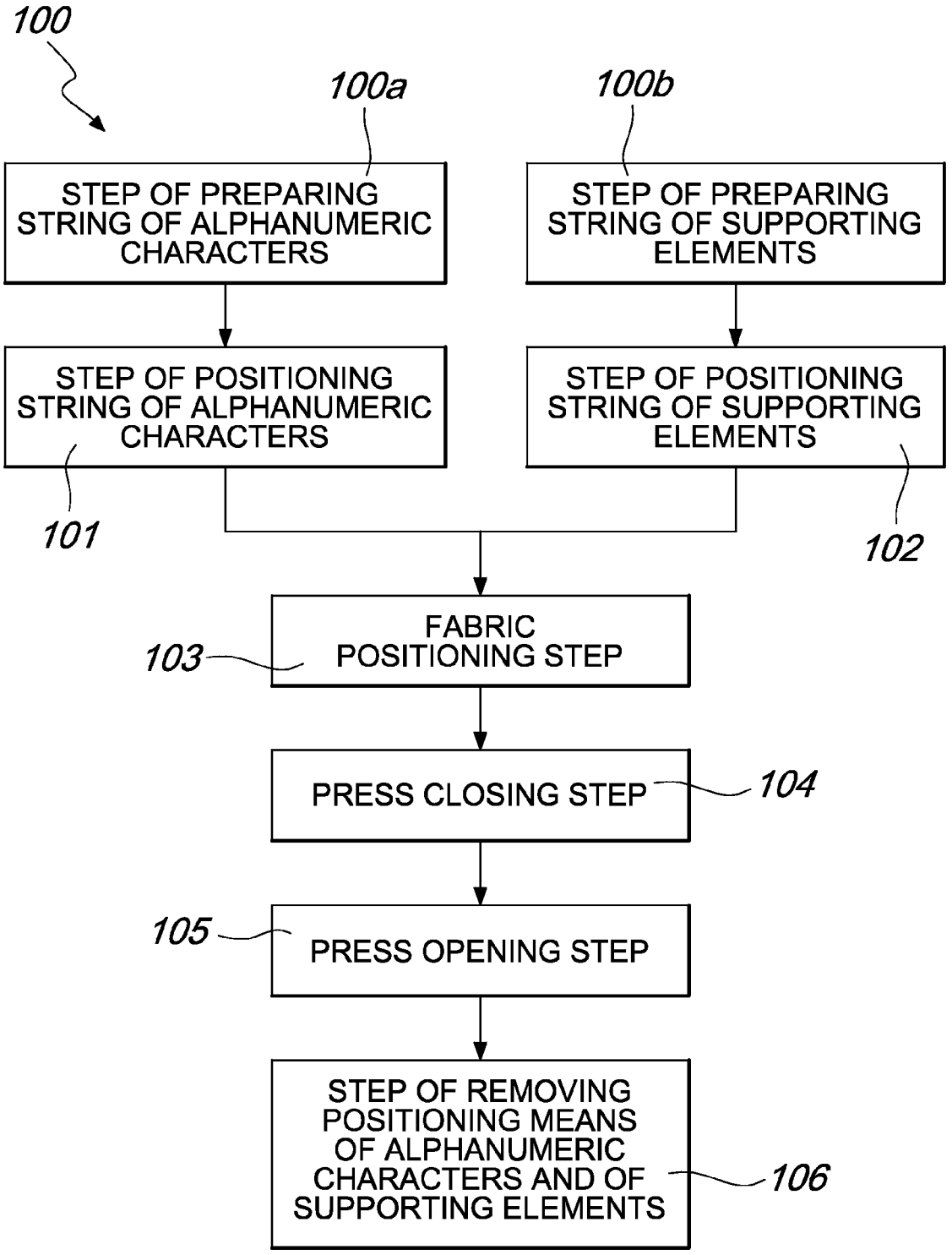

100
100a
100b
STEP OF PREPARING STRING OF ALPHANUMERIC CHARACTERS
STEP OF PREPARING STRING OF SUPPORTING ELEMENTS
STEP OF POSITIONING STRING OF ALPHANUMERIC CHARACTERS
STEP OF POSITIONING STRING OF SUPPORTING ELEMENTS
101
102
FABRIC POSITIONING STEP
103
PRESS CLOSING STEP
104
105
PRESS OPENING STEP
STEP OF REMOVING POSITIONING MEANS OF ALPHANUMERIC CHARACTERS AND OF SUPPORTING ELEMENTS
106

Fig. 1

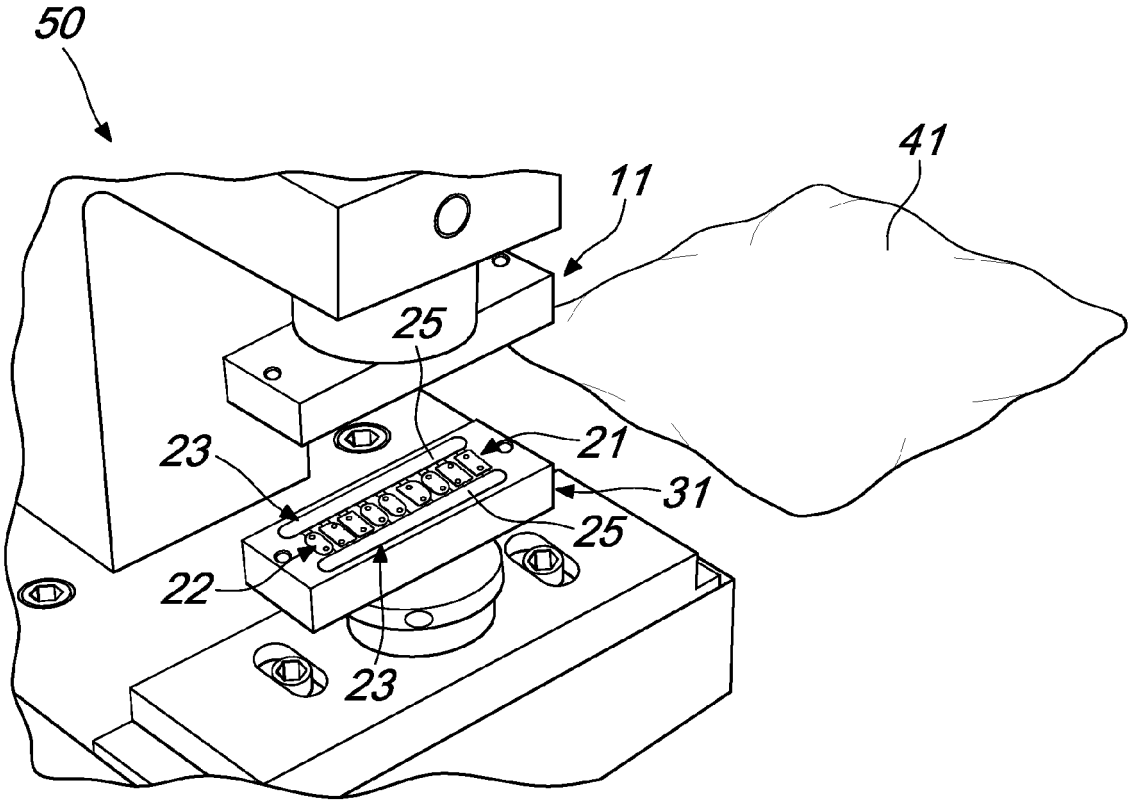


Fig. 2

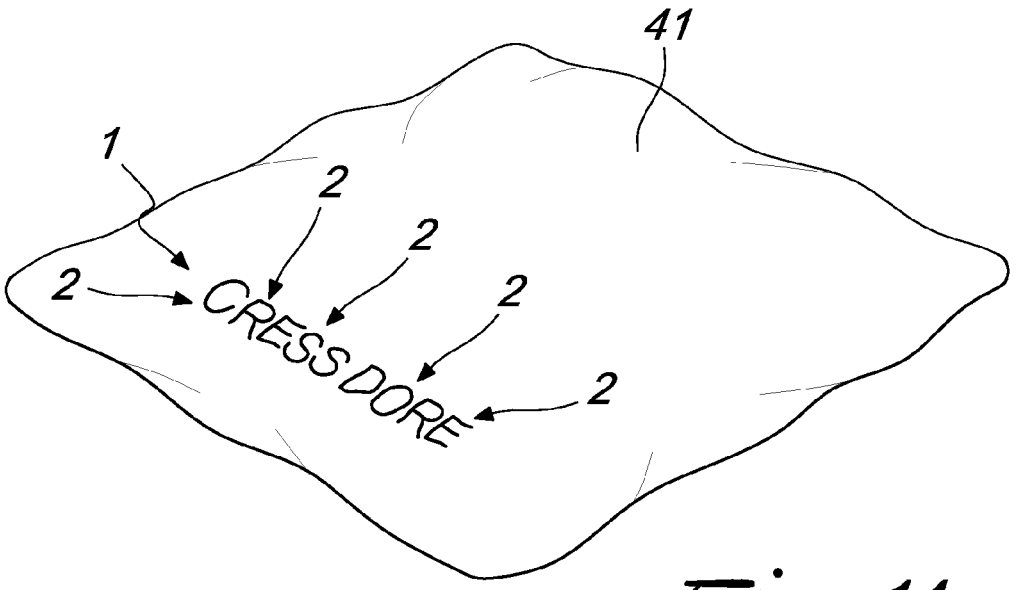


Fig. 14

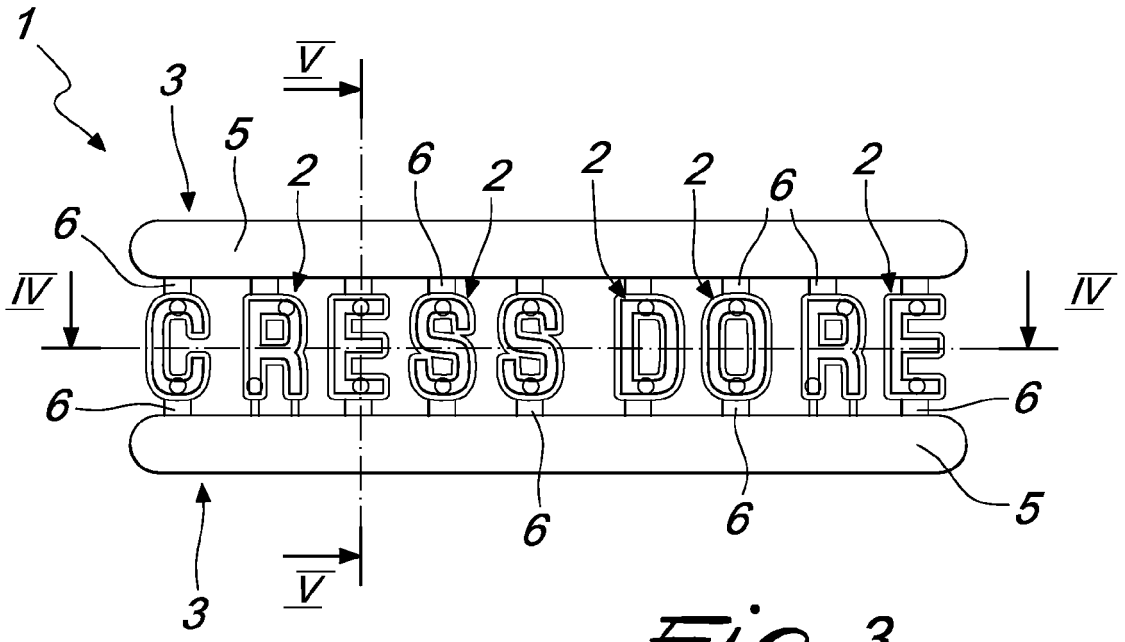
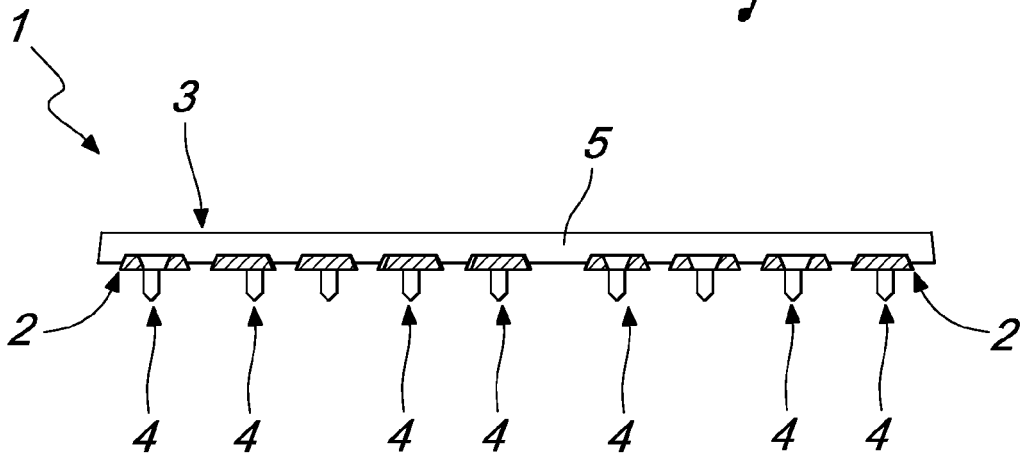


Fig. 3



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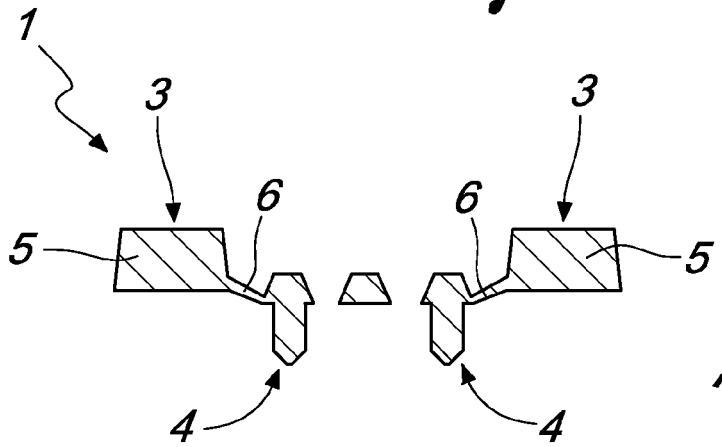

Fig. 5

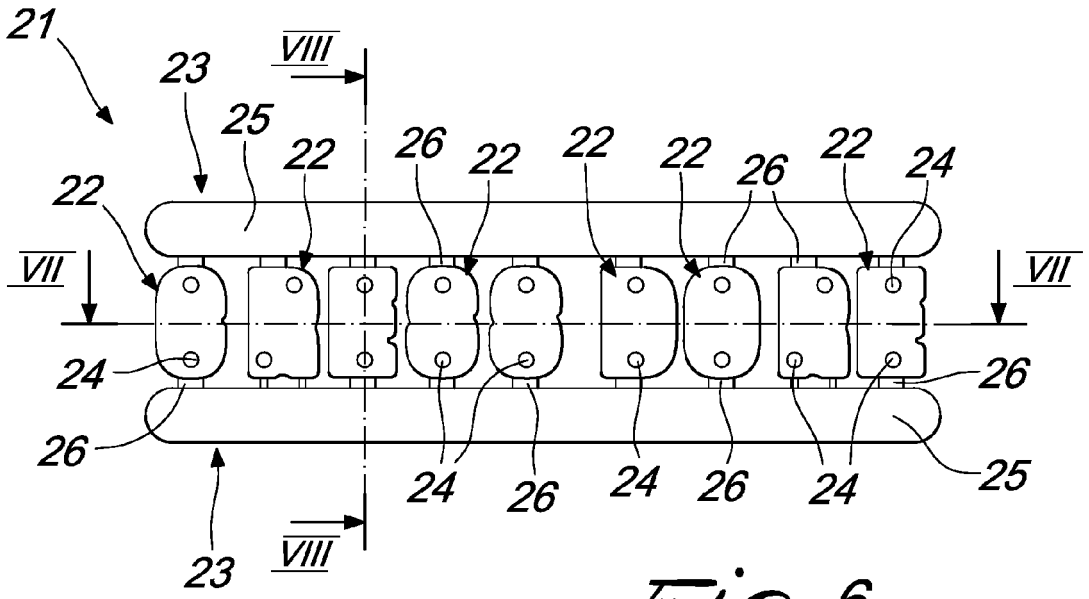

Fig. 6

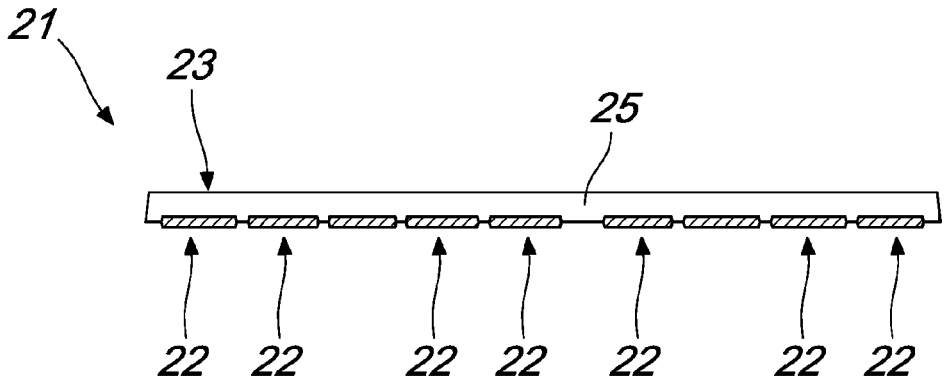

Fig. 7

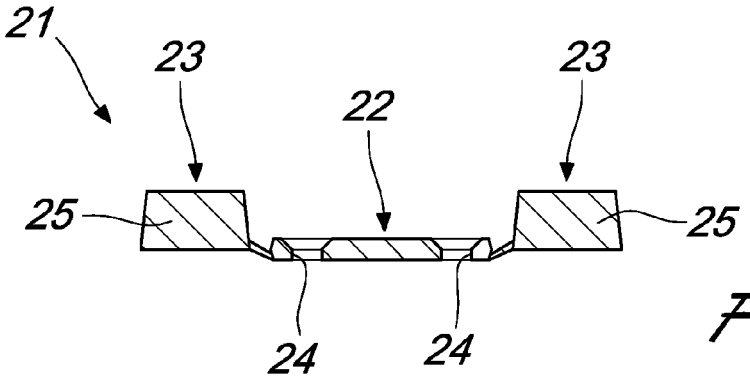

Fig. 8

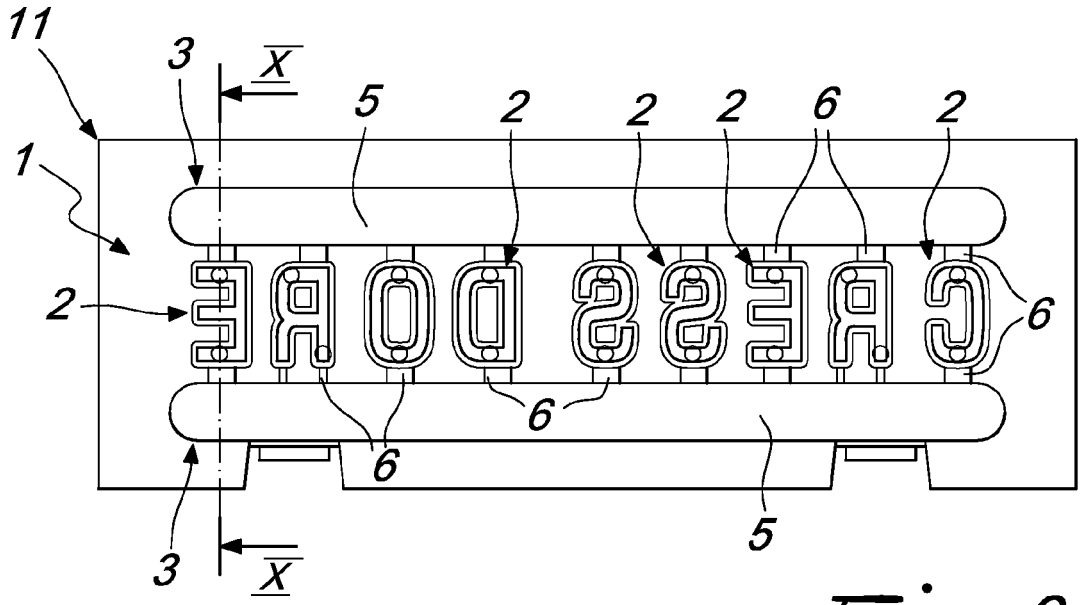

Fig. 9

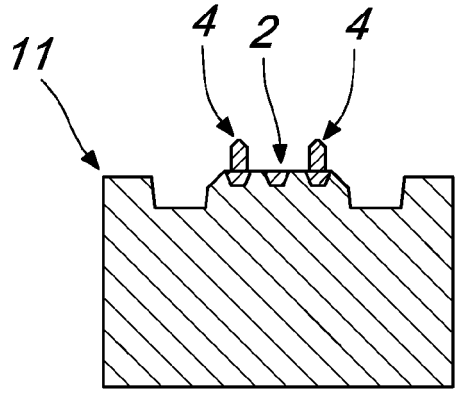

Fig. 10

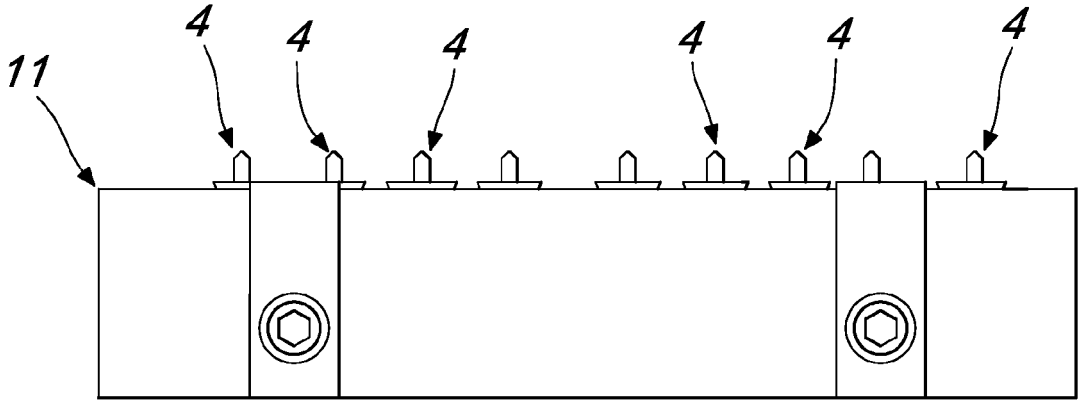

Fig. 11

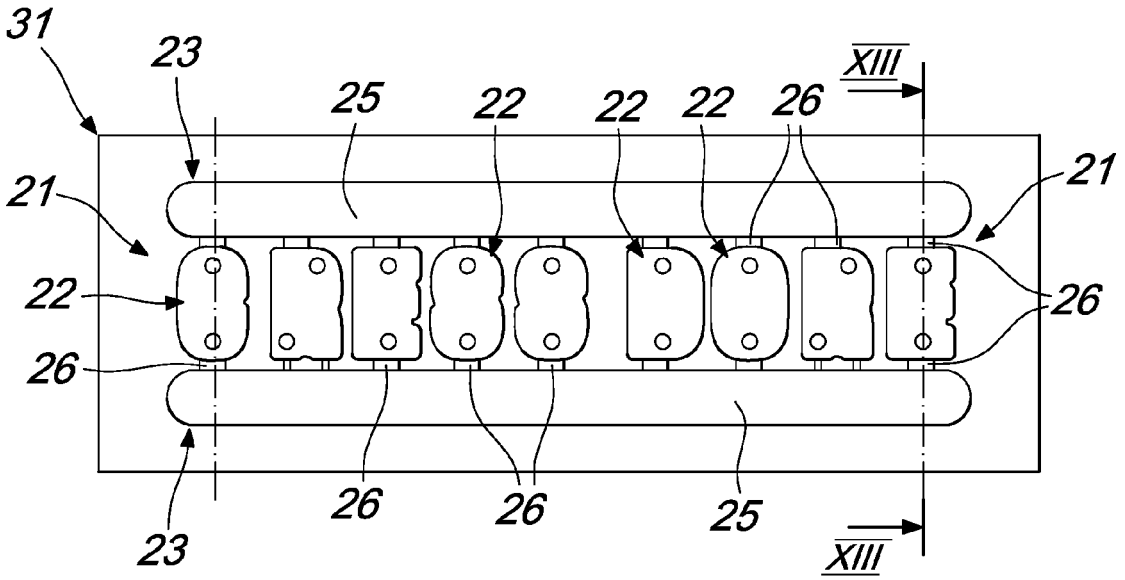
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Fig. 12

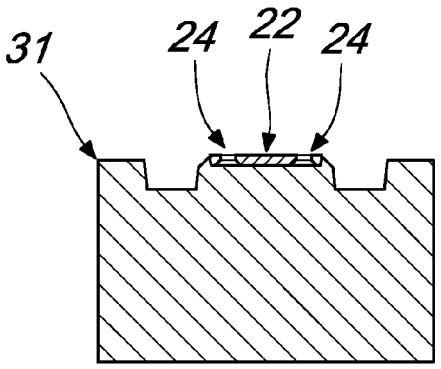
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Fig. 13

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EUROPEAN SEARCH REPORT

Application Number
EP 09 16 5825

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 058 573 A (SILVER SAMUEL [US]) 9 May 2000 (2000-05-09) * column 2, line 27 - line 65; claims; figures * -----	1-4	INV. A41D27/08 G09F7/06
X	FR 2 187 557 A (FERRARIS LAUREN [FR]) 18 January 1974 (1974-01-18) * figures * -----	5,7	

TECHNICAL FIELDS SEARCHED (IPC)

A41D
A44B
A42B
A44C
G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	1 September 2009	Blas, Valérie

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 16 5825

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01-09-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6058573 A	09-05-2000	NONE	
FR 2187557 A	18-01-1974	NONE	

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

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