(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 458 215 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **91108055.4**

(51) Int. Cl.5: **B65D 81/00**

(22) Date of filing: **17.05.91**

(30) Priority: **22.05.90 IT 4160890**

(43) Date of publication of application:
27.11.91 Bulletin 91/48

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR LI LU NL SE

(71) Applicant: **BURGOPACK STAMPA, TRASFORMAZIONE, IMBALLAGGI S.p.A.**
Via Dalmastro, 2
I-36030 Lugo Di Vicenza (Province of Vicenza)(IT)

(72) Inventor: **Balasso, Francesco**
V.le Div. Julia, 10/A
I-36016 Thiene (Vicenza)(IT)

(74) Representative: **Modiano, Guido et al**
MODIANO, JOSIF, PISANTY & STAUB
Modiano & Associati Via Meravigli, 16
I-20123 Milano(IT)

(54) Device for connecting a thread-like element to a paper body.

(57) The device for connecting a thread-like element (4) to a paper body (1), such as a bag for infusions, such as tea, camomile etc., the or an identification tag (11), comprises a sheet element (5) which is fixed by hot-pressing onto the paper body (1), thereby enclosing an end (3) of the thread-like element (4); layers of supporting material (7) and of external covering material (9) are interleaved with layers (6,8) of heat-welding material in the sheet element (5).

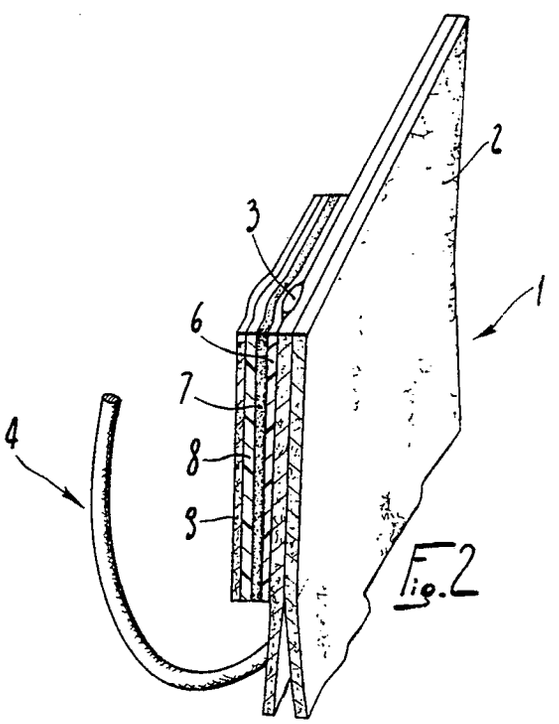

Fig.2

EP 0 458 215 A1

The present invention relates to a device for connecting a thread-like element to a paper body.

The device is particularly but not exclusively used to connect a bag for infusions such as tea, camomile, etc. (i.e. a bag to be immersed in a liquid) to the cotton thread used to handle it.

The device is used in the same manner to connect the other end of the thread to the tag which identifies the product contained in the bag.

It is known that metal staples are currently used in order to associate with an infusion bag the cotton cord which, for reasons of hygiene, is used to handle it in particular after immersion in hot water; said staples lock one of the ends of the cotton thread to an upper flap of the bag.

The tag which identifies the product contained in the bag, which as is known is constituted by a small pouch made of porous paper, is associated with the other end of the thread in the same manner, by means of metal staples.

However, metal staples, when immersed in the hot water used for the infusion, are subject to oxidation, in particular if the material which constitutes them is aluminum, and the oxide thus formed, which is toxic and thus harmful to the health, dissolves and is consequently ingested by the user.

Due to this reason, the statutory provisions of many countries have abolished the use of said staples on infusion bags.

Besides the above described disadvantage due to oxidation, fixing by means of metal staples is very often unsatisfactory and is such that the thread is subject to slipping off the bag, making useless the presence both of the thread and of the identification tag.

The aim of the present invention is to provide a device which replaces metal staples for the association of the cotton thread with an infusion bag and with its corresponding identification tag.

A consequent primary object is to provide a device which is non-toxic and thus not harmful to the health.

Another important object is to provide a device by means of which the association between the thread and the bag is particularly stable, so that the rules of hygiene which justify the presence of the cotton thread are preserved.

Not least object is to provide a device which does not compromise the aesthetics of the flaps on which the ends of the thread are fixed.

This aim, these objects and others which will become apparent hereinafter are achieved by a device for connecting a thread-like element to a paper body, particularly a paper body to be immersed in a liquid, characterized in that it comprises a sheet element which is fixed by hot-pressing onto said paper body, thereby enclosing an end of said thread-like element, said sheet element being composed of layers of supporting material and of external covering material alternated with layers of heat-welding material.

Further characteristics and advantages of the intention will become apparent from the detailed description of an embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a perspective view of a thread connected at opposite ends to an infusion bag and to an identification tag by means of the device according to the invention;

figure 2 is an enlarged sectional view of the connecting device according to the invention;

figure 3 is a view of a first method for connecting the thread to the identification tag;

figure 4 is a view of a second method for connecting the thread to the identification tag.

With reference to the above figures, an infusion bag is indicated by the reference numeral 1, and the end 3 of a cotton thread 4 for handling said bag is fixed adjacent to the upper flap 2 of said bag.

Fixing, as illustrated in figure 2, occurs by means of the heat-welding of a sheet element constituted by a multilayer strip 5 which is hot-pressed onto the flap 2, enclosing said end 3.

Said strip 5 has various alternated layers of material; a first one 6 is constituted by extruded polythene which, when heated, adheres to the flap 2 of the bag 1, and a second layer 7 is constituted by polyester which constitutes the supporting element for the other layers.

A third extruded polythene layer 8 is used to connect a fourth covering layer 9 made of paper to the third layer 8.

The second polyester layer 7 is provided to give strength to the strip, whereas the presence of the third extruded polythene layer 8 is necessary for the gluing of the fourth covering layer 9 onto the polyester, which is otherwise troublesome.

The need for stratification is mostly due to the fact that paper, which is aesthetically better than polyester, after immersion in hot water is unable to provide supporting strength on its own, whereas polyester, which has excellent strength, besides not being aesthetically acceptable, has problems during heat-welding, since it can cling to the hot presser.

As shown in the figures, the fixing of the end 3 of the cotton thread 4 occurs by arranging said thread downward so as to ultimately improve traction strength.

In any way, the connection between the thread 4 and the bag 1 is considerably strong.

A strip 12, identical to said strip 5, is used to fix the other end 10 of the cotton thread 4 to the identification tag 11 of the product contained in the

bag 1, with the same welding operations.

The tag 11, which as mentioned above bears the printed indication of the product and of the maker, can be connected to the thread 4 in two different manners.

In a first manner, illustrated in figure 3, the heat-welding of the strip 12 occurs in a band 13 of the tag 11 which is completely free from ink, and therefore of printed items, which are placed in another band 14, due to the fact that it is not possible to heat-weld polythene on ink-covered parts.

In a second manner, illustrated in figure 4, the tag, now indicated by 11a, is completely printed and subsequently covered with transparent heat-welded film which allows the operation of fixing by means of polythene.

In practice it has thus been observed that the connection device according to the invention has achieved the intended aim and objects, since it is capable of excellently replacing the metallic staples currently used without having the disadvantages and the problems which characterize said staples.

In this manner, the rules of hygiene which justify the presence of the thread 4 for handling the infusion bag are also preserved in particular.

It should be furthermore noted that the presence of the paper covering layer makes the device particularly appreciable from an aesthetic point of view as well.

The invention thus conceived is susceptible to numerous modifications and variations, all of which are within the scope of the inventive concept.

All the details may furthermore be replaced with other technically equivalent elements.

In practice, the materials employed, so long as compatible with the contingent use, may be any according to the requirements.

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 scope of each element identified by way of example by such reference signs.

Claims

1. Device for connecting a thread-like element to a paper body, particularly a paper body to be immersed in a liquid, characterized in that it comprises a sheet element (5) which is fixed by hot-pressing onto said paper body (1,11,11a), thereby enclosing an end (3) of said thread-like element (4), said sheet element (5) being composed of layers of supporting (7) and external covering (9) materials alternated with layers of heat-welding (6,8) material.

2. Device according to claim 1, characterized in that said sheet element (5) has a first layer (6) of heat-welding material, a second layer (7) of supporting material, a third layer (8) of heat-welding material and a fourth covering layer (9).

3. Device according to claim 1, characterized in that said supporting material (7) is constituted by polyester or other plastic films.

4. Device according to claim 1, characterized in that said external covering material (9) is constituted by paper.

5. Device according to claim 1, characterized in that said layers (6,8) made of heat-welding materials are constituted by heat-welding resins.

6. Device according to one or more of the preceding claims, characterized in that said sheet element (5) is fixed on regions (13) of said paper body (11) bearing no printing ink.

7. Device according to one or more of the preceding claims, characterized in that said sheet element (5) is fixed on regions of said paper body (11a) bearing printing ink covered by a layer of heat-welded film.

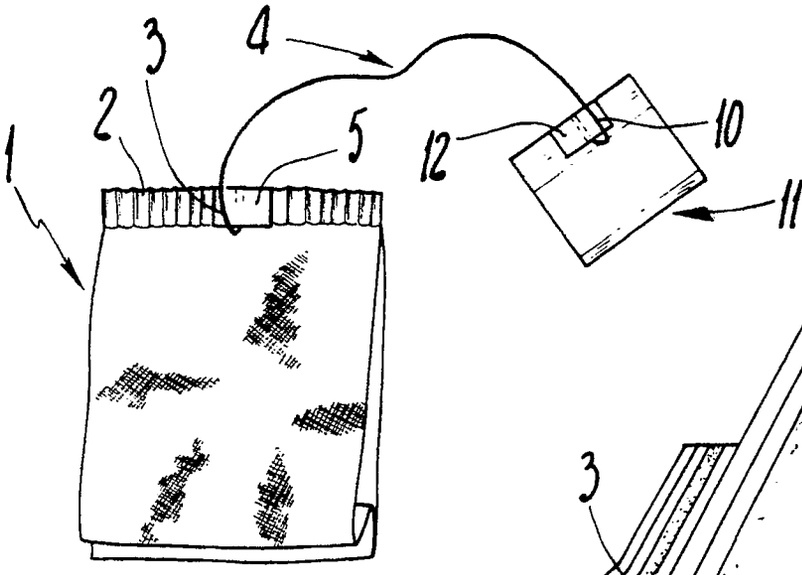

Fig. 1

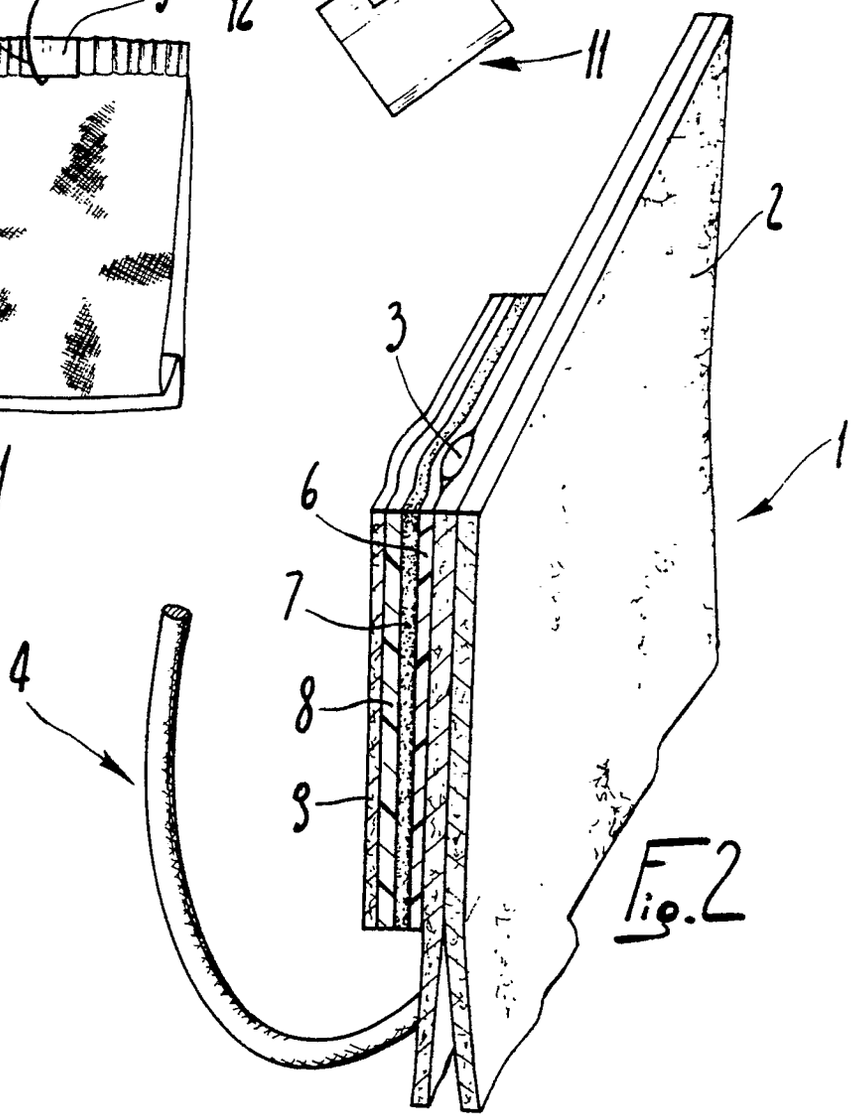

Fig. 2

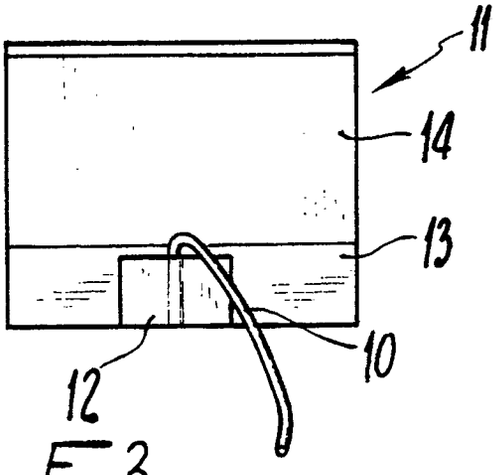

Fig. 3

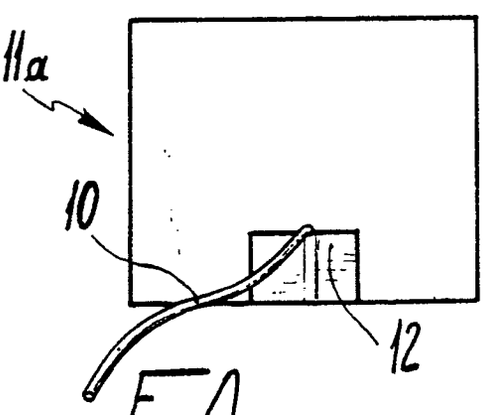

Fig. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 10 8055

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)
Y,A	GB-A-2 170 777 (CESTIND S.R.L.) * page 2, line 2 - line 82; figures 2-4 *	1-5,6,7	B 65 D 81/00
Y	EP-A-0 124 772 (PKL VERPACKUNGSYSTEME GMBH) * page 5, paragraph 2; figure 1 *	1-5	
A	GB-A-8 173 02 (PNEUMATIC SCALE CORP.) * page 1, line 75 - page 2, line 53; figures 1-3,5 *	1-7	
A	US-A-2 987 857 (J. P. WHELAN) * column 2, line 38 - column 3, line 17; figures 1-3 *	1-5	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 65 D
B 65 B
A 47 G

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	27 August 91	PERNICE,C.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same catagory
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention

E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document