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(54) **COVER ELEMENT FOR BOOKS, NOTEBOOKS AND THE LIKE**

(57) There is described a cover element (1) for a book or notebook, wherein said cover element (1) comprises:
- a main covering portion (2) provided with an internal side (3) and an external side (4); and
- a plurality of constraining elements (5, 5') overlapped and coupled to said internal side (3) of said main covering portion (2).

The cover element (1) is characterised in that:
- said main covering portion (2) is made of polyethene coated paper;
- said constraining elements (5, 5') are made of a material which can be coupled to said polyethene coated paper; and
- said cover element (1) is obtained by ultrasonic welding of said constraining elements (5, 5') to said main covering portion (2).

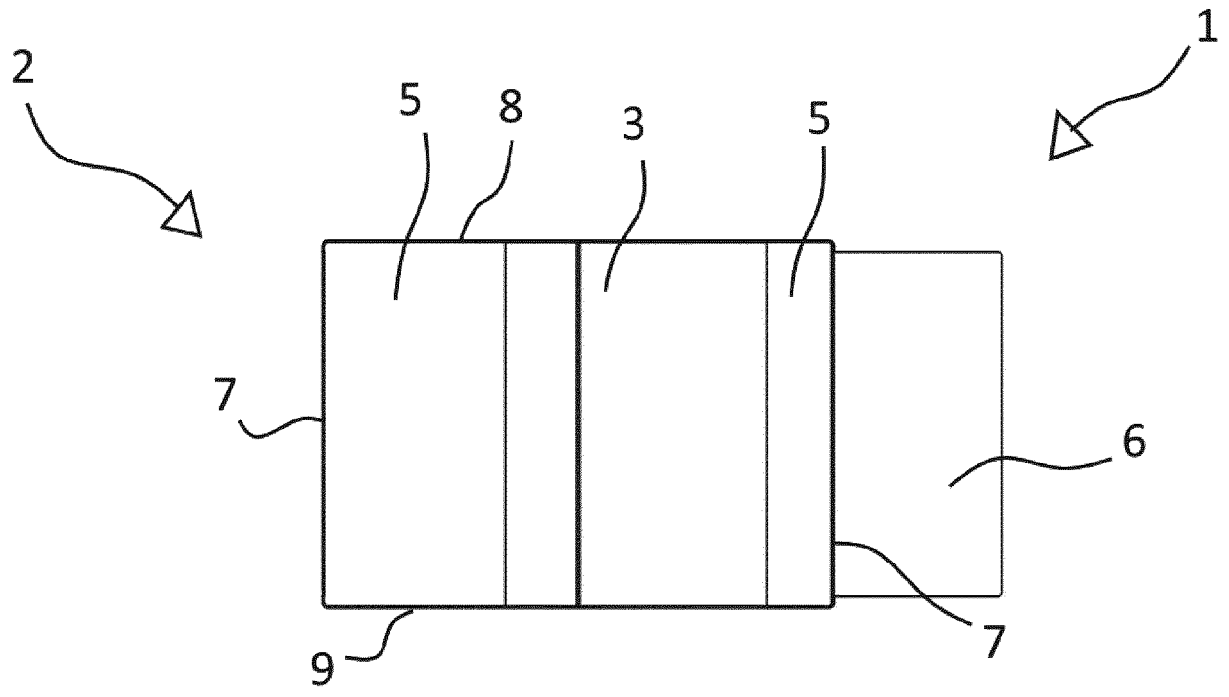

Fig. 1a

EP 3 915 798 A1

Description

[0001] The present invention relates to a cover element for books, notebooks and the like. In particular, the present invention concerns a cover element mainly intended to be used to cover a book or a notebook for the purpose of protecting it from wear and/or of personalising it so as to make it easily recognisable by the user.

[0002] Currently, various types of jackets for books, notebooks, albums and the like are known. Jackets are also known with the terms "sleeves" or "coverings". As a rule, jackets of the type that can be applied directly by the user, without the use of machinery, can be divided into two main categories. A first category consists of a single sheet to be folded and cut to adapt it to the size of the book or notebook to be covered. After being cut, the sheet must be fixed to the cover of the book or notebook by fixing means. Instead, the second category of jackets simply requires to be applied to the book or notebook by inserting the cover thereof into specific pockets of the jacket. In this second case, the dimensions must be selected before purchase, based on the book or notebook to be covered. This second type of jacket can be provided with bookmarks and/or further accessories. The various parts of the jacket are coupled together by heat sealing. The jackets of this second category, being simpler to use and being provided if required with useful accessories, are those most widely used. Therefore, in the present context, we shall refer mainly to this type of jacket.

[0003] In both the aforesaid cases, in order to perform their main protective functions, the jackets are made of plastic materials, generally thermoplastic polymers, such as polyvinyl chloride (PVC), polypropylene (PP) or polyethylene (PE).

[0004] As is known, plastic materials are currently demonised due to the fact that they are among the main sources of environmental pollution. In fact, they are characterised by extremely long degradation times (from a few hundred to a few thousand years), and therefore their excessive use, starting from the 1950s, has caused the accumulation of enormous amounts of these materials on our planet. In fact, huge accumulations of plastic materials are present both on land an in the seas and oceans, with devastating effects for the flora, fauna and humankind. Besides the visible accumulations of plastic materials on the land (which penetrate into the groundwater, polluting it, and which float in the seas killing marine life and birds), there is another problem linked to these materials. This is the presence of microparticles of plastic in water and air that, due to their small dimensions, enter the food chain, poisoning all animal species, including humans. The high toxicity of these materials has made indispensable it to reduce their use, also from a regulatory point of view.

[0005] Based on these considerations, there is clearly the need to provide a cover element for books, notebooks and the like that allows the use of plastic materials to be minimized.

[0006] Nonetheless, jackets must be strong and waterproof in order to be suitable to protect the books or the notebooks to which they are applied.

[0007] The Applicant therefore proposes the use of polyethene coated paper for this purpose, i.e., paper provided with at least one surface layer of polyethylene. The aim of this layer of polyethylene is to make the paper waterproof and consequently strong. Polyethene coated paper can be made with recycled paper, and can itself be recycled, solving the problem linked to pollution.

[0008] In fact, according to ATICELCA, the Italian papermaker's association, paper waste can be classified in 3 different classes, A B and C, to allow correct disposal of the objects upon reaching the end of their use.

[0009] Classes A and B are currently considered by all Italian municipalities as disposable paper waste that can be recycled as paper. Instead, not all Italian municipalities are currently equipped to be able to recycle class C.

[0010] The classes are differentiated based on the amount of polyethylene contained in the paper. In particular, class A must contain 0% (zero) of plastic, class B can contain plastic up to 20% of the total weight and class C can contain plastic from 20 to 40% of the total weight.

[0011] However, the Applicant encountered numerous problems during the process for making cover elements of polyethene coated paper as this latter does not tolerate the high heat-sealing temperatures used to combine the various components of the jacket. In fact, tests conducted showed that heat-sealing can burn or otherwise compromise the integrity of the cover elements. Moreover, heat-sealing is a slow production process, which does not allow sufficient productivity and is therefore uneconomical. Finally, heat sealing does not allow the manufacture of a high-quality product, as an "offcut" is formed where the actual weld is made, which is difficult to eliminate and produces a cover that is not particularly aesthetically pleasing.

[0012] In the light of the above, the aim of the present invention is to provide a cover element for books that eliminates the environmental problems linked to prior art jackets and that, at the same time, preserves their integrity and functionality.

[0013] In particular, within this aim, an object of the present invention is to produce a cover element that is less polluting with respect to prior art cover elements, but that preserves their simplicity of use and protective features.

[0014] A further object of the present invention is to provide a cover element of books or notebooks that contributes to solving the aforesaid environmental problems and that is simple and economical.

[0015] Another object of the present invention is to provide a process for making a cover element of ecological type, which does not damage the cover element and is simple and economical to implement.

[0016] The first objects are achieved by means of a

cover element for a book or notebook comprising a main covering portion, provided with an internal side and an external side, and a plurality of constraining elements overlapped and coupled to said internal side of said main covering portion, characterised in that:

- said main covering portion is made of polyethene coated paper;
- said constraining elements are made of a material which can be coupled to said polyethene coated paper; and
- said cover element is obtained by ultrasonic welding of said constraining elements to said main covering portion.

[0017] The fact of using polyethene coated paper for the main covering portion allows the amounts of plastic used to be reduced and consequently solves the problems of the jackets concerning environmental pollution.

[0018] The presence of constraining elements made of a material which can be coupled to polyethene coated paper makes the cover element easy to apply.

[0019] The fact of obtaining a cover element of this kind by ultrasonic welding of the various parts prevents the cover element from being burnt or in any case damaged during the production process.

[0020] The combination of these features makes the production of a less polluting cover element with respect to prior art cover elements possible, but at the same time preserving their simplicity of use and their protective features.

[0021] Moreover, the combination of the aforesaid features achieves a cover element of books or notebooks that contributes to solving the aforesaid environmental problems and that, at the same time, is simple and inexpensive.

[0022] Preferably, the cover element is obtained by ultrasonic welding of said constraining elements to said main covering portion, near two opposite edges of said main covering portion, i.e., near two lateral edges of the main portion. This solution is the most functional for the purpose of holding the book or notebook in place.

[0023] In accordance with preferred embodiments of the invention, also said constraining elements are made of polyethene coated paper. This makes it possible to further reduce the amounts of plastic used and obtain an even more ecological cover element.

[0024] According to some embodiments of the invention, the cover element also comprises at least one lateral flap made of a material which can be coupled to said polyethene coated paper. It can be used as bookmark and/or page protector during use and achieve a cover element equipped with accessories and hence of greater convenience.

[0025] Preferably, it is also made of polyethene coated paper for the same reasons explained with regard to the constraining elements.

[0026] Advantageously, the cover element of the present invention is made of polyethene coated paper comprising an amount of polyethylene lower than 25% by weight, preferably lower than 20%, so that it can be recycled together with the paper and thus maximise the ecological aspect of the cover element of the present invention.

[0027] The further objects of the present invention are obtained by a process for making a cover element for a book or notebook, comprising the steps of:

- providing a sheet of polyethene coated paper forming a main covering portion comprising an internal side and an external side;
- superimposing a plurality of constraining elements on said sheet of polyethene coated paper;
- coupling said constraining elements to said sheet of polyethene coated paper by ultrasonic welding.

[0028] A production process of this kind, by using polyethene coated paper and ultrasonic welding, achieves an ecological process, which does not damage the cover element and which is at the same time simple and inexpensive to implement.

[0029] The combination of the aforesaid steps also makes it possible to couple the constraining elements to the main covering portion and therefore achieves the production of a cover element that is simple to use. In fact, the constraining elements can be used to rapidly constrain the cover of the book to be covered to the cover element.

[0030] Preferably, the step of coupling said constraining elements to said sheet of polyethylene coated paper by ultrasonic welding, is implemented by welding the constraining elements near two opposite edges of said main portion on the internal side thereof. In this way, the process achieves a cover element that can be firmly fastened to the book or notebook to be covered.

[0031] In accordance with some embodiments of the present invention, the production process comprises, after the step of preparing a sheet of polyethene coated paper, the further step of cutting a sheet of polyethene coated paper so as to obtain the desired dimensions. This step is provided when the production process provides for making cover elements of different dimensions from the same sheet of polyethene coated paper.

[0032] Advantageously, ultrasonic welding is carried out at a frequency comprised between 8 and 20, preferably between 10 and 15 kHz.

[0033] Preferably, said polyethene coated paper comprises an amount of polyethylene lower than 25% by weight, even more preferably lower than 20%, to the advantage of the eco-sustainability of the production process and of the product obtained with this process.

[0034] Further features and advantages of the present invention will be more apparent from the following description of some preferred, but not exclusive, embodiments of a cover element for books, notebooks and the like and of a process for making a cover element of this

kind according to the invention, illustrated by way of example in the accompanying drawings, wherein:

- Fig. 1a shows a schematic plan view of the inside of a cover element for a book or notebook according to a first embodiment of the present invention;
- Fig. 1b shows a schematic plan view of the outside of the cover element of Fig. 1a;
- Fig. 2a shows a schematic plan view of the inside of a cover element for a book or notebook according to a second embodiment of the present invention;
- Fig. 2b shows a schematic plan view of the outside of the cover element of Fig. 2a;
- Fig. 3a shows a schematic plan view of the inside of a cover element for a book or notebook according to a third embodiment of the present invention; and
- Fig. 3b shows a schematic plan view of the outside of the cover element of Fig. 3a;

[0035] With reference to Figs. 1a to 3b, a cover element for a book or notebook according to the present invention is indicated as a whole with the reference number 1.

[0036] The cover element 1 comprises a main covering portion 2, generally of rectangular, or in any case quadrangular, shape, which is provided with an internal side 3 and an external side 4. For the purposes of the present description and in the appended claims, "internal side" 3 of the main portion 2 is means as the surface of the main portion 2 of the cover element 1 intended to come into contact with the book or notebook to be covered during use, while "external side" 4 of the main portion 2 is meant as the surface of the main portion 2 intended to be positioned externally, after being applied. The main covering portion 2 according to the present invention is made of polyethene coated paper.

[0037] The main portion 2 is also defined by two lateral edges 7, an upper edge 8 and a lower edge 9.

[0038] The cover element 1 further comprises a plurality of constraining elements 5, 5' adapted to constrain the cover element 1 to the book or notebook to be covered. These constraining elements 5, 5' are horizontally overlapped on said internal side 3 of said main covering portion 2 and coupled thereto. In particular, they are connected to the internal side 3 at least at two edges of the constraining element 5, 5' so as to form pockets or compartments adapted to receive and hold in place the cover the book or notebook to be covered. The constraining elements 5, 5' are preferably positioned at two opposite edges of the main portion 2.

[0039] With reference to the first embodiment of the present invention, shown in Figs. 1a and 1b, and to the second embodiment, shown in Figs. 2a and 2b, the constraining elements 5 are two, substantially rectangular and have a height substantially equal to the height of the main portion 2, which in turn generally corresponds to the height of the book or notebook to be covered. The constraining elements 5 used for the cover element 1 can have different widths, as can be seen from the aforesaid figures. They are positioned at two opposite edges of the main portion 2, i.e., each near one of the two lateral edges 7. In particular, in these two embodiments, each of the constraining elements 5 is positioned at one of the two lateral edges 7 of the main portion 2 along the whole of its length.

[0040] With reference now to Fig. 3a, it can be noted that the constraining elements 5, 5' in the third embodiment of the invention are three and are of two different types: a first constraining element 5 is identical to the constraining elements described for the first two embodiments, and is arranged at a first lateral edge 7 of the main portion 2, along the whole of its length, while two second constraining elements 5' are triangular in shape and are positioned at two corners formed by the second lateral edge 7 respectively with the upper edge 8 and with the lower edge 9 of the main portion 2.

[0041] In a further embodiment, not illustrated in the figures, all the constraining elements 5' are of triangular type, are four and are positioned at the four corners of the rectangle, or quadrangle, which forms the main portion 2.

[0042] In any case, the constraining elements 5, 5' can have any shape and dimension and be placed in different positions with respect to those illustrated.

[0043] According to the present invention, the constraining elements 5, 5' are made of a material which can be coupled to said polyethene coated paper, such as PP, PVC, PE. However, in accordance with the preferred embodiments, the constraining elements 5, 5' are also made of polyethene coated paper.

[0044] According to the present invention, the cover element 1 is obtained by ultrasonic welding of said constraining elements 5, 5' to said main covering portion 2. Preferably, the cover element 1 is obtained by ultrasonic welding of said constraining elements 5 to said main covering portion 2 near two opposite edges of said main covering portion 2, i.e., each near one of its two lateral edges 7.

[0045] In the first two embodiments (Figs. 1a and 2a) in which the constraining elements 5 are arranged at the internal lateral edge 7 and, in general, in cases in which the constraining elements are quadrangular in shape, the constraining elements 5 are ultrasonically welded at least at two edges of the main portion 2. In particular, each of them can be welded at the upper edge 8 and at the lower edge 9 of the main portion 2, or at the lateral edge 7 and at either the upper edge 8 or lower edge 9. Alternatively, the constraining elements 5 can be welded at three edges (lateral edge 7, upper edge 8 and lower edge 9) so as to create an actual pocket suitable to hold the book or notebook to which the cover element 1 is applied firmly in place.

[0046] In the third embodiment (Fig. 3a), in which a first constraining element 5 is arranged at a first lateral edge 7, along the whole of its length, and two second constraining elements 5' are arranged at two respective corners formed by the second lateral edge 7 with the

upper edge 8 and the lower edge 9 and, in general, in all cases in which the constraining elements 5' are triangular in shape, they must necessarily be welded at two contiguous edges (lateral edge 7 and upper edge 8 or lateral edge 7 and lower edge 9).

[0047] Preferably, the cover element 1 further comprises one or more lateral flaps 6 positioned at one or more lateral edges 7 of the cover element 1. These are adapted to act as bookmarks and, if made of transparent material, also to protect the page being read during use. The lateral flaps 6 are made of a material which can be coupled to said polyethene coated paper, such as PP, PVC, PE. However, they are preferably made of polyethene coated paper. The lateral flaps 6 can have a height substantially lower than the height of the main portion 2.

[0048] The cover element 1 can also be provided with one or more pockets 10 positioned on the external side 4 of the main portion 2, as visible in Figs. 1b and 2b. These are adapted to receive and protect any labels.

[0049] Further document pockets, not shown in the figures, can be obtained on the internal side 3 or on the external side 4 to contain documents or objects of small dimensions.

[0050] The pockets 10 and the further pockets are made of a material which can be coupled to the polyethene coated paper, or of polyethene coated paper.

[0051] Preferably, the polyethene coated paper referred to in this context comprises an amount of polyethylene lower than 25% by weight, even more preferably lower than 20%.

[0052] The polyethene coated paper can comprise a single external layer of PE or two layers of PE, i.e., it can be coated with a layer of PE on both surfaces.

[0053] In accordance with a further aspect thereof, the present invention relates to a process for making a cover element 1 for a book or notebook, which comprises the steps described below.

[0054] According to a first step, the process provides for preparing a sheet of polyethene coated paper. This sheet forms a main covering portion 2 which is provided with an internal side 3 and an external side 4.

[0055] In accordance with a second step thereof, the production process comprises superimposing a plurality of constraining elements 5, 5' on said sheet of polyethene coated paper.

[0056] Subsequently, the production process of the invention provides for welding said constraining elements 5, 5' to said sheet of polyethene coated paper by ultrasonic welding.

[0057] The last step of coupling said constraining elements 5, 5' to said sheet of polyethene coated paper by ultrasonic welding is preferably implemented by welding the constraining elements 5, 5' near two opposite edges of said main portion 2 in the internal side 3 thereof, i.e., each near one of the two lateral edges 7.

[0058] Moreover, this last step of coupling by ultrasonic welding is implemented by welding the main portion 2 to said constraining elements 5, 5' at least at two edges of the main portion 2. In particular, this step is implemented by ultrasonic welding the main portion 2 to each constraining element 5, 5' at least at two edges between: lateral edge 7, upper edge 8 and lower edge 9 of the main portion 2 according to the shape of the constraining elements 5, 5', as previously explained. I.e., in the case of constraining elements 5 of rectangular type, they are welded to the main portion 2 at the upper edge 8 and the lower edge 9 or at two contiguous edges, i.e., at the lateral edge 7 and the upper edge 8 or at the lateral edge 7 and the lower edge 8, while in the case of constraining elements 5' triangular type, they are welded to the main portion 2 at two contiguous edges.

[0059] Moreover, the constraining elements 5, 5' are welded at least at two of their edges.

[0060] In accordance with a preferred embodiment, the process provides for, after the step of arranging a sheet of polyethene coated paper, the further step of cutting a sheet of polyethene coated paper so as to obtain the desired dimensions. In other words, if wishing to use the same sheets of polyethene coated paper to make cover elements of different dimensions, the process provides for a redimensioning of the sheet of polyethene coated paper.

[0061] The ultrasonic welding is preferably carried out at a frequency comprised between 8 and 20 kHz, even more preferably comprised between 10 and 15 kHz.

[0062] The polyethene coated paper used in the production process comprises an amount of polyethylene preferably lower than 25% by weight, even more preferably lower than 20%.

[0063] As is apparent from the description provided, the technical solutions adopted for the cover element 1 and for the process for making the cover element 1 according to the present invention allow the aims and objects set forth to be fully achieved, obtaining an ecological cover element, but which is at the same time integral and functional, as well as inexpensive and simple to use.

[0064] Moreover, they are suitable for numerous possible variants, all falling within the scope of protection of the present invention.

[0065] The dimensions and the contingent forms may be any, according to requirements and to the state of the art.

Claims

1. Cover element (1) for a book or notebook, wherein said cover element (1) comprises:

   - a main covering portion (2) provided with an internal side (3) and an external side (4);
   - a plurality of constraining elements (5, 5') overlapped and coupled to said internal side (3) of said main covering portion (2);

   wherein said main covering portion (2) is made of

polyethene coated paper and said constraining elements (5, 5') are made of a material which can be coupled to said polyethene coated paper; said jacket element (1) being obtained by ultrasonic welding of said constraining elements (5, 5') to said main covering portion (2).

2. Cover element (1) for a book or notebook according to claim 1, wherein said cover element (1) is obtained by ultrasonic welding of said constraining elements (5, 5') to said main portion (2) jacket near two opposite edges of said main covering portion (2).

3. Cover element (1) according to claim 1 or 2, wherein also said constraining elements (5, 5') are made of polythene coated paper.

4. Cover element (1) according to one of the preceding claims, also comprising at least one lateral flap (6) in a material which can be coupled to said polythene coated paper.

5. Cover element (1) according to claim 4, wherein said at least one lateral flap (6) is in polythene coated paper.

6. Cover element (1) according to one of the preceding claims, wherein said polythene coated paper comprises an amount of polyethylene lower than 25% by weight, preferably lower than 20% by weight.

7. Process for making a cover element (1) for a book or notebook, said process comprising the steps of:

- providing a sheet of polythene coated paper forming a main covering portion (2) comprising an internal side (3) and an external side (4);
- superimposing a plurality of constraining elements (5, 5') on said sheet of polythene coated paper;
- coupling said constraining elements (5, 5') to said sheet of polythene coated paper by ultrasonic welding.

8. Process according to claim 7, wherein the step of coupling said constraining elements (5,5') to said sheet of polythene coated paper by ultrasonic welding is carried out by welding the constraining elements (5, 5') near two opposite edges of said main portion (2) on its internal side (3).

9. Process according to claim 7 or 8, comprising, after the step of preparing a sheet of polythene coated paper, the further step of cutting a sheet of polythene coated paper so as to obtain the desired dimensions.

10. Process according to one of claims 7 - 9, wherein ultrasonic welding is carried out at a frequency comprised between 8 and 20 kHz, preferably between 10 and 15 kHz.

11. Process according to one of claims 7-10, wherein said polythene coated paper comprises an amount of polyethylene lower than 25% by weight, preferably lower than 20% by weight.

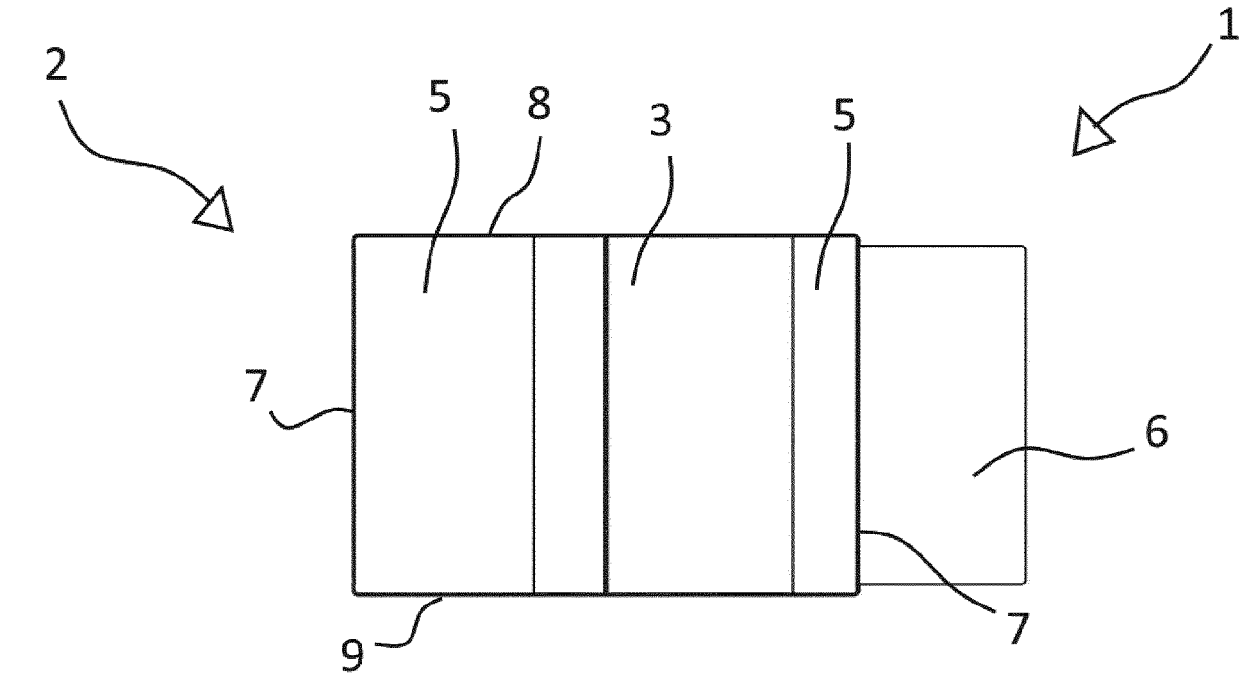

Fig. 1a

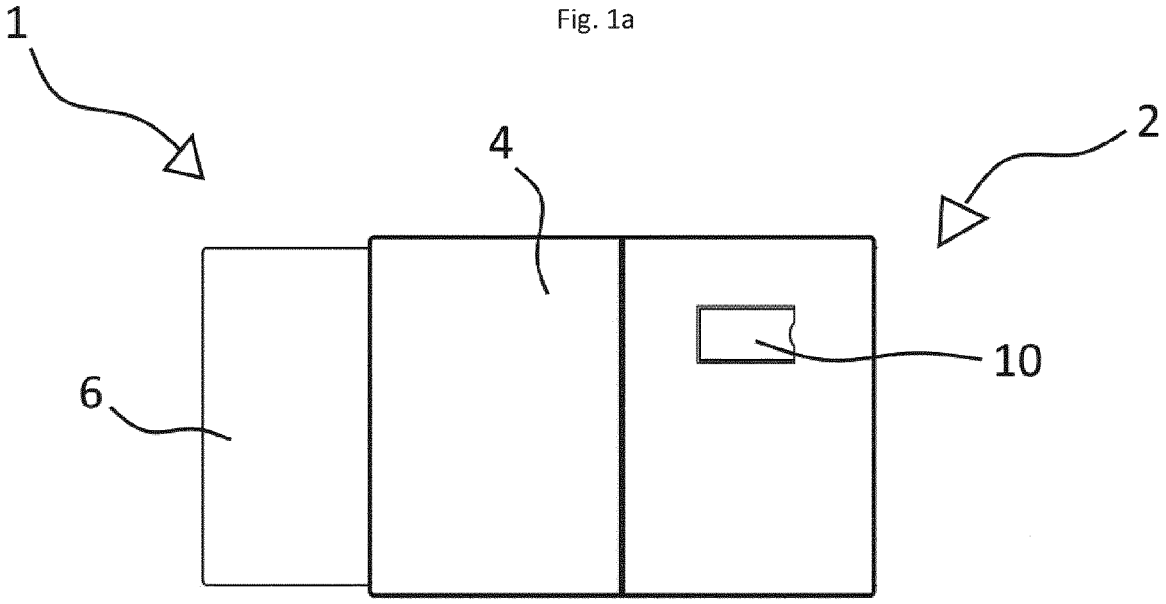

Fig. 1b

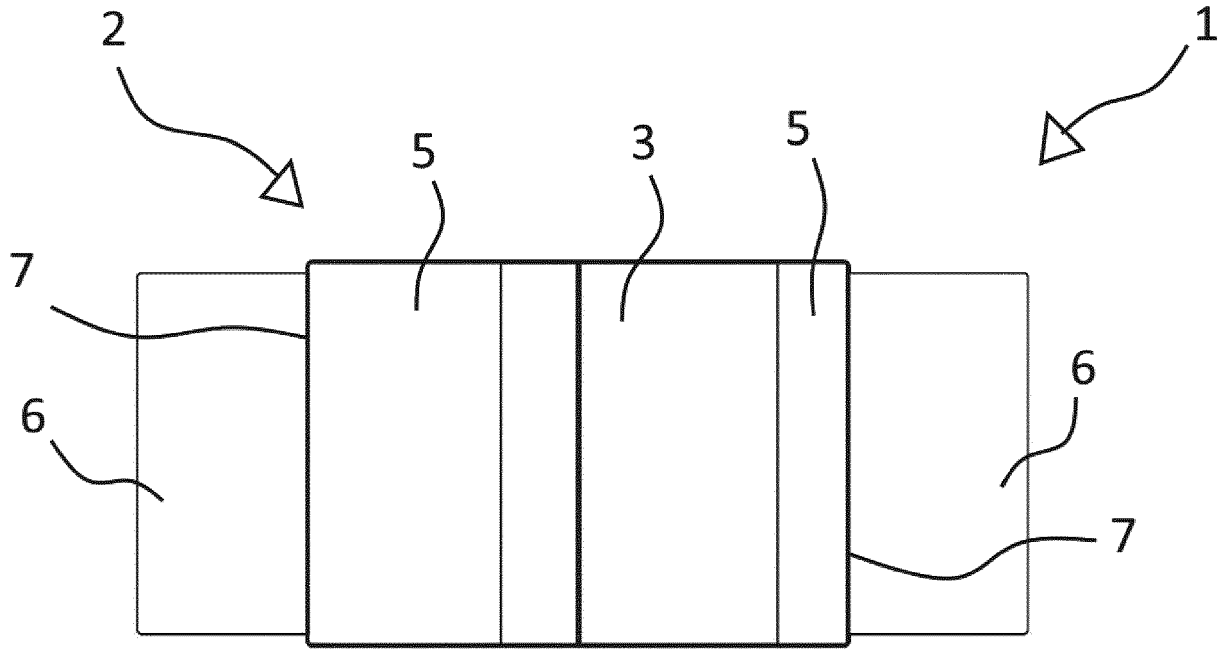

Fig. 2a

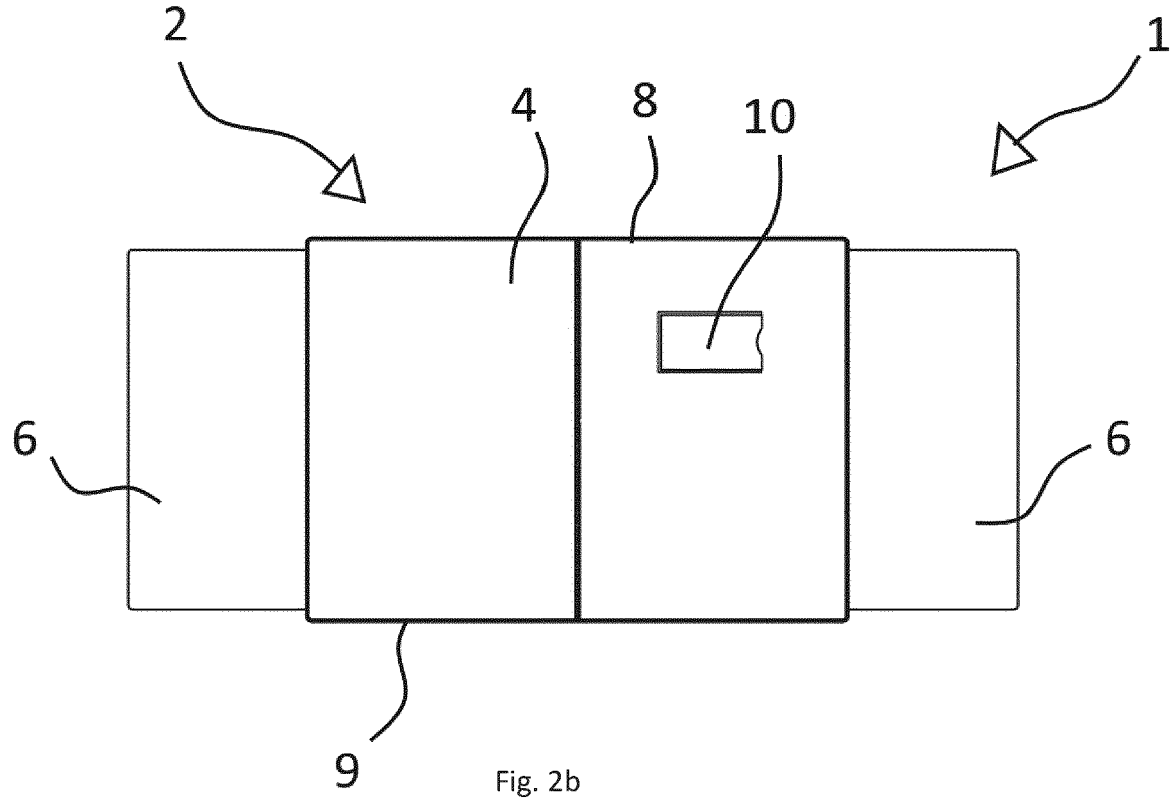

Fig. 2b

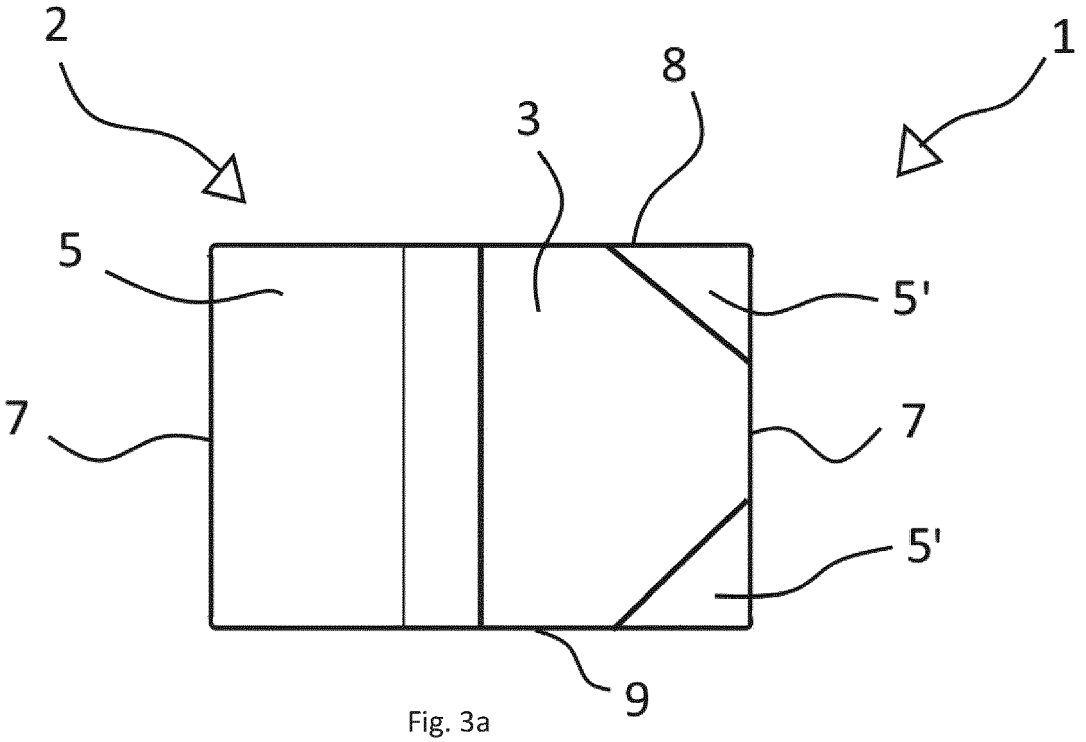

Fig. 3a

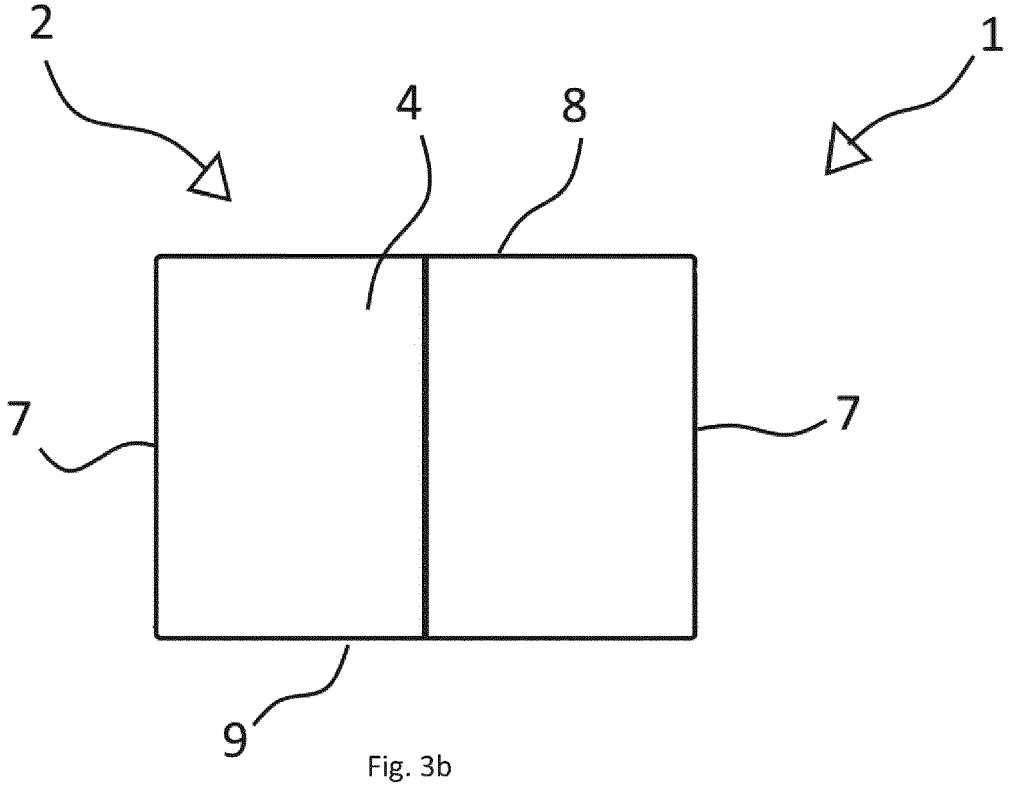

Fig. 3b

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EUROPEAN SEARCH REPORT

Application Number
EP 21 17 6067

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	GB 2 075 915 A (BOOK PROTECTORS & CO) 25 November 1981 (1981-11-25) * page 3, line 4 - line 42; figures 1-3 * * page 2, line 70 - line 73 * * page 3, line 50 - line 75; figures 4-6 * -----	1-11	INV. B42D3/04 B42D3/02 B42D3/12 B42D3/14

TECHNICAL FIELDS SEARCHED (IPC)

B42D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 October 2021	Achermann, Didier

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 21 17 6067

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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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2075915 A	25-11-1981	NONE	

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