However, in this case the connection of the data page to the remainder of the document can be not very resistant.

Moreover, known identification documents can generally be optimised with regard to the possibility of a counterfeiting thereof.

Summary of the Invention

Therefore, the technical problem posed and solved by the present invention is that of providing an identification document, and in particular a passport, allowing overcoming the drawbacks mentioned above with reference to the known art.

Such a problem is solved by an identification document according to a first aspect~~claim 1~~. In accordance to the first aspect, there is provided an identification document in the form of a booklet, having a plurality of sheets folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet, which identification document comprises: a cover sheet; an electronic data storage means embedded in said cover sheet and a data sheet distinct from said cover sheet and made by a first and a second layer of plastic material, which data sheet is arranged internally to said cover sheet and defines a data page bearing identification data of a subject and a connecting page made fixed with said cover sheet, wherein said data sheet further comprises an intermediate layer of flexible material, interposed between said first and second layer made of plastic material and extending between said first and second layer at least at the longitudinal folding line, and wherein said sheets are connected therebetween at the respective folding lines.

Also disclosed is~~The invention relates as well to~~ a method of manufacturing said identification document according to a second aspect~~claim 17~~ or a third aspect~~18~~.

In accordance to the second aspect, there is provided a method of manufacturing an identification document in the form of a booklet as defined above, which document bears a plurality of sheets folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet itself, which method comprises the stages of: coupling in register, preferably by hot pressure gluing, with a strip of said flexible material on said second plastic material layer; lamination of said first plastic material layer on said second layer already coupled to said flexible layer; punching for making one or more of said data sheets into a desired size; and assembling of said data sheet with the remainder of the booklet, wherein said booklet comprises said cover sheet, distinct from said data sheet and bearing an electronic data storage means, wherein said sheets are connected therebetween at the respective folding lines, and wherein said intermediate layer of flexible material extends between said first and second layer at least at the longitudinal folding line.

In accordance to the third aspect, there is provided the method of manufacturing an identification document in the form of a booklet as defined above, which document bears a plurality of sheets folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet itself, which method comprises the stages of: (a) gluing of one flyleaf layer of said cover sheet with an inlay intermediate layer bearing an electronic data storage means and with said connecting page of said data sheet, for the obtaining of a composite layer; (b) connecting of said composite layer with further sheets of the booklet, for the obtaining of an assembled structure; and (c) gluing of said assembled structure, at said flyleaf layer, with an external layer of said cover sheet, wherein said booklet comprises said data sheet having said intermediate layer of flexible material interposed between said first and second layer of plastic material and extending between said first and second layer at least at the longitudinal folding line, and wherein said sheets are connected therebetween at the respective folding lines.

Preferred features of the present invention are disclosed below~~provided in the dependent claims~~.

The present invention provides some relevant advantages. One of the main advantages consists in a flexible layer positioned at the seam region of the plastic material data sheet thus allowing an optimal connection of the latter to the remainder of the document, drastically improving the overall mechanical properties of the document concerning its resistance to fracture and breakage in general. Moreover, the extension of the data sheet is glued onto the cover flyleaf, besides being sewn together to the other pages, with the advantage of enhancing the firmness of connection with the booklet.

In this respect, the data page made of homogeneous plastic material is specifically conceived to be bound inside the document in the form of a booklet, remaining anyhow customisable for instance by laser engraving, and capable of bearing plural security / anti-counterfeiting elements such as to make it irreproducible.

Moreover, the arrangement of the RFID chip on the document cover in a separate, uncoupled position from the data page ensures a higher security standard with respect to known-art documents containing the chip inside the same polycarbonate (PC) data page. In fact, a check of the matching of data

CLAIMS

1. An identification ~~(ID)~~ document ~~(1)~~ in the form of a booklet, having a plurality of sheets ~~(3, 4, 5)~~ folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet, which identification document ~~(1)~~ comprises:

- a cover sheet ~~(3)~~;
- an electronic data storage means ~~(6)~~ embedded in said cover sheet ~~(3)~~ and
- a data sheet ~~(4)~~ distinct from said cover sheet ~~(3)~~ and made by a first ~~(41)~~ and a second ~~(42)~~ layer of plastic material, which data sheet ~~(4)~~ is arranged internally to said cover sheet ~~(3)~~ and defines a data page ~~(401)~~ bearing identification data of a subject and a connecting page ~~(402)~~ made fixed with said cover sheet ~~(3)~~,

wherein said data sheet ~~(4)~~ further comprises an intermediate layer of flexible material ~~(43)~~, interposed between said first ~~(41)~~ and second ~~(42)~~ layer made of plastic material and extending between said first and second layer ~~(41, 42)~~ at least at the longitudinal folding line, and

wherein said sheets ~~(3, 4)~~ are connected therebetween at the respective folding lines.

2. The identification document ~~(1)~~ according to claim 1, wherein said data sheet ~~(4)~~ is arranged in a position immediately contiguous to said cover sheet ~~(3)~~.

3. The identification document ~~(1)~~ according to claim 1 or 2, wherein said flexible material is or comprises polyester.

4. The identification document ~~(1)~~ according to any one of the preceding claims, wherein said plastic material is or comprises polycarbonate.

5. The identification document ~~(1)~~ according to any one of the preceding claims, wherein said connecting page ~~(402)~~ is glued onto said cover sheet ~~(3)~~.

6. The identification document ~~(1)~~ according to any one of the preceding claims, wherein said data sheet ~~(4)~~ comprises, at least at said connecting page ~~(402)~~, a further intermediate filling layer ~~(44)~~, arranged in a position

adjacent to said layer (43) of flexible material in order to compensate for the thickness thereof and preferably made of polycarbonate.

7. The identification document (1) according to any one of the preceding claims, wherein said data sheet (4) bears one or more anti-counterfeiting security elements, for instance one or more holograms.

8. The identification document (1) according to the preceding claim, wherein said one or more anti-counterfeiting security elements are arranged at the longitudinal folding line.

9. The identification document (1) according to claim 7 or 8, wherein one or more of said anti-counterfeiting security elements are arranged at said intermediate flexible layer (43).

10. The identification document (1) according to any one of the preceding claims, wherein said data page (401) has a thickness comprised in a range of about 0.5-0.8 mm.

11. The identification document (1) according to any one of the preceding claims, wherein said connecting page (402) has a thickness comprised in a range of about 0.2-0.5 mm.

12. The identification document (1) according to any one of the preceding claims, wherein said electronic data storage means (6) is provided with an antenna (60) for radio transmission, and is preferably an RFID element.

13. The identification document (1) according to the preceding claim, wherein said storage means (6) is arranged at the side opposite to the folding line with respect to said data page (401).

14. The identification document (1) according to any one of the preceding claims, wherein said cover sheet (3) comprises at least one external layer (31) made of fabric, preferably Bukram cloth, and preferably further comprises also an internal flyleaf layer (32).

15. The identification document (1) according to any one of the preceding claims, wherein said sheets (3, 4, 5) are sewn thereamong at the respective folding lines thereof.

16. The identification document (1) according to any one of the preceding claims, which is a passport.

17. A method of manufacturing an identification document ~~(1)~~ in the form of a booklet according to any one of the preceding claims, which document ~~(1)~~ bears a plurality of sheets ~~(3, 4, 5)~~ folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet itself, which method comprises the stages of:

- coupling in register, preferably by hot pressure gluing, with a strip of said flexible material ~~(43)~~ on said second plastic material layer ~~(42)~~;
- lamination of said first plastic material layer ~~(41)~~ on said second layer ~~(42)~~ already coupled to said flexible layer ~~(43)~~;
- punching for making one or more of said data sheets ~~(4)~~ into a desired size; and
- assembling of said data sheet ~~(4)~~ with the remainder of the booklet.

wherein said booklet comprises said cover sheet ~~(3)~~, distinct from said data sheet ~~(4)~~ and bearing an electronic data storage means ~~(6)~~,

wherein said sheets are connected therebetween at the respective folding lines, and

wherein said intermediate layer ~~(43)~~ of flexible material extends between said first and second layer ~~(41, 42)~~ at least at the longitudinal folding line.

18. The method of manufacturing an identification document ~~(1)~~ in the form of a booklet according to any one of the claims 1 to 16, which document bears a plurality of sheets ~~(3, 4, 5)~~ folded or foldable substantially at respective longitudinal lines so as to make the pages of the booklet itself, which method comprises the stages of:

(a) gluing of one flyleaf layer ~~(32)~~ of said cover sheet ~~(3)~~ with an inlay intermediate layer ~~(600)~~ bearing an electronic data storage means ~~(6)~~ and with said connecting page ~~(402)~~ of said data sheet ~~(4)~~, for the obtaining of a composite layer ~~(8)~~;

(b) connecting of said composite layer ~~(8)~~ with further sheets ~~(5)~~ of the booklet, for the obtaining of an assembled structure ~~(9)~~; and

(c) gluing of said assembled structure ~~(9)~~, at said flyleaf layer ~~(32)~~, with an external layer ~~(31)~~ of said cover sheet ~~(3)~~,

wherein said booklet comprises said data sheet ~~(4)~~ having said intermediate

layer of flexible material ~~(43)~~ interposed between said first ~~(41)~~ and second ~~(42)~~ layer of plastic material and extending between said first and second layer ~~(41, 42)~~ at least at the longitudinal folding line, and

wherein said sheets ~~(3, 4)~~ are connected therebetween at the respective folding lines.