



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
26.05.2010 Bulletin 2010/21

(51) Int Cl.:
B65D 75/28 (2006.01)

(21) Application number: **09174311.2**

(22) Date of filing: **28.10.2009**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**
Designated Extension States:
AL BA RS

(30) Priority: **20.11.2008 EA 200900121**

(71) Applicants:

- **ZAO "Golograficheskaya Industriya"**
220012 Minsk (BY)
- **Boboreko, Aleksandr Georgievich**
220093 Minsk (BY)
- **Bocharov, Anatolij Mikhajlovich**
214031 Smolensk (BY)
- **Grakovich, Petr Nikolaevich**
246047 Gomel (BY)
- **Gribovskij, Aleksandr Veslavovich**
220020 Minsk (BY)
- **Ivanov, Leonid Fedorovich**
246032 Gomel (BY)
- **Lushchikov, Mikhail Nikolaevich**
220040 Minsk (BY)
- **Moiseenko, Petr Vasil'evich**
220098 Minsk (BY)
- **Tanin, Leonid Viktorovich**
220125 Minsk (BY)

• **Shevtsov, Viktor Arkad'evich**
220020 Minsk (BY)

(72) Inventors:

- **Boboreko, Aleksandr Georgievich**
220093 Minsk (BY)
- **Bocharov, Anatolij Mikhajlovich**
214031 Smolensk (RU)
- **Grakovich, Petr Nikolaevich**
246047 Gomel (BY)
- **Gribovskij, Aleksandr Veslavovich**
220020 Minsk (BY)
- **Ivanov, Leonid Fedorovich**
246032 Gomel (BY)
- **Lushchikov, Mikhail Nikolaevich**
220040 Minsk (BY)
- **Moiseenko, Petr Vasil'evich**
220098 Minsk (BY)
- **Tanin, Leonid Viktorovich**
220125 Minsk (BY)
- **Shevtsov, Viktor Arkad'evich**
220020 Minsk (BY)

(74) Representative: **Sloboshanin, Sergej et al**
V. Föner, Ebbinghaus, Finck, Hano
Mariahilfplatz 3
81541 München (DE)

(54) **Safety case for precious stones, such as diamonds, pearls, coins, postage stamps and similar valuable articles**

(57) The invention concerns a safety case for a precious stone, a pearl, coin, a philatelically valuable stamp and similar valuable articles comprising an upper element (2) and a lower element (3) made of a transparent polymer material, the upper element provided with at least one transparent housing (4) made, for instance, in the form of a cell for placing at least one of the above identified articles, a decorative imprint (6) on the upper face of the upper element of the case and an irreparably destroyed layer (7) on the inner face of the lower element of the case made, for instance, in the form of a holographic coating protecting the case against counterfeiting and detecting an opening attempt effected on the case. The

upper and the lower elements (2,3) are adhesively bonded to each other by means of the irreparably destroyed layer (7). Between the decorative imprint (6) and the upper face of the upper element there is a self-adhesive laminated paper (5) and the irreparably destroyed layer (7) comprises at least one transparent area (8) formed by the double laminate and placed under the transparent housing (4) of the upper element of the case, the decorative imprint (6) and the self-adhesive laminated paper (5) overlapping the irreparably destroyed layer (7) except for its transparent area (8).

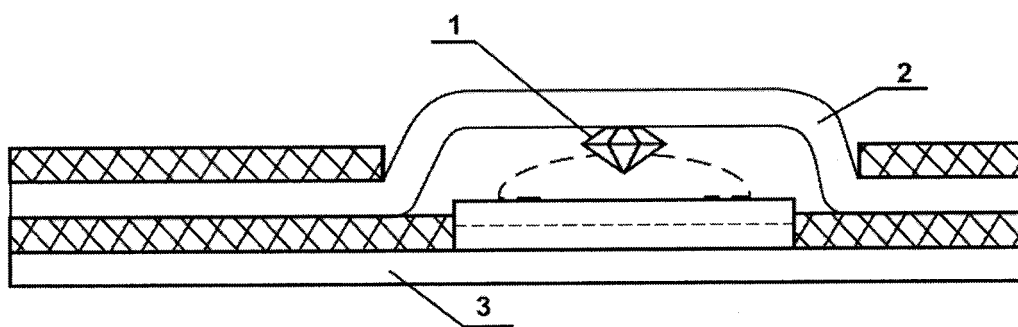


Fig. 1

Description

[0001] This invention concerns containers, packs, safety cases and the like for precious stones such as diamonds, pearls, coins, medals, ingots and other valuable articles having protective properties and capable of detecting (authorized and unauthorized) access to the above identified articles.

[0002] At present there is known a coin display case which includes an outer plastic lens, an inner plastic lens and a central laminate held between the outer lens and the inner lens, which further includes a hole for accepting a coin [1].

[0003] The prior art case, however, has a number of drawbacks.

[0004] Firstly, the said case can be used only for storing the above identified articles and cannot protect the article inside of it from access, i.e. does not reveal any protective characteristics.

[0005] Secondly, said laminate layer involves an inconvenient increase of the thickness on the whole extension of said coin display case, hence increasing weight and dimensions thereof.

[0006] There is also known a security deposit bag which is an opening with a flap and specific support on the opening and the flap.

[0007] After the valuable article has been placed inside the opening, it is closed with a flap. [2].

[0008] The major drawback of the said device is its restricted use, since it can be used only for flat-shaped articles such as securities.

[0009] The closest prior art to the present invention is a plastic safety case for a gold coin, precious stone, pearl or the like, ensuring authenticity and unaffected quality of coinage or other article [3].

[0010] The said case according to the invention comprises two superimposed elements bonded together, made of transparent plastic material with, for instance, a coin inside.

[0011] The upper element is provided with a housing, which comprises, for instance, a coin, while the lower element is flat.

[0012] Both elements are shaped as credit cards. Between the upper and lower elements there is a system of layers comprising an imprinted decorative layer in the form of delaminable hologram, since it is loosely bonded to a specific support made of polymer material, such as polyvinyl chloride.

[0013] The inner face of the upper element comprises a decorative imprint printed for instance by lithographic printing, even in two colours, featuring a pattern or a logotype.

[0014] The said decorative imprint is composed of a series of squares. These squares may have a different colour than the ground.

[0015] Below the imprinted decorative layer there is a layer of covering opaque coat, so that the case symbol is visible by transparency only from the face of the upper

element with the housing.

[0016] Decorative imprints and identification and certification data with signature, concerning the enclosed piece, are applied by printing, for instance lithographically or in silk-screen, on the white covering opaque coat.

[0017] The hologram with its support is placed in peripheral position, thus leaving a wide free area in its central part.

[0018] Through this free area all the decorative imprints, as well as the identification and certification data can be perceived, since they are visible by transparency of the second element, which of course permits the vision of the hologram placed between the upper and lower elements in the form of the imprinted decorative layer.

[0019] The delaminable hologram with support is bonded to the upper element and to the lower element by means of the transparent adhesive and therefore forms a single body with them.

[0020] The coin placed in the housing is visible from both faces of the case, because of a printing spare provided also for the imprinted decorative layer on the inner face of the upper element and for the opaque layer below it.

[0021] The hologram is irreparably delaminated upon the pulling action of the adhesive, as exerted as soon as an opening attempt is effected on the case (either authorized or unauthorized).

[0022] However, said case has a number of drawbacks:

□ Insufficient protection against detecting an opening attempt as a result of the multi-layered structure of the device, which provides opening to the area where the article is. Since the upper and the lower elements, which form the area for storing the valuable article, are bonded by means of several different film materials and different adhesive layers, one can use an adhesive layer or material in order to reach the articles inside, which will not allow to visually detect whether it has been separated and then adhered back.

□ Difficulties with adaptability to manufacture of the device resulting from the fact that the printed or holographic imprints are visible through the adhesive layers. Even if the adhesive is transparent, one will have to use special equipment and incur extra costs to apply the adhesives that do not distort the imprint or the hologram.

□ The device lacks in rigidity and may be subject to deformation, since in case of change of climatic conditions the free area it comprises will induce the deformation of the construction and spontaneous destruction of the case integrity.

[0023] To overcome the above hindrances the Authors suggest the following as an invention: a safety case for precious stones, such as diamonds, pearls, coins, medals, ingots and similar valuable articles having protective

properties against (authorized and unauthorized) access to the above identified articles.

[0024] The present safety case comprises an upper and a lower elements made of a transparent polymer material, the upper element is provided with at least one transparent housing made, for instance, in the form of a cell for placing at least one of the above identified articles, a decorative imprint on the upper face of the upper element of the case and an irreparably destroyed layer on the inner face of the lower element of the case made, for instance, in the form of a holographic coating protecting the case against counterfeiting and detecting opening attempts effected on the case, the upper and the lower elements being adhesively bonded to each other by means of an irreparably destroyed layer, in which between the decorative printing layer and the upper face of the upper element there is self-adhesive laminated paper and the irreparably destroyed layer comprises at least one transparent area formed by the double laminate and placed under the transparent housing of the upper element of the case, the decorative imprint and the self-adhesive laminated paper overlapping the irreparably destroyed layer except for its transparent area.

[0025] Moreover, the lower element of the case in accordance with the present invention is made of thickened laminate, as such a 200-250 micrometer thick laminate is used.

[0026] The self-adhesive laminated paper is provided with protective properties, as such printing by special inks and/or fibers visible under the ultraviolet rays are used and the shape and size of the double laminate in the plan correspond to within minus 0.1 mm to the shape and size of the opening in the irreparably destroyed layer.

Figure 1 is an overall view of a safety case with a valuable article under a transparent housing made in the form of a cell (the article is indicated by a dotted line);

Figure 2 shows the upper element of the case comprising the coatings applied to its flat upper face;

Figure 3 shows the lower element of the case comprising the coatings applied to its inner face except for its transparent area.

[0027] The safety case shown in Figure 1 comprises: a valuable article 1 (indicated by a dotted line), an upper 2 and a lower 3 elements made of a transparent polymer material.

[0028] The upper 2 element of the case showed in fig. 2 comprises: a transparent housing 4 made in the form of a cell.

[0029] Between the decorative imprint 6 and the flat part of the upper face of the upper 2 element there is self-adhesive laminated paper 5.

[0030] Both the decorative imprint 6 and the self-adhesive laminated paper 5 applied to the flat upper face of the upper 2 element when superimposed on the lower 3 element overlap the irreparably destroyed layer 7 ap-

plied on the inner face of the lower 3 element except for its transparent area 8.

[0031] The inner face of the lower 3 element of the case shown in fig. 3 and made of the thickened laminate is provided with the irreparably destroyed layer 7 made in the form a holographic raised coating, the transparent area 8 formed by the double laminate, the adhesive layer 9 and siliconised paper 10.

[0032] The adhesive layer 9 coated with the siliconised paper 10 being applied on the irreparably destroyed layer 7 of the lower 3 element except for its transparent area 8.

[0033] The constituent parts of the safety case are assembled in the following way.

[0034] The lower 3 element of the case is placed on an even surface with the thickened laminate down.

[0035] The siliconised paper 10 is removed from the irreparably destroyed layer 7, thus revealing the adhesive layer 9. After that the valuable article 1 is placed on the transparent area 8 of the lower 3 element made of the double laminate.

[0036] In case when the said safety case is used for storing the valuable article 1 of a flat shape (a valuable coin or a stamp), whose dimensions are comparable with the dimensions of the transparent housing 4, no additional fixing appliances are required to press it to the transparent housing.

[0037] In case the dimensions of the valuable article 1 are much smaller than the dimensions of the housing 4, for instance, a brilliant, then in order to orientate and fix it in the housing, a miniature fixing element such as a spring (indicated by a dotted line in fig.1) is used .

[0038] After the valuable article 1 has been placed on the transparent area 8 of the lower 3 element, the upper 2 element is placed on the adhesive layer 9 applied on the irreparably destroyed layer 7 of the lower 3 element so that the self-adhesive laminated paper 5 under the decorative imprint 6 and placed together with it on the upper face of the upper 2 element does not overlap the transparent area 8 of the lower 3 element.

[0039] The irreparably destroyed layer 7 made in the form of a holographic raised coating is destroyed as soon as an opening attempt is effected on the case.

[0040] The said destruction indicates that access to the valuable article 1 (authorized or unauthorized) has been effected.

[0041] Through the transparent area 8 made in the irreparably destroyed layer 7 in the form of transparent double laminate, when a precious coin, medal or any other double-sided object is placed in the safety case, the object can be easily perceived from the reverse side, and when a precious stone is placed in the case, a paper carrier with characteristics of the said precious stone, such as a diamond, can be placed in this area (name of the manufacturer, weight etc).

[0042] The shape and the dimensions of the transparent area 8 made in the form of the double laminate are made in accordance with the shape and dimensions of the opening made in the irreparably destroyed layer 7.

[0043] This helps to prevent the edge effect, the so-called "turbidity" along the perimeter of the opening. The tolerance for the dimensions of the double laminate against the opening in the irreparably destroyed layer 7 shall not exceed minus 0.1 mm.

[0044] The thickness of the thickened laminate forming the lower element of the case is 200-250 micrometer, which gives the safety case the necessary rigidity, protects against mechanical effect and damage and ensures its optimal mass.

[0045] The self-adhesive laminated paper 5 placed between the decorative imprint 6 and the flat upper face of the upper 2 element is provided with protective properties (printing by special inks and/or fibers visible under ultraviolet rays) and is made together with the decorative imprint 6 so that it overlaps the irreparably destroyed layer 7 placed on the inner face of the lower 3 element except for its transparent area 8.

[0046] Such application of the coatings on the upper 2 element of the case gives it additional protection against counterfeiting as well as improves the aesthetic view of the item on the whole.

[0047] The safety case for storing precious stones such as diamonds, pearls, coins, medals, ingots and other valuable articles according to the present invention is advantageous when compared with analogous prior art devices in that

- ☐ It has a simple and rigid construction;
- ☐ The construction is protected against external mechanical effect and damage;
- ☐ The valuable article placed in the case has got a high level of protection provided not only by the irreparably destroyed layer on the inner face of the lower element but also by placing the self-adhesive laminated paper between the decorative imprint and the upper face of the upper element;
- ☐ There is no edge effect (turbidity) along the perimeter of the transparent area of the case, in which the valuable article is placed, thus the visual sharpness of the object placed in the case is reached.

[0048] The present invention is industrially applicable and technically feasible.

Prior art documents:

[0049]

1. US Patent No 4592465; IPC A 45C 11/24; filing date 14.11.1983; patenting date 03.06.1986;
2. US Patent No 4838708; IPC B 65D 33/14; filing date 07.03.1988; patenting date 13.06.1989;
3. European Patent EP 0345405B1; IPC B 65D 85/00; A 45C 11/24; filing date 26.07.1988; publication date 09.12.1992; bulletin 92/50.

Claims

1. A safety case for a precious stone, a pearl, coin, a philatelically valuable stamp and similar valuable articles comprising an upper element and a lower element made of a transparent polymer material, the upper element provided with at least one transparent housing made, for instance, in the form of a cell for placing at least one of the above identified articles, a decorative imprint on the upper face of the upper element of the case and an irreparably destroyed layer on the inner face of the lower element of the case made, for instance, in the form of a holographic coating protecting the case against counterfeiting and detecting an opening attempt effected on the case, the upper and the lower elements being adhesively bonded to each other by means of the irreparably destroyed layer, **characterized in that** between the decorative imprint and the upper face of the upper element there is self-adhesive laminated paper and the irreparably destroyed layer comprises at least one transparent area formed by the double laminate and placed under the transparent housing of the upper element of the case, the decorative imprint and the self-adhesive laminated paper overlapping the irreparably destroyed layer except for its transparent area.
2. The safety case as claimed in claim 1, **characterized in that** the lower element of the case is made of the thickened laminate.
3. The safety case as claimed in claim 2, **characterized in that** a 200-250 micrometer thick laminate is used as a thickened laminate.
4. The safety case as claimed in claim 1, **characterized in that** the self-adhesive laminated paper is provided with protective properties.
5. The safety case as claimed in claim 4, **characterized in that** printing by special inks and/or fibers visible under the ultraviolet rays are used as protective properties of the self-adhesive paper.
6. The safety case as claimed in claim 1, **characterized in that** the shape and the size of the double laminate correspond to within minus 0.1 mm to the shape and size of the opening in the irreparably destroyed layer.

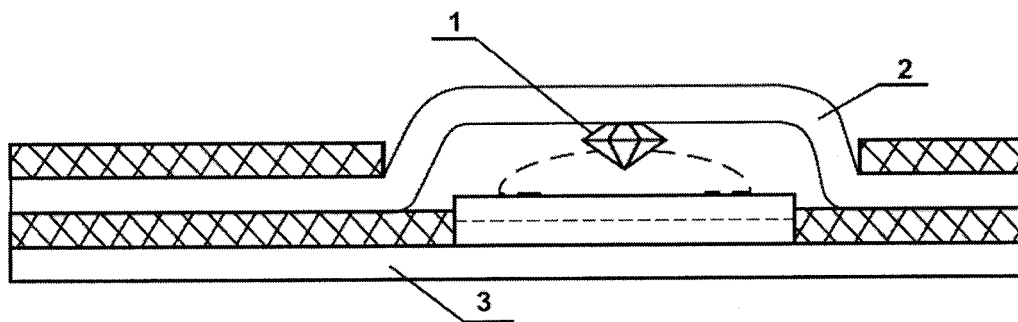


Fig. 1

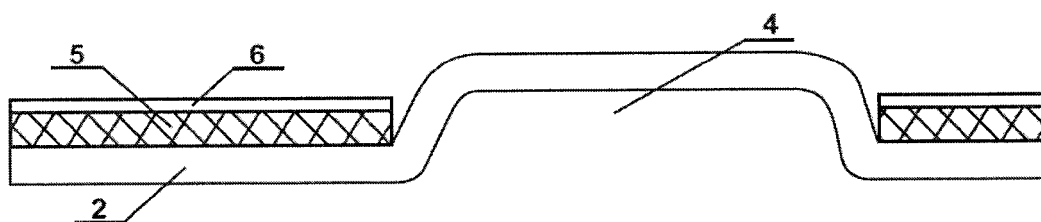


Fig. 2

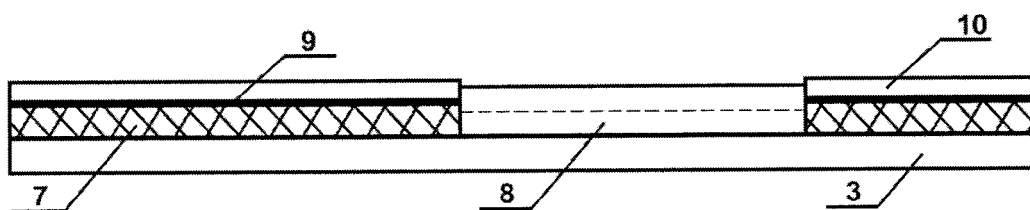


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 4311

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	EP 0 345 405 A2 (ARYSEARCH ARYLAN AG [LI]) 13 December 1989 (1989-12-13) * column 7, line 38 - column 9, line 3 * * figures 1-5 *	1-6	INV. B65D75/28
A	US 2006/138009 A1 (BOZKURT NACI [TR]) 29 June 2006 (2006-06-29) * paragraph [0028] - paragraph [0048] * * figures 1-8 *	1-6	
A	CH 673 562 A5 (ARYSEARCH ARYLAN AG) 30 March 1990 (1990-03-30) * abstract; figures 1-3 *	1-6	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 28 January 2010	Examiner Fitterer, Johann
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category 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			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 17 4311

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-01-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0345405	A2	13-12-1989	AU 614585 B2 05-09-1991
			AU 3138989 A 14-12-1989
			CA 1332379 C 11-10-1994
			CH 674639 A5 29-06-1990
			DE 3876620 D1 21-01-1993
			DE 3876620 T2 06-05-1993
			JP 2029775 A 31-01-1990
			US 5033774 A 23-07-1991
			ZA 8807648 A 26-07-1989
US 2006138009	A1	29-06-2006	AU 2005322634 A1 06-07-2006
			BR PI0517593 A 14-10-2008
			CA 2591842 A1 06-07-2006
			CN 101090849 A 19-12-2007
			EA 200701369 A1 28-04-2008
			EP 1831084 A1 12-09-2007
			JP 2008525287 T 17-07-2008
			KR 20070092997 A 14-09-2007
			WO 2006071235 A1 06-07-2006
CH 673562	A5	30-03-1990	NONE

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4592465 A [0049]
- US 4838708 A [0049]
- EP 0345405 B1 [0049]