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

Sicherheitsbehälter für Edelsteine, wie Diamanten, sowie für Perlen, Münzen, Briefmarken und ähnliche wertvolle Artikel

Étui de sécurité pour pierres précieuses, telles que des diamants, des perles, des pièces de monnaie, des timbres-poste et articles de valeur similaires

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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 openings 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 element 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 destructible 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 destructible 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 destructible layer comprises at least one transparent area formed by a 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 destructible 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 destructible 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 element made of a transparent polymer material.

[0028] The upper 2 element of the case shown 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 destructible layer 7 applied 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 destructible layer 7 made in the form of 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 destructible 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 destructible 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 destructible 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 destructible 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 destructible 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 destructible 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 destructible layer 7 shall not exceed minus 0.1mm.

[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 destructible 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 destructible 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 (2) and a lower element (3) made of a transparent polymer material, the upper element (2) 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 element (2) of the case and an irreparably destructible layer (7) on the inner face of the lower element (3) 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 element (2) and the lower element (3) being adhesively bonded to each other by means of the irreparably destructible layer (7), **characterized in that** the decorative imprint (6) is placed on the upper face of the upper element (2), wherein between the decorative imprint (6) and the upper face of the upper element (2) there is self-adhesive laminated paper (5) and the irreparably destructible layer (7) comprises at least one transparent area (8) formed by a double laminate and placed under the transparent housing (4) of the upper element (2) of the case, the decorative imprint (6) and the self-adhesive laminated paper (5) overlapping the irreparably destructible layer (7) except for its transparent area (8).

2. The safety case as claimed in claim 1, **characterized in that** the lower element (3) of the case is made of a 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 (5) 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 (5).

6. The safety case as claimed in claim 1, **characterized in that** the shape and the size of the double laminate correspond within minus 0.1 mm to the shape and size of an opening in the irreparably destructible layer (7).

Patentansprüche

1. Sicherheitsbehälter für einen Edelstein, eine Perle,

eine Münze, eine philatelistisch wertvolle Briefmarke und ähnliche wertvolle Artikel, mit einem oberen Element (2) und einem unteren Element (3), die aus einem transparenten Polymermaterial hergestellt sind, wobei das obere Element (2) mit wenigstens einem transparenten Gehäuse (4) versehen ist, das beispielsweise in Form einer Zelle zur Anordnung wenigstens eines der oben erwähnten Artikel versehen ist, einem dekorativen Aufdruck (6) auf dem oberen Element (2) des Behälters und einer irreparabel zerstörbaren Schicht (7) auf der Innenfläche des unteren Elements (3) des Behälters, die beispielsweise in Form einer holografischen Beschichtung hergestellt ist, die den Behälter gegen Fälschen schützt und einen an dem Behälter ausgeübten Öffnungsversuch erfasst, wobei das obere Element (2) und das untere Element (3) miteinander mittels der irreparabel zerstörbaren Schicht (7) klebend verbunden sind, **dadurch gekennzeichnet, dass** der dekorative Aufdruck (6) auf der oberen Fläche des oberen Elements (2) angeordnet ist, wobei zwischen dem dekorativen Aufdruck (6) und der oberen Fläche des oberen Elements (2) ein selbstklebendes laminiertes Papier (5) vorhanden ist und die irreparabel zerstörbare Schicht (7) wenigstens einen transparenten Bereich (8) umfasst, der von einem doppelten Laminat gebildet wird und unter dem transparenten Gehäuse (4) des oberen Elements (2) des Behälters angeordnet ist, wobei der dekorative Aufdruck (6) und das selbstklebende laminierte Papier (5) die irreparabel zerstörbare Schicht (7) außer in ihrem transparenten Bereich (8) überlappen.

2. Sicherheitsbehälter nach Anspruch 1, **dadurch gekennzeichnet, dass** das untere Element (3) des Behälters aus einem verdickten Laminat hergestellt ist.

3. Sicherheitsbehälter nach Anspruch 2, **dadurch gekennzeichnet, dass** ein 200-250 μm dickes Laminat als ein verdicktes Laminat verwendet wird.

4. Sicherheitsbehälter nach Anspruch 1, **dadurch gekennzeichnet, dass** das selbstklebende laminierte Papier (5) mit Schutzeigenschaften versehen ist.

5. Sicherheitsbehälter nach Anspruch 4, **dadurch gekennzeichnet, dass** ein Drucken durch spezielle Tinten und/oder Fasern, die unter Ultraviolettstrahlen sichtbar sind, als Schutzeigenschaften des selbstklebenden Papiers (5) verwendet werden.

6. Sicherheitsbehälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Form und Größe des doppelten Laminats in einem Bereich der Form und Größe einer Öffnung in der irreparabel zerstörbaren Schicht (7) minus 0,1 mm liegt.

Revendications

1. Boîtier de sécurité pour une pierre précieuse, une perle, une pièce de monnaie, un timbre de valeur philatélique et articles similaires de valeur comprenant un élément supérieur (2) et un élément inférieur (3) constitués d'un matériau polymère transparent, l'élément supérieur (2) prévu avec au moins un logement transparent (4) constitué, par exemple, sous la forme d'une cellule pour placer au moins un des articles identifiés ci-dessus, une impression décorative (6) sur l'élément supérieur (2) du boîtier et une couche destructible de façon irréparable (7) sur la face intérieure de l'élément inférieur (3) du boîtier constituée, par exemple, sous la forme d'un revêtement holographique protégeant le boîtier contre les contrefaçons et détectant une tentative d'ouverture effectuée sur le boîtier, l'élément supérieur (2) et l'élément inférieur (3) étant liés par un adhésif l'un à l'autre au moyen de la couche destructible de façon irréparable (7), **caractérisé en ce que** l'impression décorative (6) est placée sur la face supérieure de l'élément supérieur (2), dans lequel, entre l'impression décorative (6) et la face supérieure de l'élément supérieur (2), il y a un papier stratifié autoadhésif (5) et la couche destructible de façon irréparable (7) comprend au moins une zone transparente (8) formée par un stratifié double et placée sous le logement transparent (4) de l'élément supérieur (2) du boîtier, l'impression décorative (6) et le papier stratifié autoadhésif (5) recouvrant la couche destructible de façon irréparable (7) à l'exception de sa zone transparente (8).

2. Boîtier de sécurité selon la revendication 1, **caractérisé en ce que** l'élément inférieur (3) du boîtier est constitué d'un stratifié épaissi.

3. Boîtier de sécurité selon la revendication 2, **caractérisé en ce qu'**un stratifié d'une épaisseur de 200 à 250 micromètres est utilisé comme un stratifié épaissi.

4. Boîtier de sécurité selon la revendication 1, **caractérisé en ce que** le papier stratifié autoadhésif (5) est prévu avec des propriétés protectrices.

5. Boîtier de sécurité selon la revendication 4, **caractérisé en ce qu'**une impression par des encres spéciales et/ou des fibres visibles sous les rayons ultraviolets sont utilisées comme propriétés protectrices du papier autoadhésif (5).

6. Boîtier de sécurité selon la revendication 1, **caractérisé en ce que** la forme et la taille du stratifié double correspond à moins 0,1 mm près à la forme et la taille d'une ouverture dans la couche destructible de façon irréparable (7).

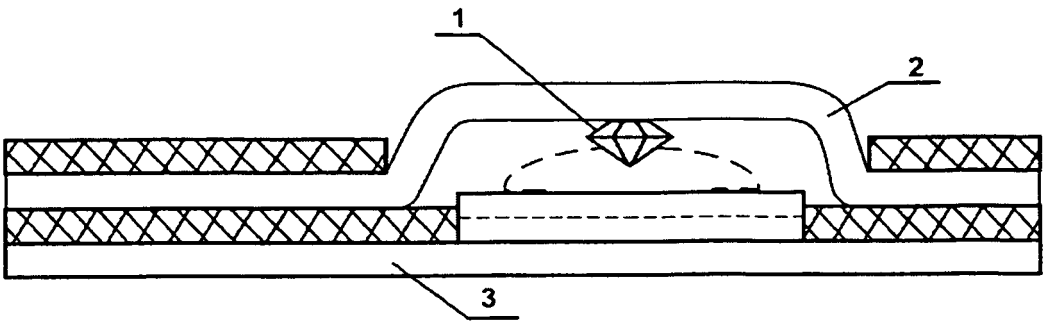


Fig. 1

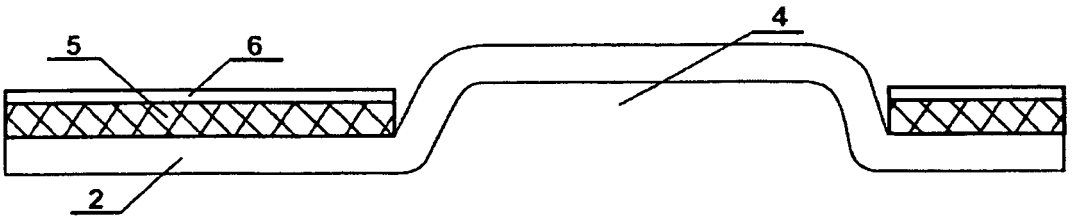


Fig. 2

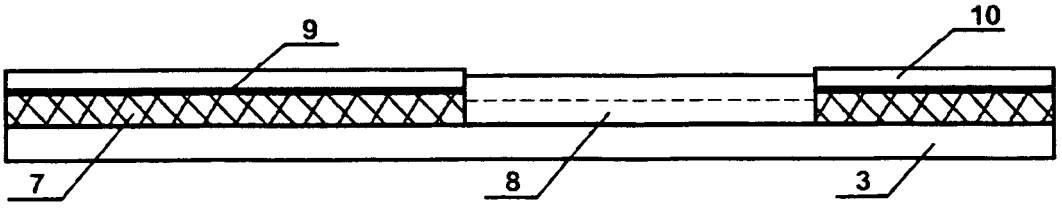


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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