

Description

The invention relates to a combination of a storage case and a holder for at least one information carrier, which storage case comprises a receptacle into which the holder can be inserted from the front of the case, a blade spring of which at least an active portion is situated in the receptacle, and a latching arm with a free end portion which carries a latching pin which projects into the receptacle, a latching projection on the holder being urged against the latching pin after insertion of the holder to latch the holder inside the storage case, by a force which is exerted on the holder by the blade-spring in a direction opposite to the direction of insertion, the blade spring, the latching arm and the latching pin being constructed as an integral unit made of an elastic material, which unit is connected to a rear wall of the case by snap-fastening means.

A combination of the above type is disclosed in FR-A-2317184. In the storage case of this known combination the integral unit of the blade spring, the latching arm and the latching pin must be pressed into the case when the storage case is assembled. Before assembling, the two parts have to be situated opposite each other exactly and during assembling the integral unit has to be pressed into the case until the whole rearside of the unit contacts the rear side of the case. As a result of this the assembling of the known case may be difficult and therefore expensive, especially when the case has a great depth necessarily for containing a particular holder with a large size.

The invention aims at constructing a storage case of the type set forth in the opening paragraph in such a way that the integral unit and the case can easily be assembled.

To this end the invention is characterized in that in the rear wall of the case, the case comprises an opening in which the integral unit is mounted, the unit further comprises a cover on which the blade spring and the latching arm are supported and which closes the opening in the rear wall of the case.

In this respect an embodiment of the invention is characterized in that the case comprises a plurality of receptacles disposed one above another, and the opening extends over substantially the entire height of the case, said cover carries a respective blade spring and a latching arm at the level of each receptacle. Thus, the integral unit is also suitable for use in a case which is intended to receive a plurality of holders. For example, a storage case which can hold ten holders may be provided with one integral unit which carries the blade springs and latching arms for ten receptacles.

A preferred embodiment of the invention is characterized in that the case carries a stop portion which in the latched position of the holder inside the receptacle abuts the upper side of the latching arm by which said holder is latched. Thus the holder can not get out of the case when the latching arm is bent.

A further preferred embodiment of the invention is characterized in that the plurality of receptacles of the case is separated by bars and at least one of said stop portions is formed by a portion of a respective bar. In this way the holder of the information carrier can be kept everywhere in the case and not only in the lowest free receptacle.

Two embodiments of a storage case in accordance with the invention will now be described in more detail, by way of example, with reference to the drawings. In the drawings:

Fig. 1 is a partly cut-away perspective view of a storage case in accordance with the invention with a holder inserted therein,

Fig. 2 is an enlarged-scale sectional view taken on the line II—II in Fig. 1, of part of the case shown in Fig. 1,

Fig. 3 is a sectional view taken on the line III—III in Fig. 1 and drawn to an enlarged scale,

Fig. 4 is an enlarged scale plan view of a portion of the holder shown in Fig. 1, which portions comprises the latching projection,

Fig. 5 is a partly cut-away perspective view of a second embodiment of a storage case in accordance with the invention.

The storage case shown in Figs. 1, 2 and 3 comprises a number of walls, including upper and lower major walls 2a and 2b, side walls 3 and 4, and a rear wall 5. The front of the storage case is open. The side walls 3 and 4 each carry a plurality of bars 6 which extend parallel to the major walls 2a and 2b. Each pair of opposed bars which are situated at equal distances from the major walls forms part of a receptacle 7, the case shown in Fig. 1 comprising five receptacles. It is obvious that the case 1 may be provided with a different number of receptacles, for example ten. The receptacles are each constructed to receive a holder 8. The holder 8 contains an information carrier 9 constituted by a rigid disc. This may be, for example, an optically readable audio record of the "Compact Disc" type. At the front each holder 8 has a grip 10 whose front may carry an information label which provides information about the contents of the information carrier. Thus, the user can readily identify the information carriers contained in the case.

Near its rear edge 8a the holder 9 comprises a latching portion 11, which is shown in more detail in Fig. 4. The latching portion 11 comprises a guide groove 12 in which a latching pin 13 which is connected to the case 1, and which will be described more fully hereinafter, can move. The groove 12 has a funnel-shaped mouth portion 12a in the rear edge 8a of the holder, which portion 12a has an upwardly inclined bottom wall. When the pin 13 enters the groove through the mouth portion 12a, it slides up a ramp surface 112a and meets a tapered end portion 14a of a latching projection 14, which ramp surface 112a and end portion 14a deflect the pin 13 into the left-hand branch of the groove 12 as viewed in Fig. 4. As a result of this, the pin follows the path a in Fig. 4. This relative movement of the pin 13 is effected when the holder 8 is inserted into the case 1. Subsequently the pin reaches a W-shaped portion

12b of the groove 12, the pin passing along a first outer limb of the W during the last stage of insertion and engaging in a corner portion of the W. This corner portion is constituted by a run-out portion 12c of the groove 12. Under the influence of a blade spring 15 which projects into the receptacle 7 the holder 8 is now urged in a direction opposite to the direction of insertion, so that the pin 13 performs a further relative movement in the groove 12 over a ramp surface 112b. However, since the latching projection 14 is heart-shaped, the pin 13 now performs a relative movement in the groove in the direction indicated by an arrow *b* under the influence of the spring 15. Finally, the pin is positioned against a latching wall 14b of the latching projection 14, which is the latching position in which the latching projection 14 and the latching pin 13 are latched relative to each other. In this way the inserted holder 8 is effectively latched in the case 1. The holder can be unlatched simply by pushing the holder 8 again in the direction of insertion, so that the latching pin performs a relative movement as indicated by the arrow *c* over a ramp surface 112c towards a corner portion 12d of the groove 12, after which, upon release of the holder, the pin moves along a second outer limb 12e of the groove 12 as indicated by the arrow *d*. The ramp surfaces 112a, 112b and 112c force the latching pin 13 to follow the groove 12 in the correct direction around the latching projection 14. From the second outer limb 12c the pin 13 runs onto a ramp surface 112d, so that the holder is pushed partly outwards by the spring 15 into the position represented by broken lines in Fig. 2. When the holder 8 is pulled out further by means of the grip 10 the pin is moved over the upwardly inclined wall 112d and the wall 112a, enabling the holder 8 to be removed from the storage case 1. Thus, by again pushing the holder in the direction of insertion the holder can be unlatched. This "push-push" system has the advantage that the user need not perform different operations for latching and unlatching.

Each latching pin 13 is carried by on an elastic latching arm 16 which is connected at one end to a cover 17 which extends over substantially the entire height of the case 1. In total the cover 17 carries five such latching arms 16 arranged parallel to and above one another in a row. The cover 17 also carries five blade springs 15 which are situated above one another. The blade springs 15 are each connected at one end to the cover and from there ends the blade springs extend in a direction away from the latching arms 16. Viewed in Fig. 1, the connection of each latching arm 16 to the cover 17 is preferably situated near the right-hand rear corner of the case 1 and the active portions of the blade springs 15 adjacent the free ends thereof act against an inserted holder 8 near the left-hand rear corner of the case.

Owing to their construction the cover 17, the blade springs 15 and the latching arms 16 carrying the latching pins 13 can be manufactured advantageously from an elastic material as an

integral unit. This is possible by injection-moulding the integral unit from a suitable plastics. A particularly suitable plastics is a polycarbonate, which is elastic enough and can withstand comparatively high temperatures. This is important in order to obtain an adequate elasticity of the blade springs 15 and the latching arms 16. Further, this material has the advantage that it enables the housing to be used in environments with comparatively high temperatures. Examples of this are motor cars.

The integral unit bearing the reference numeral 18 in Figs. 1, 2 and 3 can be attached to the rear wall 8 in an advantageous manner by snap-fastening means. For this purpose the unit 19 comprises four inwardly bent clamping projections 19 and two clamping hooks 20. The four clamping projections 19 are each situated between two adjacent blade springs 15 and the two clamping hooks 20 are each situated near the top and bottom of the case between two adjacent bars 6. As can be seen from Fig. 1, to fit the unit 18, first the projections 19 are slid behind the rear wall 5 of the case 1, after which the unit is snapped into position by pressing the hooks 20 behind an edge portion 21 which forms part of the rear wall 5. The cover 17 is positioned in the inward direction at the top and bottom of the case 1 against the rear edges of the upper and the lower walls 2a and 2b respectively by the snap-fastening means (see Fig. 3) and cannot move further inwards. Preferably, the cover 17 is positioned so that the rear surface of the cover is disposed in a plane containing the rear surface of the rear wall. Thus, a closed and flush rear wall is obtained for the storage case in accordance with the invention.

By constructing the blade springs and the latching arms as an integral unit the case in accordance with the invention is particularly suitable for low-cost mass-production. The number of parts of the case may be limited to only two. The storage case in accordance with the invention is particularly suitable for the storage of information carriers of the "Compact Disc" type, which can be inserted into and removed from the case in accordance with the invention in an easy manner.

Preferably, each bar 6 on the side wall 4 is provided with a stop portion 6a which in the latch portion of an associated one of the pins 13 abuts the upper side of the respective latching arm 16. Thus, the stop portion prevents the pin 13 from being moved upwards in the latched position, for example when the grip 10 of a holder is pulled, and thereby unlatching the holder. In this way the stop portions 6a additionally ensure a correct latching of the holders 8.

As is shown in Fig. 5 it is also possible to employ an integrated unit 24 which comprises a cover 25 with only one blade spring 15, one latching arm 16 and one latching pin 13 in a storage case 23 intended for the storage of only one holder 8. Again, in a manner similar to that shown in Fig. 2, the unit 24 may be connected to the rear wall of the case 23 by snap-fastening

means comprising only one clamping hook 20 for clamping the cover 25 against the major walls of the case 23. Preferably, such a case is made of a thin plastics, the present embodiment also comprising only two parts.

Claims

1. A combination of a storage case (1; 23) and a holder (8) for at least one information carrier (9), which storage case (1; 23) comprises a receptacle (7) into which the holder (8) can be inserted from the front of the case, a blade spring (15) of which at least an active portion is situated in the receptacle (7), and a latching arm (16) with a free end portion which carries a latching pin (13) which projects into the receptacle (7), a latching projection (14) on the holder (8) being urged against the latching pin (13) after insertion of the holder (8) to latch the holder inside the storage case by a force which is exerted on the holder by the blade-spring in a direction opposite to the direction of insertion. The blade spring (15), the latching arm (16) and the latching pin (13) being constructed as an integral unit (18; 24) made of an elastic material, which unit is connected to a rear wall (5) of the case by snap-fastening means (19, 20), characterized in that in the rear wall (5) of the case, the case (1; 23) comprises an opening in which the integral unit (18; 24), is mounted, the unit further comprises a cover (17; 25) on which the blade spring (15) and the latching arm (16) are supported and which closes the opening in the rear wall (5).

2. A combination as claimed in Claim 1 characterized in that the case (1) comprises a plurality of receptacles (7) disposed one above another, and the opening extends over substantially the entire height of the case (1), said cover (7) carries a respective blade spring (15) and latching arm (16) at the level of each receptacle (7).

3. A combination as claimed in Claim 1 or 2, characterized in that the case (1; 23) carries a stop portion (6a) which in the latched position of the holder (8) inside the receptacle (7) abuts the upper side of the latching arm (16) by which said holder is latched.

4. A combination as claimed in claim 3, characterized in that the plurality of receptacles (7) of the case (1) is separated by bars (6) and at least one of said stop portions (6a) is formed by a portion of a respective bar (6).

Patentansprüche

1. Kombination aus einem Gehäuse (1; 23) und einem Halter (8) für mindestens einen Informationsträger (9), wobei dieses Gehäuse (1; 23) eine Aufnahmevorrichtung (7) aufweist, in die der Halter (8) von der Vorderseite des Gehäuses eingeschoben werden kann, weiterhin eine Blattfeder (15), von der wenigstens eine wirksame Teil in der Aufnahmevorrichtung (7) liegt, sowie einen Verriegelungsarm (16) mit einem freien Endteil, der einen in die Aufnahmevorrichtung (7)

hineinragenden Verriegelungsstift (13) aufweist, wobei nach dem Einschiebevorgang des Halters (8) ein Verriegelungsvorsprung (14) auf dem Halter (8) gegen der Verriegelungsstift (13) gedrückt wird, um den Halter innerhalb des Gehäuses zu verriegeln, und zwar mit Hilfe einer durch die Blattfeder in einer der Einschieberichtung entgegengesetzten Richtung auf den Halter ausgeübten Kraft, wobei die Blattfeder (15), der Verriegelungsarm (16) und der Verriegelungsstift (13) als integrale Einheit (18; 24) aus einem elastischen Material hergestellt sind, wobei diese Einheit mit Hilfe von Schnellkupplungsmitteln (19, 20) an einer Rückwand (5) verbunden ist, dadurch gekennzeichnet, dass in der Rückwand (5) des Gehäuses (1, 23) eine Öffnung vorgesehen ist, in der die integrale Einheit (18; 24) angeordnet ist, wobei die Einheit weiterhin einen Deckel (17; 25) aufweist, auf dem die Blattfeder (15) und der Verriegelungsarm (16) angeordnet sind und der die Öffnung in der Rückwand (5) abschliesst.

2. Kombination nach Anspruch 1, dadurch gekennzeichnet, dass das Gehäuse (1) eine Anzahl übereinander angeordneter Aufnahmevorrichtungen (7) aufweist und dass die Öffnung sich im wesentlichen über die ganze Höhe des Gehäuses (1) erstreckt, wobei dieser Deckel (7) zur Höhe jeder Aufnahmevorrichtung (7) eine betreffende Blattfeder (15) und einen betreffenden Verriegelungsarm (16) aufweist.

3. Kombination nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass das Gehäuse (1; 23) einen Anschlagteil (6a) aufweist, der in der verriegelten Lage des Halters (8) innerhalb der Aufnahmevorrichtung (7) an die obere Seite des den Halter verriegelnden Verriegelungsarms (16) stößt.

4. Kombination nach Anspruch 3, dadurch gekennzeichnet, dass die jeweiligen Aufnahmevorrichtungen (7) des Gehäuses (1) durch Leisten (6) voneinander getrennt werden und dass wenigstens einer der Anschlagteile (6a) durch einen Teil einer solchen Leiste (6) gebildet ist.

Revendications

1. Combinaison d'un boîtier de rangement (1; 23) et d'un chargeur (8) pour au moins un support d'information (9), boîtier de rangement (1; 23) comportant un compartiment (7) dans lequel le chargeur (8) peut être introduit à partir de la face avant du boîtier, un ressort-lame (15) dont au moins une partie active est située dans le compartiment (7), et un bras de verrouillage (16) muni d'une partie terminale libre qui porte une tige de verrouillage (13) faisant saillie dans le compartiment (7), un ergot de verrouillage (14) sur le chargeur (8) étant pressé contre la tige de verrouillage (13) après l'introduction du chargeur (8) pour verrouiller le chargeur dans le boîtier de rangement, et cela par une force qui est exercée par le ressort-lame sur le chargeur dans une direction opposée à la direction d'introduction, et le ressort-lame (15), le bras de verrouillage (16) et la tige de verrouillage (13) étant réalisés sous la

means comprising only one clamping hook 20 for clamping the cover 25 against the major walls of the case 23. Preferably, such a case is made of a thin plastics, the present embodiment also comprising only two parts.

Claims

1. A combination of a storage case (1; 23) and a holder (8) for at least one information carrier (9), which storage case (1; 23) comprises a receptacle (7) into which the holder (8) can be inserted from the front of the case, a blade spring (15) of which at least an active portion is situated in the receptacle (7), and a latching arm (16) with a free end portion which carries a latching pin (13) which projects into the receptacle (7), a latching projection (14) on the holder (8) being urged against the latching pin (13) after insertion of the holder (8) to latch the holder inside the storage case by a force which is exerted on the holder by the blade-spring in a direction opposite to the direction of insertion, the blade spring (15), the latching arm (16) and the latching pin (13) being constructed as an integral unit (18; 24) made of an elastic material, which unit is connected to a rear wall (5) of the case by snap-fastening means (19, 20), characterized in that in the rear wall (5) of the case, the case (1; 23) comprises an opening in which the integral unit (18; 24), is mounted, the unit further comprises a cover (17; 25) on which the blade spring (15) and the latching arm (16) are supported and which closes the opening in the rear wall (5).

2. A combination as claimed in Claim 1 characterized in that the case (1) comprises a plurality of receptacles (7) disposed one above another, and the opening extends over substantially the entire height of the case (1), said cover (7) carries a respective blade spring (15) and latching arm (16) at the level of each receptacle (7).

3. A combination as claimed in Claim 1 or 2, characterized in that the case (1; 23) carries a stop portion (6a) which in the latched position of the holder (8) inside the receptacle (7) abuts the upper side of the latching arm (16) by which said holder is latched.

4. A combination as claimed in claim 3, characterized in that the plurality of receptacles (7) of the case (1) is separated by bars (6) and at least one of said stop portions (6a) is formed by a portion of a respective bar (6).

Patentansprüche

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2. Kombination nach Anspruch 1, dadurch gekennzeichnet, dass das Gehäuse (1) eine Anzahl übereinander angeordneter Aufnahmevorrichtungen (7) aufweist und dass die Öffnung sich im wesentlichen über die ganze Höhe des Gehäuses (1) erstreckt, wobei dieser Deckel (7) zur Höhe jeder Aufnahmevorrichtung (7) eine betreffende Blattfeder (15) und einen betreffenden Verriegelungsarm (16) aufweist.

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4. Kombination nach Anspruch 3, dadurch gekennzeichnet, dass die jeweiligen Aufnahmevorrichtungen (7) des Gehäuses (1) durch Leisten (6) voneinander getrennt werden und dass wenigstens einer der Anschlagteile (6a) durch einen Teil einer solchen Leiste (6) gebildet ist.

Revendications

1. Combinaison d'un boîtier de rangement (1; 23) et d'un chargeur (8) pour au moins un support d'information (9), boîtier de rangement (1; 23) comportant un compartiment (7) dans lequel le chargeur (8) peut être introduit à partir de la face avant du boîtier, un ressort-lame (15) dont au moins une partie active est située dans le compartiment (7), et un bras de verrouillage (16) muni d'une partie terminale libre qui porte une tige de verrouillage (13) faisant saillie dans le compartiment (7), un ergot de verrouillage (14) sur le chargeur (8) étant pressé contre la tige de verrouillage (13) après l'introduction du chargeur (8) pour verrouiller le chargeur dans le boîtier de rangement, et cela par une force qui est exercée par le ressort-lame sur le chargeur dans une direction opposée à la direction d'introduction, et le ressort-lame (15), le bras de verrouillage (16) et la tige de verrouillage (13) étant réalisés sous la



forme d'une unité intégrée (18; 24) en matière élastique, unité qui est reliée à une paroi arrière (5) du boîtier par des moyens de fixation à encliquetage (19, 20), caractérisé en ce que dans la paroi arrière (5) du boîtier, le boîtier (1, 23) présente une ouverture dans laquelle est montée l'unité intégrée (18; 24) et en ce que cette unité comporte en outre un couvercle (17; 25) sur lequel sont appuyés le ressort-lame (15) et le bras de verrouillage (16) et qui forme l'ouverture dans la paroi arrière (5).

2. Combinaison selon la revendication 1, caractérisée en ce que le boîtier (1) comporte une pluralité de compartiments superposés (7), en ce que l'ouverture s'étend sur pratiquement toute la hauteur du boîtier (1) et en ce que ledit couvercle

(7) porte un ressort-lame (15) et un bras de verrouillage (16) au niveau de chaque compartiment (7).

5 3. Combinaison selon la revendication 1 ou 2, caractérisée en ce que le boîtier (1; 23) porte une partie d'arrêt (6a) qui, dans la position verrouillée du chargeur (8) dans le compartiment, est appuyée contre la face supérieure du bras de verrouillage (16) par lequel ledit chargeur est verrouillé.

10 4. Combinaison selon la revendication 3, caractérisée en ce que la pluralité de compartiments (7) du boîtier (1) sont séparés par des barres (6) et en ce qu'au moins l'une desdites parties d'arrêt (6a) est formée par une partie d'une barre correspondante (6).

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