

Description

The present invention relates to an improved suitcase which is able to withstand knocks and various buckling stresses.

The most widely known suitcases designed to withstand knocks and various buckling stresses generally consist of integral parts, one of which forms the base or body of the suitcase and the other of which forms the lid. Each of these parts is made from a material such as metal or plastic which has been specially reinforced and is shaped using any suitable process such as pressing, casting or moulding and other similar processes. They are then assembled using hinges which are subsequently mounted or firmly fitted during the shaping operation. Other accessories such as locks, handles, etc. are also provided and are fitted at a suitable point during manufacture. Although this type of suitcase has proved to be effective in several respects, particularly with regard to withstanding knocks, it is anything but that when any sort of defect, incident or accident occurs affecting the actual structure of the suitcase, since the latter is, in most cases, difficult to repair or else repairing it generally proves to be costly precisely on account of the integral nature of its main components. The user therefore decides more often than not to change or replace the defective suitcase in order to avoid the loss of time and money involved in a repair which might prove possible.

Moreover, these suitcases are unaesthetic and, because of their design, cannot always be covered with

different kinds of material, such as fabric, hide, leather, etc. However, even if it were possible to use such a covering or to achieve an original external appearance, the means used for this purpose would not protected from rapid deterioration since these means can only be attached superficially and hence they are likely to be either easily deformed or accidentally pulled loose or damaged as a result of knocking, rubbing and compression which occurs during the many handling operations to which these suitcases are subjected during journeys, in particular when they are transported in carriages, trunks, containers, baggage rooms, baggage compartments, etc. Of course, suitcases are also known which have a strong structure, are aesthetic in appearance and are provided with a covering which suits the user's taste; however, both the structure and the means used to strengthen the latter so as to increase its resistance to knocks, such as, for example, mounted metallic corner protection-pieces or adhesives, rivets, etc. for gluing or fixing the covering, are not protected from wear and tear, deterioration, loosening, etc.

The aim of the present invention is to provide an improved suitcase which, owing to its structure, on the one hand is able to withstand knocks and various buckling stresses and, on the other hand, can be given an aesthetic appearance using any type of covering desired, without employing fixing or assembly accessories which may be damaged, and the main components of which are removable and interchangeable.



Thus, the suitcase according to the invention, which has its two parts, i.e. body and lid, assembled by means of hinges, is essentially characterized in that each of these two parts consists of an annular arrangement which can be disassembled into four connecting and structural pieces each having assembly and/or interlocking members or means for the edges of two adjacent panels and for the corresponding corner of the base to be joined so as to form a rectangular trihedron, serving as a means for supporting, assembling and fixing, on the one hand, a protection piece and, on the other hand, reinforcing and anti-impact angle irons in the longitudinal, vertical and horizontal directions, each angle iron gripping the edge of a piece of material used for covering the suitcase, against the corresponding panel.

According to other characteristic features:

- the assembly and/or interlocking members with which the intermediate connecting and structural pieces are provided are of any known type, such as dovetail, tenon and mortise and simple angle forked joints and the like;
- the panels and the base of each part (lid or body) of the suitcase are made of any suitable material, such as metal, wood, plastic, compressed material, reinforced fibreboard, composite materials and the like, and may be easily changed;
- the covering material is of any suitable type, such as natural or synthetic fabric, paper, sheet plastic, leather, hide and the like.

Other characteristic features and the advantages of the present invention will emerge more clearly from the following description given with reference to the attached drawings in which:

- Figure 1 is a diagrammatic perspective view of a suitcase according to the invention;

- Figure 2 is an exploded diagrammatic view illustrating assembly of a suitcase according to the invention;

- Figure 3 is an exploded diagrammatic view illustrating a detail of assembly;

- Figure 4 is a diagrammatic view illustrating another detail of assembly.

With reference to these drawings, Figure 1, which illustrates a suitcase according to the invention, shows how the edges of the suitcase are reinforced by protection and reinforcement pieces which are indicated separately by the reference letters L, V, T, C and W and which are designed, made and mounted so that (as will be seen below) the suitcase withstands buckling stresses and knocks. Moreover, since they can be completely disassembled, the members which could suffer damage can be easily replaced. Furthermore, owing to the way in which this suitcase is designed and assembled, the six panels of this suitcase can be covered as required. The three panels shown in the drawing are indicated by the reference numbers 1, 2 and 3.

As shown diagrammatically in Figure 2, the suitcase according to the invention is formed as follows:

Each of the parts (lid and body) of the suitcase is in the form of a composite annular arrangement consisting of panels 1 to 5 and intermediate corner pieces, referred to below as "structural members" (6). Each of these structural members is made so as to be able, using interlocking or assembly means of a type which are well-known, for example, in joinery or cabinet-making or in metalwork, such as tenon and mortise joints, dovetail joints, simple angle forked joints, groove joints, rivet joints and the like, to act as a link between two adjacent panels such as 1 and 3 and the corresponding corner of the "base" 2. It is not considered necessary to show in detail these assembly methods or systems which are well known to a person skilled in the art, the invention lying not in these systems themselves, but in the presence of these structural members (6) provided with such known means. Figure 4 shows, nevertheless, a mortise and tenon joint.

Once the five panels (1 to 5) have thus been assembled together, the assembly obtained is a coherent whole and may be directly used provided that two assemblies are joined to each other, by means of at least one hinge, so as to form in this way a trunk or a suitcase. Of course, the material forming the panels may be chosen from known resistant materials such as metal, wood, compressed material, hard plastic, etc., although the strength of the suitcase or trunk thus formed will depend on the actual nature of the constituent material chosen. However, the angular edges and the corners are exposed to

impacts, knocks and various buckling stresses, and consequently to the risk of deterioration, if the angular edges are not reinforced or protected. The aim of the present invention is to provide such reinforcement and protection. Moreover, another aim of the invention is to use these same reinforcement and/or protection means as means for arranging and fixing a covering material, rather than using fragile and easily detachable means which one could envisage fixing to a trunk or a suitcase of the conventional type or of a type constructed as described above without, however, the protection and/or reinforcement means forming part of the present invention.

These means consist essentially of angle irons such as those indicated by the reference letters L, V, T and W. The angle iron such as T (see Figure 1) is mounted directly on the corresponding structural member 6, thereby helping reinforce its role as structural element and main support for this member, while protecting it against knocks. Advantageously, such an assembly may be obtained by providing complementary systems of the groove/slide type, for example, on the angle iron and the member 6, permanent fixing being achieved, for example, by means of screwing (indicated by the dashed line and the reference 7 in Figure 4). As regards the other angle irons such as L and V, these may also be mounted directly on the corresponding edges or also by means of groove/slide systems provided on the edges.

In any case and in order to strengthen still

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further the assembly, the three angle irons T, L and V are united at the top of the trihedron which they form, so as to be rigidly fixed, in turn, to the corresponding structural member 6 by means of a part also forming a corner piece. This part is indicated by the reference letter C in Figures 1 and 3 and is itself rigidly fixed to the member 6 by means of a screw 8 for example. Moreover, an angle iron W is also provided in order to reinforce the edge opposite the base 2 of the assembly, whereby this angle iron may be mounted in a suitable manner known per se. Advantageously this angle iron is, in turn, rigidly fixed to the structural members 6 in order to increase the mechanical strength of the entire structure.

According to the invention, the abovementioned angle irons have such a profile and co-operate with a similar profile of the corresponding member which they protect, that they serve to "turn in" the layer 9 of covering material which may be fabric, leather, hide and the like. Such an operation is possible owing to the two corresponding (slide type) profiles 10, 11, such as shown by way of example in Figure 4. A person skilled in the art will not need to be reminded of the advantages of such a method of assembly.

Thus the suitcase according to the invention, owing to its structure, is able to withstand knocks and buckling. It can be easily disassembled in order to carry out any repairs which may prove necessary; it may be covered, as required, precisely on account of this

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possibility for disassembly and the simplicity of the method used to hold the chosen covering material in place.

It is obvious that the present invention has been described purely by way of a non-limiting example and that any useful modification may be made to it without going outside the scope of the present invention.

Claims

1. Suitcase which is able to withstand knocks and various buckling stresses, characterized in that each of its two parts (body, lid) consists of an annular arrangement which can be disassembled and which has four panels (1, 3, 4, 5) and a base (2) joined at the four corners by four connecting and structural pieces (6) each having known assembly and/or interlocking members or means for the edges of two adjacent panels (such as 1-3) and for the corresponding corner of the base (2) to be joined so as to form a rectangular trihedron serving as a means for supporting, assembling and fixing, on the one hand, a protection piece (C) and, on the other hand, reinforcement and anti-impact angle irons (L, V, T and W) in the longitudinal, vertical and horizontal directions, each angle iron gripping the edge of a piece of material (9) used for covering the suitcase, against the corresponding panel.

2. Suitcase according to Claim 1, characterized in that the assembly and/or interlocking members or means with which the intermediate connecting and structural



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2. Suitcase according to Claim 1, characterized in that the assembly and/or interlocking members or means with which the intermediate connecting and structural



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pieces are provided are of any known type, such as dove-tail, mortise and tenon, simple angle forked joints and the like.

3. Suitcase according to Claim 1, characterized in that the panels and the base of each part (lid or body) of the suitcase are made from any suitable material such as metal, wood, plastic, compressed material, reinforced fibreboard, composite materials and the like and may be easily changed.

4. Suitcase according to any one of Claims 1 to 3, characterized in that the covering material is of any suitable type, such as natural or synthetic fabric, paper, sheet plastic, leather, hide and the like.

**Patentansprüche (as printed)**

1. Gegenüber verschiedenen Verformungsbeanspruchungen und Stoßbelastungen widerstandsfester Handkoffer, dadurch gekennzeichnet, daß jeder seiner zwei Teile (Behälterteil, Deckelteil) durch eine zerlegbare Umrandung mit vier Flächen (1, 3, 4, 5) und einen Boden (2) gebildet ist, die an den vier Ecken durch vier Verbindungs- und Strukturteile (6) verbunden sind, die je bekannte Anschluß- und/oder Eingriffselemente oder -mittel für die Kanten der zwei benachbarten Flächen (wie z. B. 1—3) und die entsprechende Ecke des Bodens (2) für eine derartige Verbindung aufweisen, daß ein rechtwinkliges Trieder gebildet wird, das als Stütz-, Montage- und Befestigungsmittel einerseits für eine Schutzecke (C) und andererseits für Verstärkungs- und Schutzwinkel (L, V, T und W) gegen Stöße in Längs-, Vertikal- und Querrichtung dient, wobei jeder Winkel den Rand eines Spannungsmaterials (9) des Handkoffers gegen die entsprechende Fläche festhält.

2. Handkoffer nach Anspruch 1, dadurch gekennzeichnet, daß die Anschluß- und/oder Eingriffselemente oder -mittel, mit denen die Verbindungs- und Strukturzwischenteile versehen sind, von bekannter Art sind, wie z. B. von der Art einer Schwalbenschwanzverbindung, einer Zapfen-Schlitz-Verbindung, einer einfachen Winkel-Gabel-Verbindung od. dgl.

3. Handkoffer nach Anspruch 1, dadurch gekennzeichnet, daß die Flächen und der Boden jedes Kofferteils (Deckelteil und Behälterteil) aus einem geeigneten Material, wie Metall, Holz, Kunststoff, Preßmaterial, faserverstärktem Material, zusammengesetzten Materialien u. dgl., bestehen und leicht austauschbar sind.

4. Handkoffer nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß das Spannungsmaterial von geeigneter Art ist, wie aus natürlichem oder synthetischem Stoff, Papier, Kunststofffolien, Leder, Rauhleder u. dgl.

Claims (as printed)

1. Suitcase, resistant to knocks and to various buckling stresses and strains, characterized by the fact that each of the two parts (body, lid) is made up of a circling band that can be apart into four panels (1, 3, 4, 5) and a bottom (2) joined at the four corners by four joining and consolidating pieces (6) each of which includes known elements or means of assembly and/or interlocking, for the edges of any two adjoining panels (such as 1—3) and for the corresponding angle of the bottom (2) to join in such a manner as to form a rectangular trihedron serving as a means of support, of assembly, and of fixation on the one hand of a corner (C) for protection, and, on the other hand, of edge reinforcements acting as shock protection (L, V, T, and W) in the lengthwise, vertical, and crosswise directions, each reinforcement gripping the edge of a material (9) serving as an outer cover for the suitcase against the corresponding panel.

2. Suitcase according to claim 1, characterized by the fact that the elements or means of assembly and/or interlocking, with which the intermediary joining and consolidating pieces are provided, are of any known types, such as the dovetail type, the mortise joint type, the simple angle slip and tongue type, and analogous types.

3. Suitcase according to claim 1, characterized by the fact that the side panels and bottom of each part (lid and body) of the suitcase are made of any appropriate material such as metal, wood, plastic, conglomerate, reinforced fibre board, composite materials, and analogous materials, and can easily be changed.

4. Suitcase according to anyone of claims 1 to 3, characterized by the fact that the outer covering material is of any appropriate type, such as natural or synthetic fabric, paper, plastic sheet, leather, hide, and analogous types.