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[54] **TRAVEL CASES**
10 Claims, 4 Drawing Figs.

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16/136
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50, 28, 53, 53 P; 220/31 S; 16/136

ABSTRACT: A suitcase comprising a body shell and a lid shell which have, where they meet, interengaging portions shaped to interlock if the shells are distorted under load and so prevent separation of the shells. The shells may be mouldings with integral hinge leaves and assembled by inserting a hinge pin through the leaves.

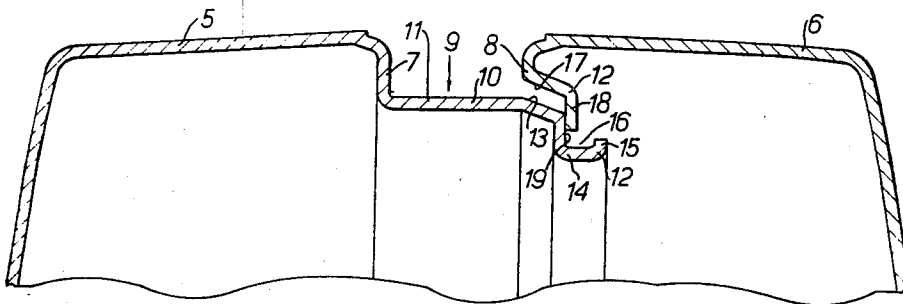
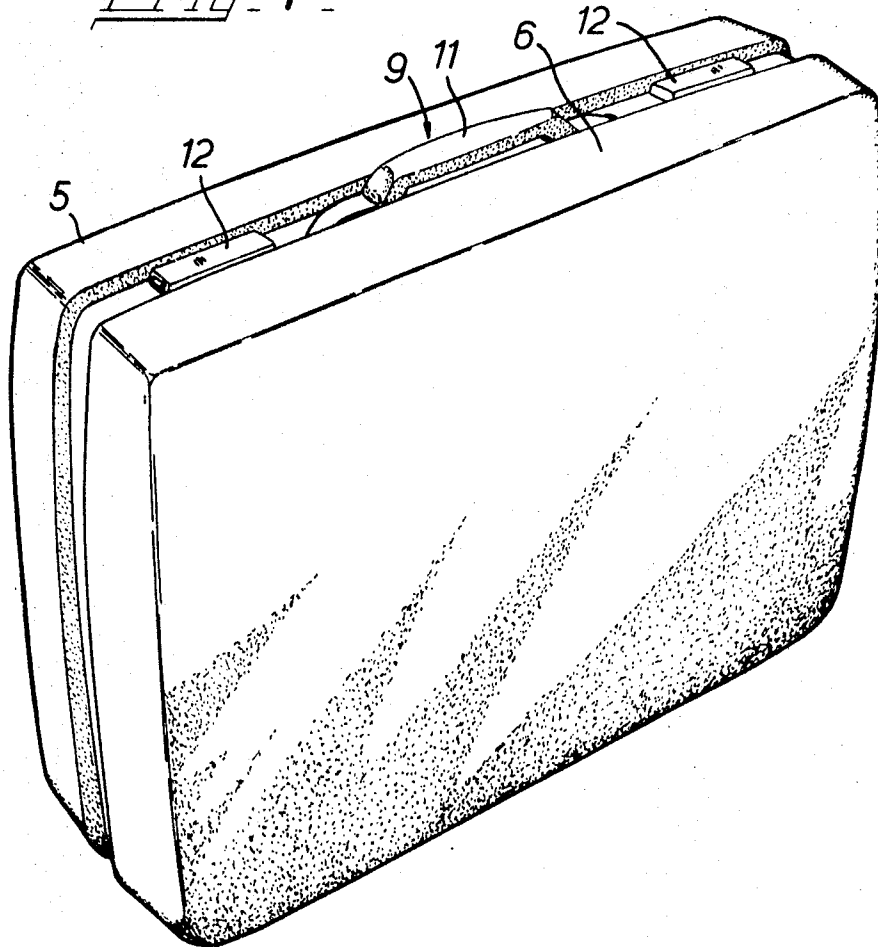


Fig. 1



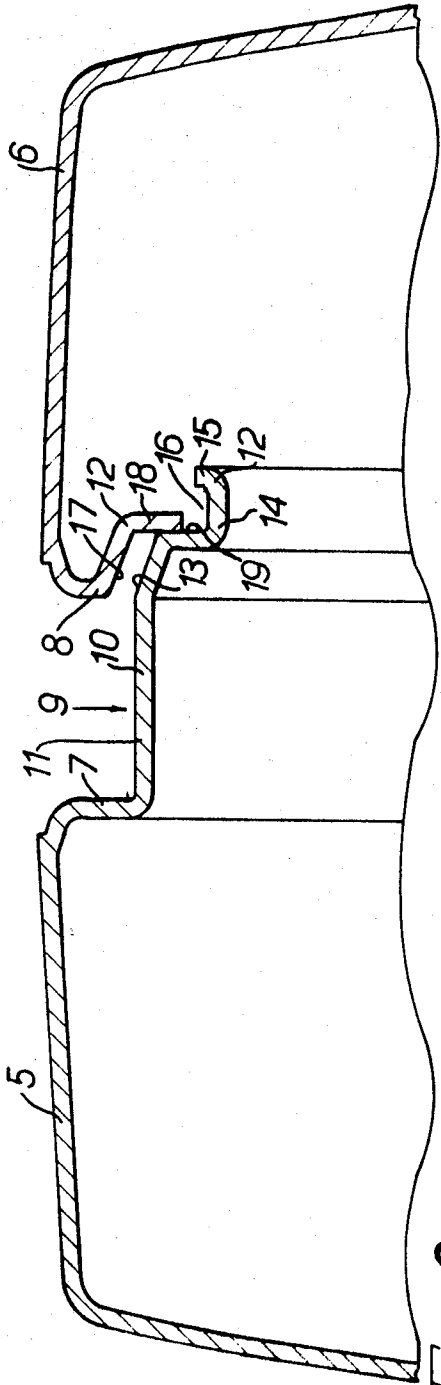
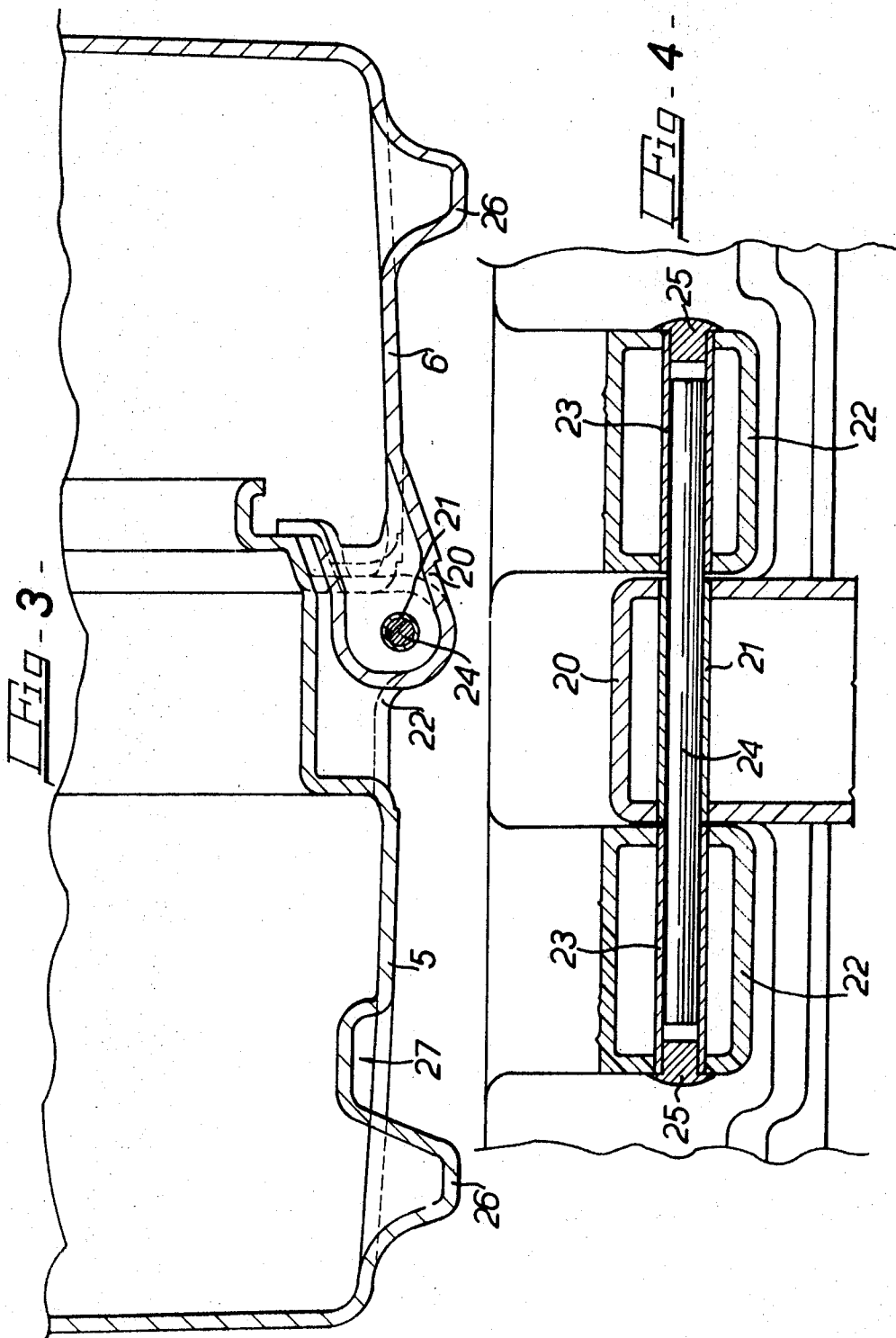


Fig - 2 -



TRAVEL CASES

This invention relates to travel cases such as suitcases of the kind comprising a body shell and a lid shell which close together with the edges of the peripheral walls of the two shells overlapping or abutting.

In some cases of this kind, particularly those in which the shells are not provided with strengthening frames at or near the edges of the peripheral walls, when the case is snatched up, or possibly merely lifted, by its handle there is a tendency for the adjacent edges of the shells to be separated, even when the case is locked, because of distortion of the shells with the result sometimes that the case bursts open. This separation of the edges of the shells can also occur because of distortion of the shells resulting from excessive filling of the case, or because the contents of the case are heavy, or as a result of the case being dropped or otherwise mishandled.

The present invention seeks to prevent or at least reduce the risk of this undesirable separation of the shells occurring.

According to the present invention there is provided a travel case comprising a body shell and lid shell, fastening means for retaining the shells in a closed condition, and, in the region of the edges of the peripheral walls of the shells which meet when the case is closed, complementary parts which are adapted in the event of the shells being distorted, to interlock to restrain the edges of the shells from separating in the direction in which the case opens.

The interlockable parts may be formed out of the material of which the shells are made, or they may be separate elements rigidly attached to the shells. The parts may be formed by opposed flanges, channelled or hooked members, or by cooperable flanged and channelled or hooked members, or by hooked members which cooperate with apertured or recessed members. The parts may take other suitable forms, if desired.

Preferably the parts are arranged so that they do not interlock when the shells are in a normal undistorted condition, and so will not interfere with normal opening and closing of the case. The parts may be provided at or near the edges of the peripheral walls of the two shells at that side only of the case on which the handle is provided, since the edges of these walls will usually be the most susceptible to separation. They may, however, also be provided on the other peripheral walls of the shells, if desired, including, where the shells are hinged together, the walls on the side of the case at which the shells are hinged together.

The interengageable parts may extend continuously along the or each peripheral wall of each shell, or they may be provided at spaced intervals along the walls.

A travel case in which the shells are hinged together may have a hinge formed by hinge leaves which are provided on each shell before the shells are assembled and are pivotally connected together after assembly of the shells by means of a hinge pin to complete the hinge.

The hinge leaves may be of plastics material or metal. Where they are of plastics material they are preferably provided with tubular metal inserts to receive the hinge pin.

The hinge leaves may be formed integrally with the shells or they may be separately made elements which are mounted in the appropriate positions before the shells are assembled.

By providing the hinge leaves on the shells before the shells are assembled so that it is only necessary to fit the hinge pin when the shells are assembled, assembly of the shells is made considerably simpler than it is with the conventional practice of securing the complete hinge to the assembled shells, which presents problems of accurately locating the shells in the desired relationship and of handling the shells while the hinge is secured in place.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of a travel case according to the invention,

FIG. 2 is a fragmentary cross-sectional view of part of the travel case of FIG. 1,

FIG. 3 is a fragmentary cross-sectional view through the bottom of the case, and

FIG. 4 is a fragmentary cross-sectional underside plane of the part of the bottom of the case shown in FIG. 3.

The travel case illustrated is a generally oblong rectangular suitcase which is formed by similarly shaped body and lid shells 5, 6 moulded from a synthetic plastics material. The shells are conveniently moulded by a rotational moulding process. Shells so produced are of substantially uniform wall thickness throughout.

The marginal portion of each of the four peripheral walls of the body shell is stepped inwardly from the rest of the wall to form a recessed portion 7 integral with the body shell 5 and the marginal portion of each of the peripheral walls of the lid shell is turned inwardly to form an interned flange 8. When the two shells are closed together the integral recessed portion 7 of the body shell and the flange 8 of the lid shell together define a continuous peripheral channel around the case where the two shells meet. The integral recessed portion 7 forms one side and a base 10 of the channel 9 and the flange 8 the other side of the channel 9. On the base of the channel at one of the longer sides of the base a handle 11 is mounted and a pair of locks 12 which are adapted to cooperate with tongue members (not shown) on the lid shell. The shells are hinged together at the bottom formed by the longer side of the suitcase opposite the handle 11, the hinges preferably being contained substantially within the peripheral channel 9 at that side of the suitcase so that they do not protrude, or protrude only slightly, beyond the main outline of the case. The hinged walls of the shells may be formed with outwardly protruding ribs, domes or other suitable formations which form feet or a base support of the case.

The integral recessed portion 7 has a marginal portion 13 extending from the base 10 of the channel towards the lid shell. The marginal portion 13 is inclined inwards. In a further extension 14 along the edge of the marginal portion 13 of each peripheral wall the body shell is stopped inwardly again near its free edge and the edge itself is turned outwards in a lip 15. The whole extension 14 is of V-shaped cross section forming an outwardly directed groove 16.

The flange 8 has a salient portion with an inner face 17 which, when the shells are closed together, overlaps externally the marginal portion 13. The inner face 17 is inclined complementarily to the marginal portion 13. In an extension 18 of the inner face 17 the flange is turned inwards again. The free edge of the extension 18 defines an opening identical in shape to but slightly larger than, the outline of the outward edge of the lip 15.

When the shells 5, 6 are hinged towards one another, provided that the shells are undistorted, the extension 18 passes freely over the edge of the lip 15 until the extension 18 abuts a shoulder 19 formed by the larger limb of the J-shaped cross section of the extension 14 limiting the closing movement of the shells. The shells are held in the closed condition by the locks 12, with the extension 18 abutting the shoulder 19. The inner face 17 of the salient portion by overlapping the marginal portion 13 locates the shells against relative lateral displacement and their complementary inclination assists interengagement should there be any misalignment or distortion of the lid or body shells.

The extension 18 of the flange 8, in the closed condition of the shells, is opposite and directed towards the opening of the groove.

If when the base is closed either one of the shells is caused to be distorted the resultant relative movement of the peripheral walls of the shells causes the groove 16 and the extension 18 of the flange at one or more of the peripheral walls of the body shell and lid shell to move into engagement, with the groove hooking around the edge of the extension 18, to prevent the edges of the shells separating. For example, if the case is snatched up or lifted when filled with heavy articles, at

least the wall of the body shell carrying the handle 11 will distort by bowing outwards to some extent. As this wall bows the groove 16 of its integral recessed portion 7 moves upwards with respect to the flange of the lid shell and hooks under the extension 18. The groove 16 can move laterally to some extent with respect to the flange but a limit to the lateral movement in the direction which would cause the edge of the body shell to separate from the edge of the lid shell is imposed by engagement of the lip 15 with the extension 18. The more the distortion of the or each shell tends to encourage the edges of the two shells to separate, the more tightly the groove 16 and extension 18 become interlocked. Thus the edges of the shells are prevented from separating so that the case cannot burst open.

Similar interlocking of the groove and extension 18 will occur if the shells are distorted by excessive filling of the case, or by dropping the case.

To hinge the shells 5 and together the lid shell 6 is formed with two spaced lugs 20 which project from the edge of the longer peripheral wall of the shell at the bottom of the case. The lugs are positioned near the ends of the wall. A tubular metal insert 21 is moulded into each lug. The inserts 21 of the two lugs are aligned with their common axis extending parallel to the edge of the peripheral wall. On the stepped marginal portion of its longer peripheral wall at the bottom of the case, the body shell 5 is formed during its moulding process with two spaced pairs of lugs 22 which are also disposed towards the ends of the peripheral wall so as to cooperate with the lugs on the lid shell when the two shells are assembled. The lugs 22 of each pair are parallel and spaced apart by a distance sufficient to enable a lug 20 of the lid shell to be received between them. A tubular metal insert 23 is moulded into each lug of the body shell. The inserts are coaxial with one another with their common axis extending parallel to the edge of the associated peripheral wall.

The lugs of the two shells constitute hinge leaves and, when formed in the course of a rotational moulding process are hollow and of substantially uniform wall thickness equal to that of the shells.

Upon assembly of the body and lid shells 5, 6 the two lugs 20 of the lid shell are located between the two pairs of lugs 22 on the body shell with their tubular metal inserts 21, 23 in alignment with the inserts in the body shell lugs. Thus when the shells are assembled there are two sets of cooperating lugs, each set comprising one lid shell lug 20 and two body shell lugs 22. A metal hinge pin 24 is fitted into the aligned inserts of each set of cooperating lugs to hinge the shells together. Each hinge pin 24 is slightly shorter than the combined length of the aligned inserts in the set of lugs it is fitted to, and the pin is fitted so that its ends are inset from the outer ends of the inserts of the two body shell lugs of the set. Plugs 25 are fitted into the ends of these two inserts to close off the inserts and retain the hinge pin in place. The plugs 25 may be secured in place in the inserts by an adhesive or in any other suitable way.

If desired, the outer end of the insert of one lug of each pair of body shell lugs may be closed off during the moulding process so that a plug will then only have to be fitted into one of the inserts of each set of lugs.

The lugs of the two shells are contained substantially within the depth of the peripheral channel 9 defined around the case where the assembled shells meet.

On that peripheral wall of each shell carrying the lugs 21, 22, an outwardly protruding hollow rib 26 is formed which extends longitudinally of the wall. These ribs provide a bottom support for the finished case. In order that the lid shell 6 can be opened to lie flat against the floor or other surface on which the body shell 5 is supported while the case is being

packed, the ribs 26 are so positioned that they will overlap one another when the shells are in this condition and a recess 27 is formed in the wall of one of the shells alongside the rib on that wall to receive the rib of the other shell. Instead of the ribs, domes or other suitable formations may be provided to form a base support of the case.

Instead of making the shells by a rotational moulding process they could be made by injection moulding or, provided that the tubular metal inserts 21 in the hinge lugs are omitted, by vacuum forming or blow moulding techniques.

We claim:

1. A travel case comprising a body shell and lid shell, fastening means for retaining the shells in a closed condition and, in the region of the edges of the peripheral walls of the shells which meet when the case is closed, complementary, interengageable parts which in the event of the shells being distorted are adapted to interlock to restrain the edges of the shells from separating in the direction in which the case opens.

2. A travel case according to claim 1 wherein the interengageable parts are formed integrally out of the material of which the shells are made.

3. A travel case according to claim 2 wherein the walls of the shells together with the interengageable parts are of substantially uniform thickness throughout.

4. A travel case according to claim 1 wherein the interengageable parts do not interlock when the shells are in a normal undistorted condition.

5. A travel case according to claim 1 wherein the interengageable parts extend continuously along the peripheral wall of each shell.

6. A travel case according to claim 1 wherein the interengageable parts are provided at a continuous peripheral channel defined around the case where the two shells meet.

7. A travel case according to claim 1 wherein the interengageable parts comprise an outwardly directed groove on one shell and an inwardly directed flange on the other shell, the flange, in the closed condition of the shells, being opposite and directed towards the opening of the groove.

8. A travel case according to claim 1 wherein each shell is a plastics moulding which has integral portions forming hinge leaves each provided with a tubular metal insert coaxial with the hinge axis and rigid with the associated leaf, the shells being hinged together after assembly of the shells by means of a hinge pin engaging the bores of the tubular inserts of adjacent leaves on the body and lid shells.

9. A travel case according to claim 8 wherein each of the integral leaf-forming portions are in the form of a lug defining an internal cavity around the tubular insert and between the tubular insert and the wall of the lug.

10. A travel case comprising a body shell and lid shell, fastening means for retaining the shells in a closed condition and, in the region of edges of the peripheral walls of the shells which meet when the case is closed, complementary, interengageable parts which, in the event of the shell's being distorted, are adapted to interlock to restrain the edges of the shells from separating in the direction in which the case opens, the interengageable parts comprising an outwardly directed groove on one shell and an inwardly directed flange on the other shell, the flange, in the closed condition of the shells, being opposite and directed towards the opening of the groove, the interengageable part having the outwardly directed groove being of J-shaped cross section, the longer limb of the J forming a shoulder against which the face of the flange abuts when the case is closed and the part of J-shaped cross section having an out-turned lip opposite the longer limb to form the outwardly directed groove.