(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 740 911 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.11.1996 Bulletin 1996/45

(51) Int. Cl.[6]: **A45C 5/02**

(21) Application number: **96106433.4**

(22) Date of filing: **24.04.1996**

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR LI LU MC NL PT SE

(30) Priority: **04.05.1995 IT BO950074 U**

(71) Applicant: **PLASTIMODA S.p.A.**
40057 Cadriano di Granarolo Emilia, Bologna (IT)

(72) Inventor: **Pomina, Franco**
24040 Bonate Sotto,(Bergamo) (IT)

(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano & Associati S.r.l.
Via Meravigli, 16
20123 Milano (IT)

(54) Frame for suitcases and the like

(57) The frame for suitcases and the like comprises two upper angular elements (3) and two lower angular elements (4) the width whereof is substantially equal to the width of the suitcase (2) to be produced. The angular elements (3,4) are adapted to be associated to each other at their respective ends, through appropriately provided snap-together coupling elements (8), at the centerline of longitudinal and vertically transverse sides of the frame (2).

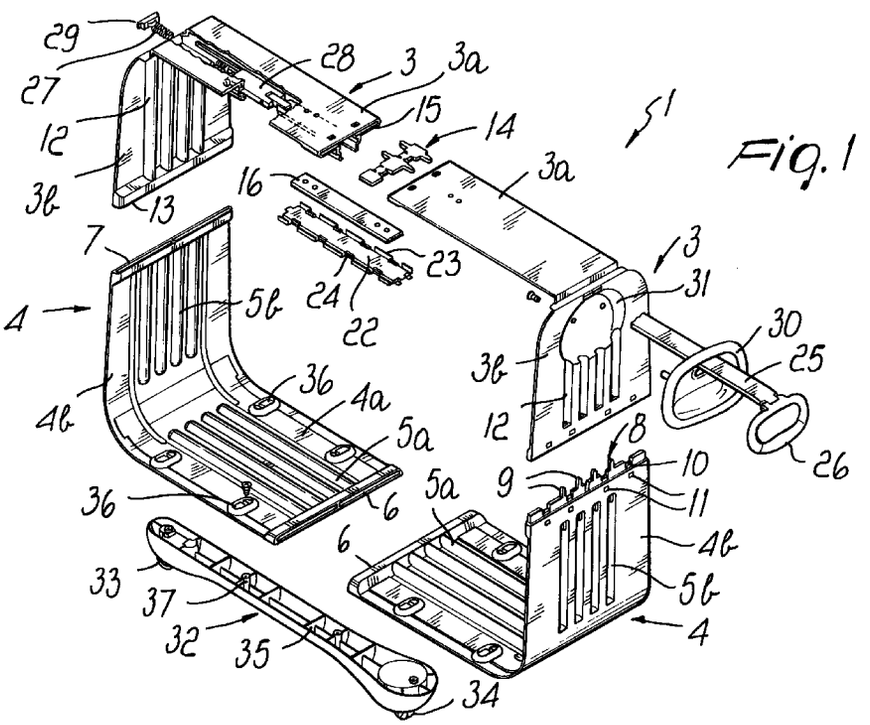

Fig. 1

EP 0 740 911 A2

Description

The present invention relates to a frame for suitcases and the like.

Suitcases made of flexible material are currently known which are internally provided with a frame that determines the shape of said suitcases. Said frame is substantially constituted by a plurality of elements made of plastics that are associated to each other according to an annular profile that determines the outline of the suitcase.

In particular, conventional frames are constituted by an upper panel and by a lower panel that are joined at their ends by two lateral uprights fixed by appropriate connecting elements, such as rivets and the like. Said upper and lower panels are practically as wide as the suitcase, whereas the uprights are generally narrower.

Said frames, however, do not offer assurances of high strength, both in relation to the load they can withstand and as regards any external stresses to which the suitcases may be subjected. A weaker region is constituted in particular by the lateral uprights that connect the upper and lower panels.

The fact is furthermore noted that said frames are poorly adapted to the production of similar suitcases in different sizes. In practice, it is necessary to resort to molds provided specifically for each individual size, with an evident limit to the possibility of varying the production range.

A principal aim of the present invention is to solve the above problem by providing a frame that is very sturdy and is adapted to allow, in a simple manner, the modular production of suitcases and the like in different sizes.

Within the scope of this aim, an object of the present invention is to provide a frame for suitcases that is simple in concept, safely reliable in operation, and versatile in use.

This aim and this object are both achieved, according to the invention, by the present frame for suitcases and the like, characterized in that it comprises two upper angular elements and two lower angular elements the width whereof is substantially equal to the width of the suitcase to be produced and are adapted to be associated to one another at their respective ends, by means of appropriately provided snap-together coupling elements, at the centerline of longitudinal and vertically transverse sides of said frame.

Further characteristics and advantages of the present invention will become apparent from the following detailed description of a preferred embodiment of the frame for suitcases and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is an exploded perspective view of the frame for suitcases according to the invention;

figure 2 is a longitudinal sectional view of an upper portion of said frame;

figure 3 is a perspective view of a suitcase produced by means of the frame according to the invention.

With particular reference to the above figures, the reference numeral 1 generally designates the frame for a suitcase 2 made of flexible material, particularly of the towable type.

The frame 1 is substantially constituted by two upper angular elements 3 and by two lower angular elements 4 produced by molding plastic material; said angular elements 3 and 4 are adapted to be associated to each other, by means of appropriate snap-together coupling elements, in practice at the centerline of longitudinal and transverse sides of said frame. Said longitudinal and transverse sides form an annular profile that determines the outline of the suitcase 2.

More particularly, the lower angular elements 4 are respectively constituted by an L-shaped profiled element, the width whereof is substantially equal to that of the suitcase to be produced; said profiled element includes a longitudinal portion 4a and a transverse or vertical portion 4b that are appropriately blended together along the profile of a circular arc. The portions 4a and 4b are longitudinally provided with a corresponding plurality of ribs 5a and 5b having a stiffening function and which are formed by corresponding grooves the concave region whereof is directed towards the outside of the frame.

The lower angular elements 4 form, at their opposite ends and along their transverse edges, respective seats 6 and 7 for inserting corresponding snap-together coupling elements 8; said seats 6 and 7 are constituted in practice by shallow pockets running along the entire width of the angular elements 4.

The coupling elements 8 are constituted respectively by appropriately shaped strips adapted to be inserted snugly in said seats 6 and 7 and having a plurality of transverse reinforcement pins 9, which protrude inside said slots that form the ribs 5a and 5b, and a plurality of teeth 10, which are adapted to engage, in a snap-together manner, corresponding holes 11 formed on said angular elements 4, at the seats 6 and 7.

In turn, the upper angular elements 3 are constituted respectively by an L-shaped profiled element having a narrower longitudinal portion 3a and a transverse or vertical portion 3b, said portions being joined so as to form a right angle. The transverse portion 3b is as wide as the lower angular elements 4, tapers slightly towards the longitudinal portion 3a, and has a similar plurality of ribs 12.

The transverse portions 3b of the upper angular elements 3 also form at their free ends, along the transverse edges, corresponding seats 13 for the insertion of said coupling elements 8. A similar smaller coupling element 14 is adapted to provide the snap-together connection of the longitudinal portions 3a of the angular elements 3, entering corresponding seats 15 formed at the ends of said portions 3a.

A reinforcement strip 16 is also longitudinally associated at said coupling region with the portions 3a and acts as an element for stiffening the fixing region of an appropriately articulated handle 17. The handle 17 is provided, at its ends, with coupling parts 18 adapted to be fixed to the frame 1 by means of conventional screw-like coupling elements, not shown, that pass through corresponding holes 19 and 20 formed in the upper angular elements 3 and in the reinforcement strip 16 (see figure 2 in detail).

The longitudinal portions 3a of the upper angular elements 3 are provided with a flat surface in an upward region and form, in a downward region and along the median axis, respective portions of a channel 21. Said channel 21 has, at said connecting region of the portions 3a of the angular elements 3, an opening that allows to install the handle 17 and is closed, in the configuration for use, by means of a sort of cover 22. The cover 22 has, along its longitudinal edges, respective shoulders 23 for engaging, in a snap-together manner, the sides of the channel 21 on the outside, and has a plurality of teeth 24 arranged at corresponding slots of the shoulders 23 which are adapted to engage from the inside said sides of the channel 21.

The channel 21 forms the seat for accommodating, when not in use, the stem 25 of a suitcase towing handle 26 that can be pulled out in contrast with a return spring 27 that is rigidly coupled to one end of said stem 25 by means of an articulated plate 28; the spring 27 is retained by a block 29 applied by pressing at the opening which is formed, at one end of the channel 21, on the portion 3b of a corresponding angular element 3.

The towing handle 26 is accommodated, when not in use, inside a dome 30 that is applied so as to close a compartment 31 formed on the portion 3b of the angular element 3 lying opposite to the element to which the stem 25 is elastically coupled. The dome 30 has a hole for the passage of the stem 25.

Finally, two strips 32 can be applied to the frame 1 in a downward region; each one of said strips is provided with two wheels 33 and 34, and the first wheel 33 conveniently has a fixed axis while the second wheel 34 is of the self-orientating type.

The strips 32, only one whereof is shown in figure 1, have an appropriately concave shape that is internally provided with a plurality of stiffening ribs 35; said strips can be applied to the frame 1 by means of conventional screw-like elements that pass through appropriate seats 36 formed in the longitudinal portions 4a of the lower angular elements 4 and screw in corresponding sleeves 37 formed by said strips 32.

The angular elements 3 and 4 can therefore be joined to each other, so as to form the frame 1, quickly and easily by means of the coupling elements 8 and 14. Said coupling elements 8 and 14 are in fact inserted in the corresponding seats 6, 7, and 15 formed by the angular elements 3 and 4 and engage in a snap-together manner therewith by means of the corresponding teeth 10.

It should be noted that the assembly of the frame requires no screw-like coupling elements except those required to fix the reinforcement strip 16, the dome 30, and the strips 32 that support the wheels 33 and 34.

The frame thus provided is very strong, since it is constituted in practice by a continuous annular band the width whereof is substantially equal to that of the suitcase to be provided.

Furthermore, thanks to the degree of flexibility of the angular elements, particularly the lower ones, the frame is capable of elastically absorbing considerable stresses without undergoing permanent deformations.

Another advantage provided by the frame according to the invention resides in the fact that it allows the modular production of suitcases of different sizes. It is in fact possible to act simply on the molds used to produce said angular elements so as to change their dimensions.

In the practical execution of the invention, the materials employed, as well as the shapes and the dimensions, may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Frame for suitcases and the like, characterized in that it comprises two upper angular elements (3) and two lower angular elements (4) the width whereof is substantially equal to the width of the suitcase to be produced and which are adapted to be associated to each other at their respective ends, through appropriately provided snap-together coupling elements (8), at the centerline of longitudinal and vertically transverse sides of said frame (2).

2. Frame according to claim 1, characterized in that said angular elements (3,4) have, at their ends, along their transverse edges, respective pocket-shaped seats (6,7,13) that run along the entire width of said angular elements (3,4) and are adapted for the insertion of said snap-together coupling elements (8).

3. Frame according to claim 1, characterized in that said coupling elements (8) are constituted respectively by strips that are shaped appropriately and are adapted to be inserted snugly in corresponding seats (6,7,13) shaped at the adjacent ends of said angular elements (3,4) and have a plurality of teeth (10) adapted to engage, in a snap-together manner, corresponding holes (11) formed on said angular elements, at said seats.

4. Frame according to claim 1, characterized in that said upper angular elements (3) are constituted respectively by an L-shaped profiled element having a narrower longitudinal portion (3a) and a vertical or transverse portion (3b), said portions (3a,3b) being joined so as to form a right angle.

5. Frame according to claim 1, characterized in that said upper angular elements (3) are provided with respective longitudinal portions having a flat surface in an upward region and forming, in a downward region, along the median axis, respective portions of a channel (21) adapted to form the seat for accommodating, when not in use, the stem (25) of a suitcase towing handle (26) that can be pulled out in contrast with elastic return means (27) that are rigidly coupled to one end of said stem (25) and are retained on a corresponding upper angular element (3).

6. Frame according to claim 5, characterized in that said towing handle (26) is accommodated, when not in use, inside a dome (30) that is applied so as to close a compartment (31) that is shaped on a transverse or vertical portion (3b) of a corresponding upper angular element (3) that is opposite to the element (3) to which said stem (25) of the towing handle (26) is elastically coupled.

7. Frame according to claim 1, characterized in that two strips (32) can be applied in a downward region to said lower angular elements (4), each strip (32) being provided with two wheels (33,34), the first wheel (33) having a fixed axis and the second wheel (34) being of the self-orientating type, said strips (32) being concave and being internally provided with a plurality of stiffening ribs (35) that form sleeves (37) for screwing screw-like elements for connecting said strips to said angular elements (4).

8. Frame according to claim 1, characterized in that said lower angular elements (4) are constituted respectively by an L-shaped profiled element having a longitudinal portion (4a) and a transverse or vertical portion (4b) that are appropriately blended along the profile of a circular arc.

9. Frame according to claim 1, characterized in that said angular elements (3,4) are longitudinally provided with a plurality of stiffening ribs (5a,5b,12) formed by corresponding grooves the concave part whereof is directed towards the outside of said frame.

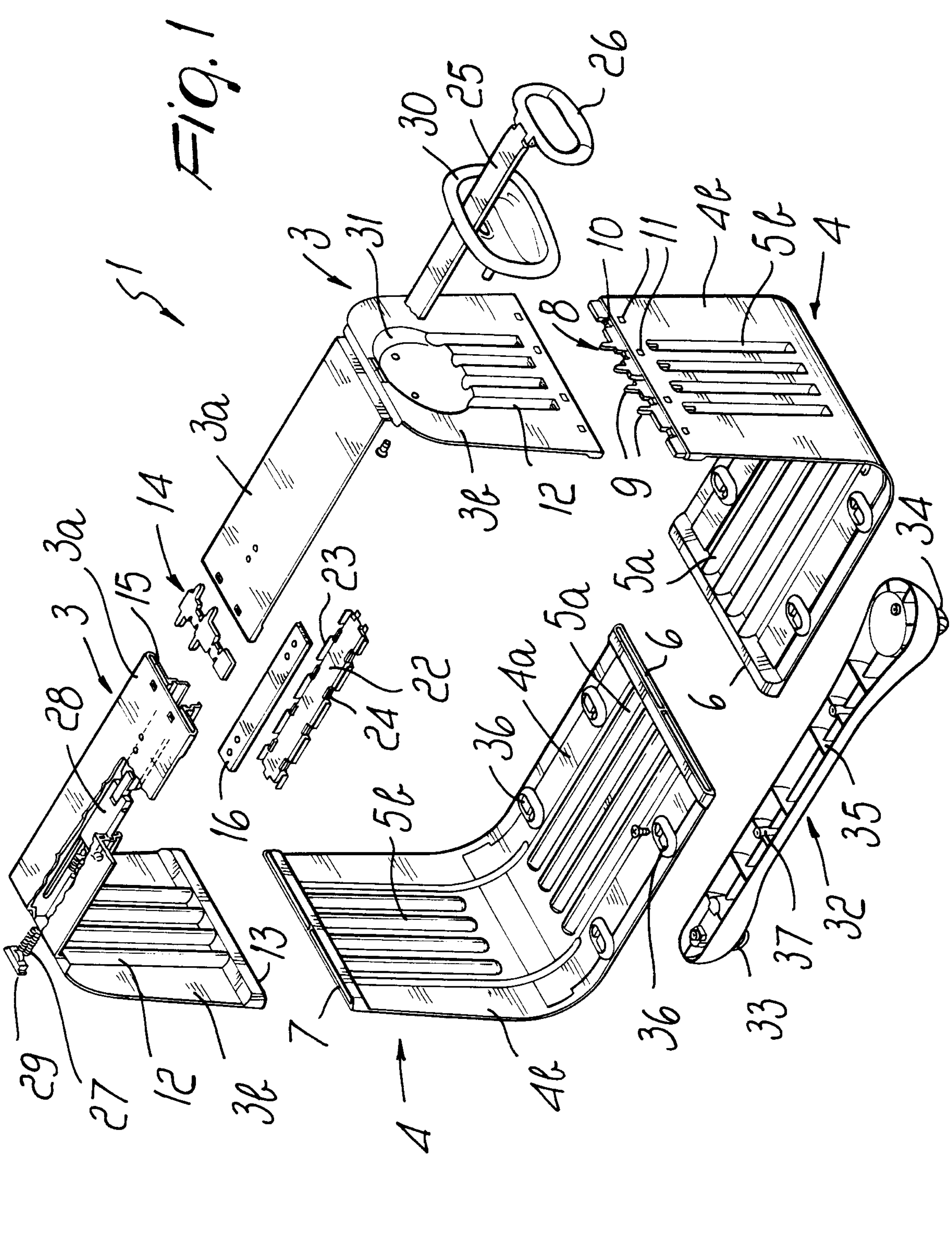
Fig. 1

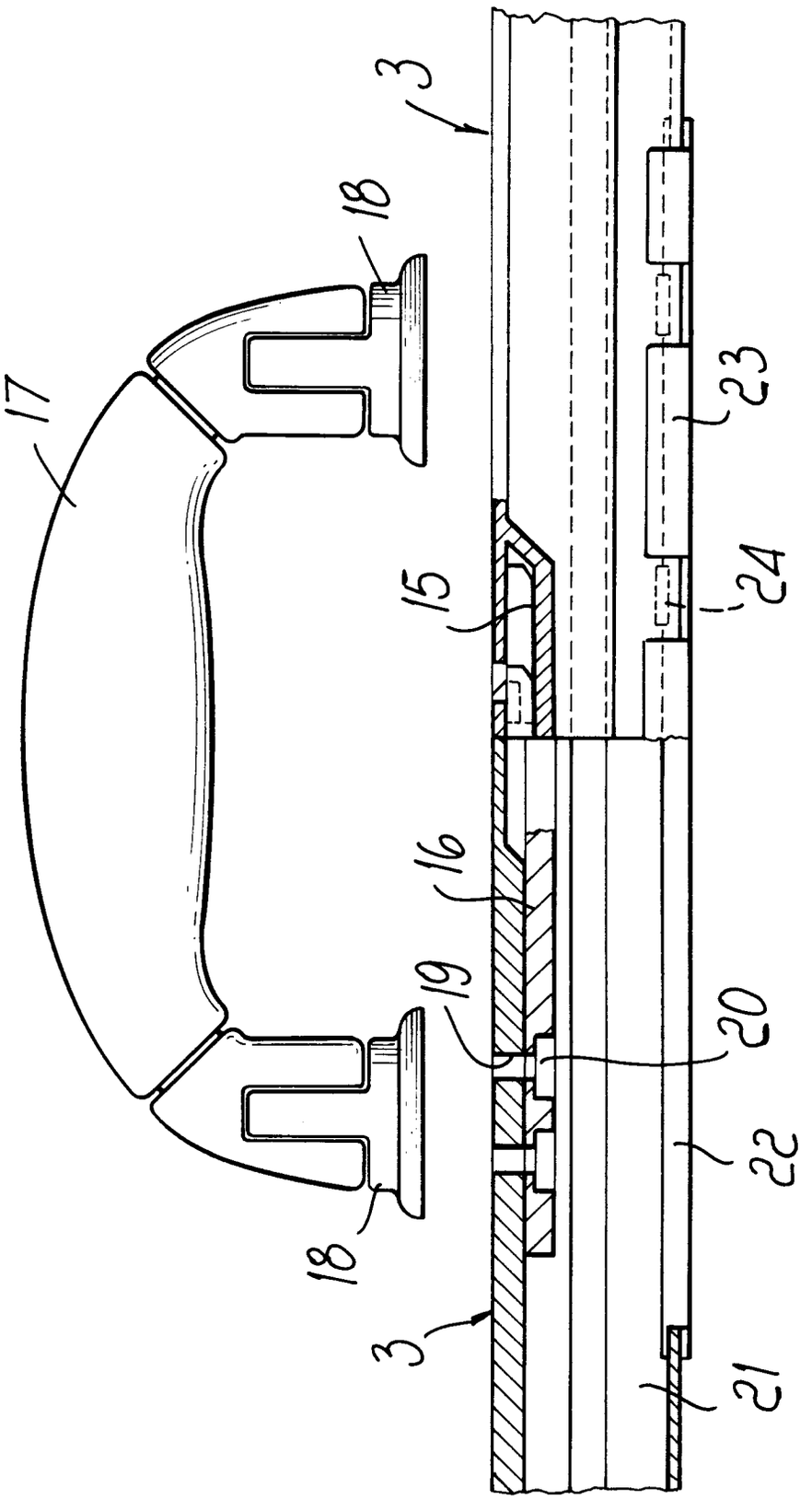

Fig. 2

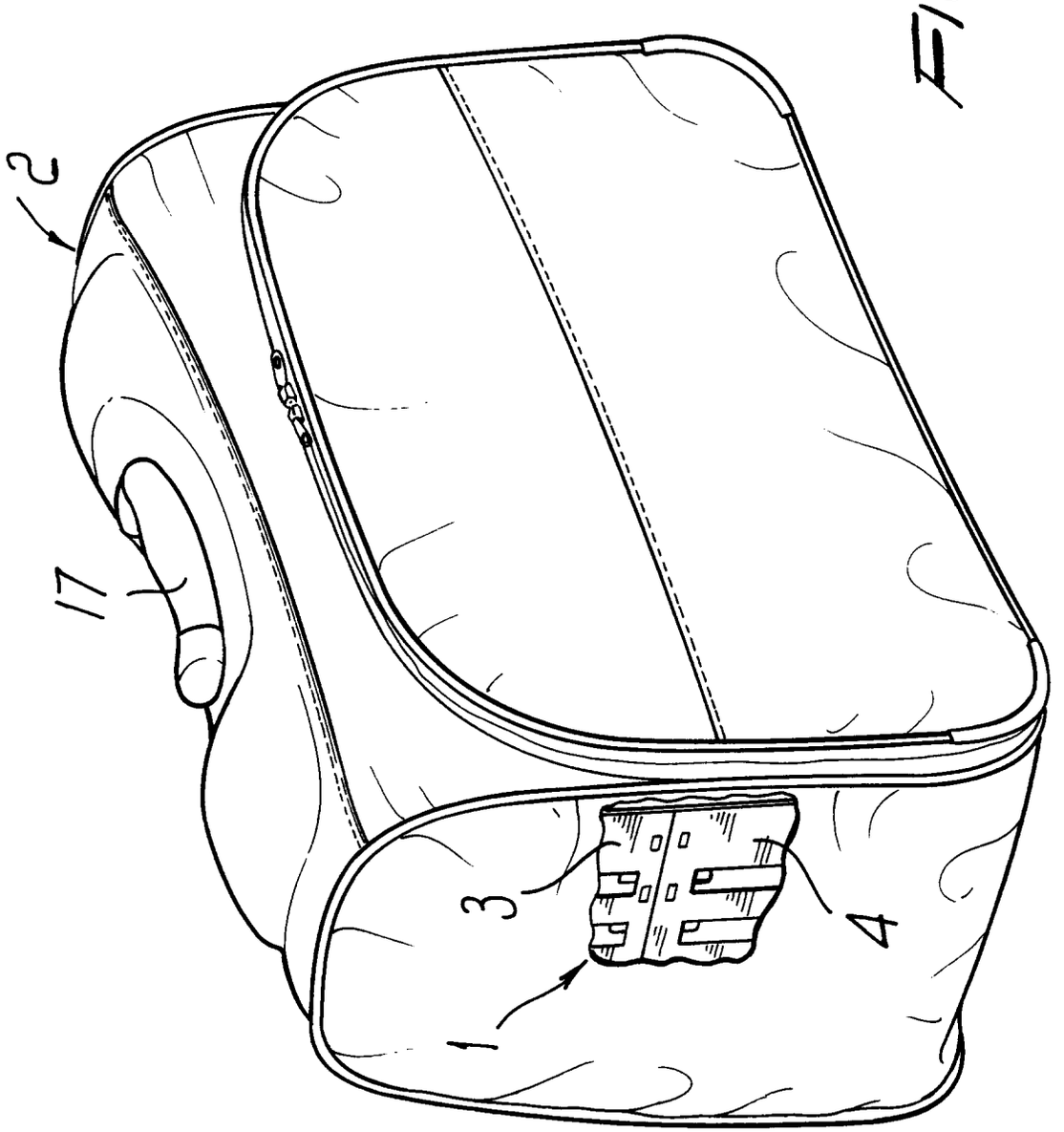

Fig. 3