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(54) Device for mounting wheels of different type on the shell of a pull-along suitcase

(57) Device for mounting wheels (15, 22) of different types on the shell (1) of a pull-along suitcase in which the wheels are mounted on corresponding supports (9, 16, 21) provided with a corresponding configuration and dimensions and the shell (1) of the suitcase has seats (6) having a perimeter profile and dimensions matching

those of the support for at least one of the types of wheels (22). The device comprises an adapter member (9) having a perimeter profile (8) suitable for a seat (6) having a profile and dimensions to receive a support (21) with a pivoting wheel (22) and shaping it so as to receive a support (9, 16) for a fixed axle wheel (15).

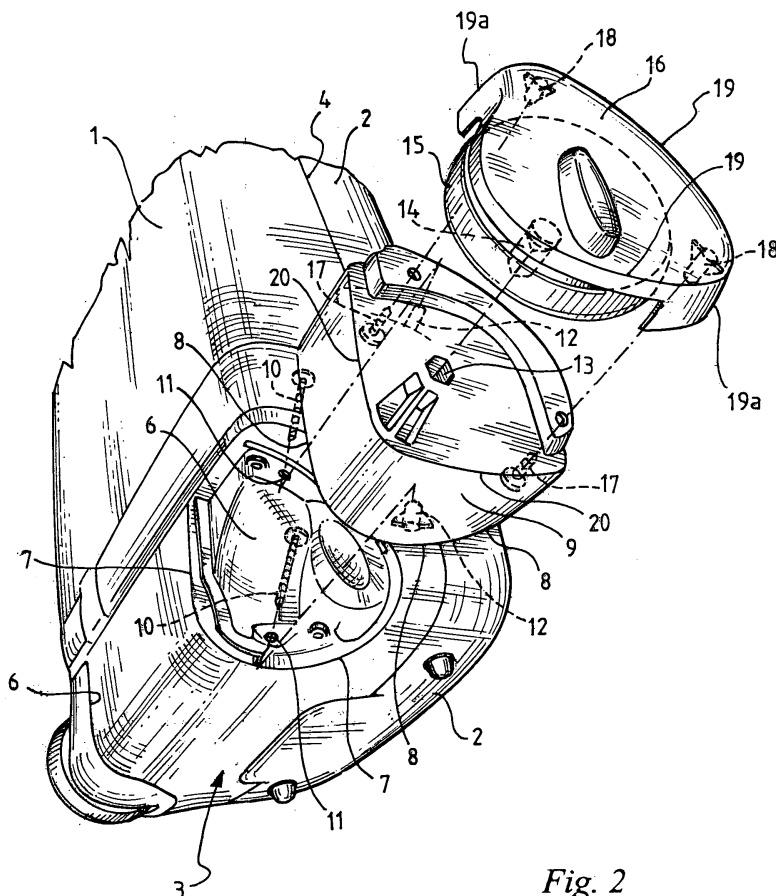


Fig. 2

Description

[0001] This invention relates to a device for mounting wheels of different type on the shell of a pull-along suitcase in which the wheels are mounted on corresponding supports of corresponding configuration and size, and the shell of the suitcase has seats of a perimeter profile and size matching those of the support for at least one of the types of wheels.

[0002] Devices of the type mentioned above are known in the suitcase manufacturing industry, particularly those having shells moulded from rigid plastics materials.

[0003] According to the known art, the wheels which are fitted to the shell of the suitcase are mounted on corresponding supports, also moulded from plastics material, which are normally of the same type as that from which the shell is moulded, and they are fitted to the suitcase by attaching the support to the shell.

[0004] According to such known art, the shell of the suitcase is moulded forming suitable seats in the areas where the wheels are to be mounted and these seats are shaped with a profile and dimensions such as to receive the support for the specific wheel.

[0005] As is known, suitcases of the abovementioned type may be fitted with wheels of the pivoting type or with wheels of the fixed axle type according to the needs and the models required by the market.

[0006] Because of their size and the manner in which they function, such wheels require supports of different dimensions and configurations for each type of wheel.

[0007] This circumstance makes it necessary to provide different seats in the shell of the suitcase according to the type of wheel, pivoting or fixed axle, which it is intended to fit, with the consequence that it is necessary to mould at least two different types of shells. This means that it is necessary to have at least two sets of different moulds available, with an obvious adverse effect on production costs.

[0008] The object of this invention is to provide a device for fitting wheels to the shell of a suitcase of the pull-along type which makes it possible to mould a shell provided with only one type of housing seat for the wheel supports which, at the same time, allows the fitting of wheels of the pivoting type and wheels of the fixed axle type depending upon requirements and the models required.

[0009] This object is accomplished through the device in claim 1 below.

[0010] The invention will now be more particularly described with reference to a practical embodiment which is provided purely by way of illustration and without restriction in the appended drawings, in which:

- Figure 1 shows a diagrammatical perspective view of the base of a pull-along suitcase to which wheels of the fixed axle type have been fitted using the device according to the invention,
- Figure 2 shows a diagrammatical perspective view of the base of the suitcase in Figure 1, in which the

device for fitting one of the wheels according to the invention is illustrated in an exploded manner,

- Figure 3 shows a diagrammatical perspective exploded view of a part of the device according to the invention,
- Figure 4 shows a view of the device in Figure 3 in exploded perspective from a different point of view,
- Figure 5 shows a diagrammatical perspective view of the base of a pull-along suitcase to which wheels of the pivoting type have been fitted using the device according to the invention,
- Figure 6 shows a diagrammatical perspective view of part of the base of the suitcase in Figure 5 in which the device for fitting one of the pivoting wheels according to the invention is illustrated in an exploded manner,
- Figures 7 and 8 show the support for a wheel of the pivoting type according to the invention in perspective from different viewpoints.

[0011] With reference to the abovementioned figures, 1 and 2 indicate the rigid shells of a suitcase of the pull-along type moulded from conventional plastics material. These are partly illustrated, in a view from the base 3 of the suitcase, sufficiently for an understanding of the device according to the invention. The junction line for the opening and closing of shells 1 and 2 is indicated diagrammatically by 4. The pair of wheels 5, which in the illustration in Figure 1 are of the fixed axle type, is fitted to the base 3 of the suitcase using the device according to the invention.

[0012] As illustrated in Figure 2, base 3 of the suitcase provides a corresponding seat 6 in the form of a niche made by moulding together with shell 1 in the position to which wheels 5 are to be fitted.

[0013] Each seat 6 is provided with a perimeter portion 7 which mates with a first portion 8 of the perimeter of an adapter member 9 which has a geometrical configuration corresponding to that of seat 6 in which the housing is located. This adapter member 9 is fixed in seat 6 through screw members indicated by 10 which passing through holes 11 provided in the base of seat 6 engage corresponding threaded seats 12 provided in the body of adapter member 9.

[0014] On adapter member 9, a fixed pin 14 which is secured in position by a screw 14a, on which wheel 15 is rotatably mounted in a conventional way, is inserted into seat 13. A sealing cover 16 is fitted onto wheel 15 and fixed to underlying adapter member 9 through a pair of fixing means, such as for example screws 17 and corresponding seats 18. Sealing cover 16 has a perimeter 19 which mates with a second perimeter portion 20 of adapter member 9 and a perimeter 19a which corresponds to portion 7a of the perimeter of seat 6 which is not occupied by adapter member 9.

[0015] Joining cover 16 and adapter member 9 together as illustrated in Figures 3 and 4 forms a single supporting body for wheel 15 which is completely housed in

seat 6.

[0016] With reference now to Figures 5 to 8, it will be seen that a support 21 for a wheel 22 of a pivoting type, which is in itself conventional, is housed in that seat 6 as an alternative to adapter member 9 and cover 16 for a fixed axle wheel 15. This rotates about a pin 23 borne by a fork support 24 which is in turn rotatably mounted in support 21.

[0017] In the embodiment illustrated in the drawings, support 21 is particularly shaped in the form of a bell in which the concave part 21a is housed in fork 24 with corresponding wheel 22.

[0018] Perimeter 25 of bell support 19 has a shape and dimensions such that it can mate with the perimeter of seat 6.

[0019] According to the device according to the invention it is therefore possible to construct a single type of shell for the suitcase, with a single type of seat for housing the wheel support, and at the same time make it possible to fit fixed axle wheels or, as an alternative, wheels of the pivoting type to the suitcase, all with appreciable savings in manufacturing costs.

[0020] Dimensions and materials may be of any nature according to requirements without thereby going beyond the scope of this invention as described above and claimed below.

Claims

1. Device for mounting wheels (15, 22) of different types on the shell (1) of a pull-along suitcase in which the wheels are mounted on corresponding supports (9, 16, 21) provided with a corresponding configuration and dimensions and the shell (1) of the suitcase has seats (6) having a perimeter profile and dimensions matching those of the support (21) for at least one of the types of wheels (22), **characterised in that** it comprises an adapter member (9) provided with a perimeter profile suitable for shaping and dimensioning the said seat (6) to the profile and dimensions of the support (9, 16) for another type of wheel (15).
2. Device according to claim 1, **characterised in that** the said seats (6) of the shell (1) of the suitcase have a perimeter profile and dimensions corresponding to those of a support (21) for a wheel of the pivoting type (22).
3. Device according to claims 1 and 2, **characterised in that** the said adapter member (9) comprises a first portion (8) having a profile which mates with a corresponding first portion (7) of the profile of the said seats (6) provided on the shell (1) of the suitcase and a second portion (20) having a profile which mates with a corresponding portion (19) of the profile of a cover (16) enclosing a wheel of the fixed axle

type (15), the remaining profile (19a) of the cover (16) mating with the remaining portion (7a) of the profile of the said seats (6) provided in the shell (1) of the suitcase which is not engaged by the profile of the said adapter member.

4. Device according to claims 1 to 3, **characterised in that** the support for a wheel of another type is a support (9, 16) for a wheel having a fixed axle (15).

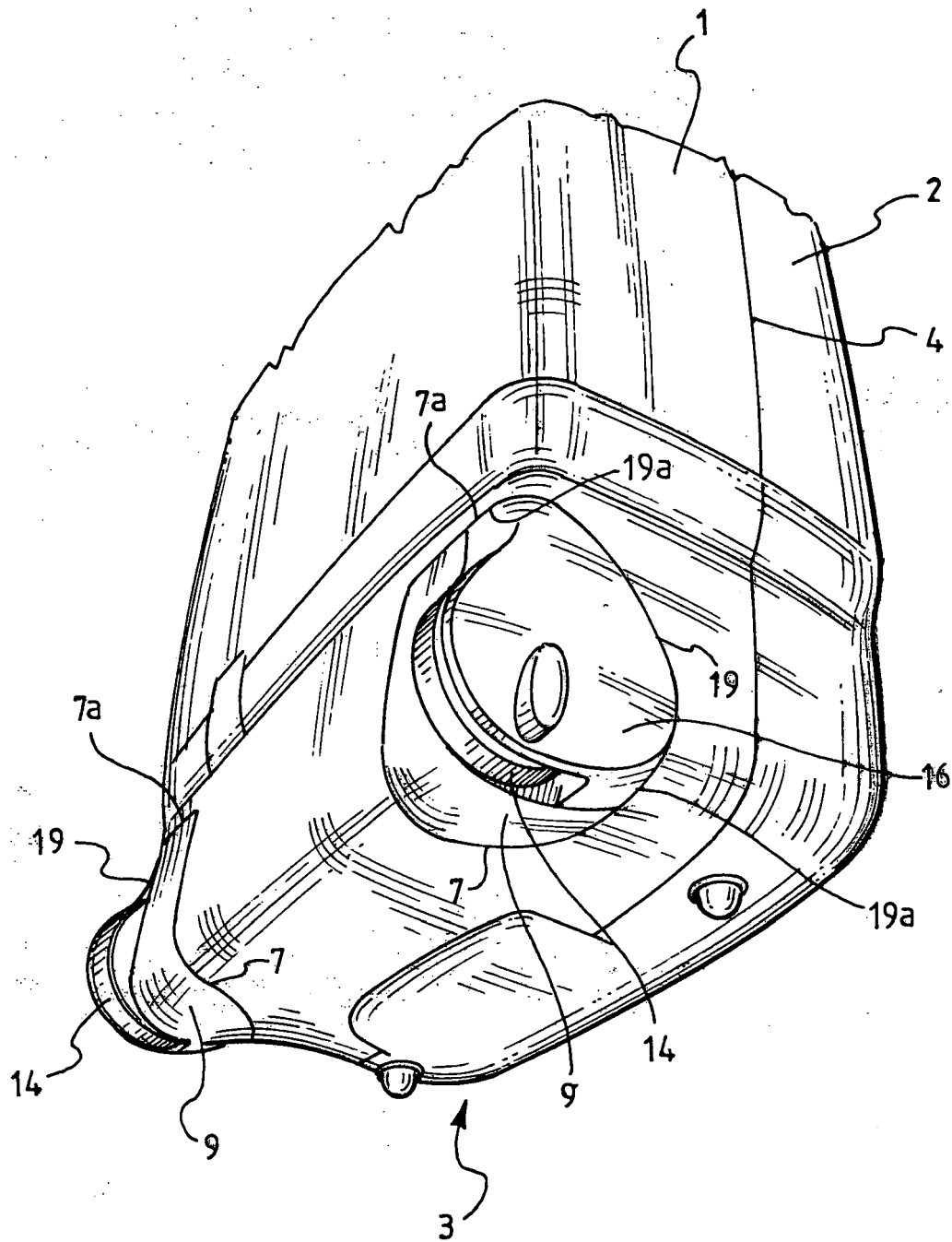


Fig. 1

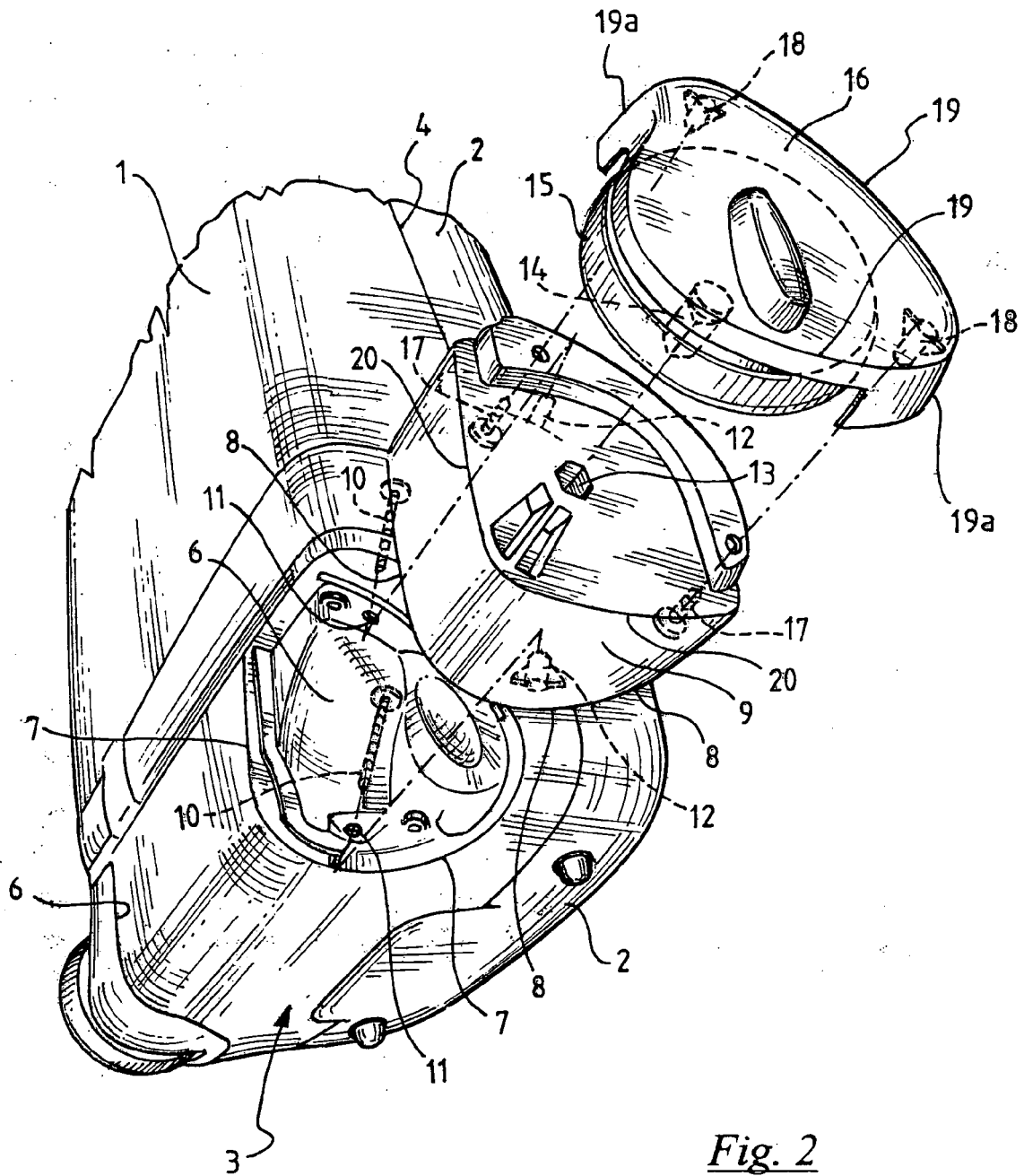


Fig. 2

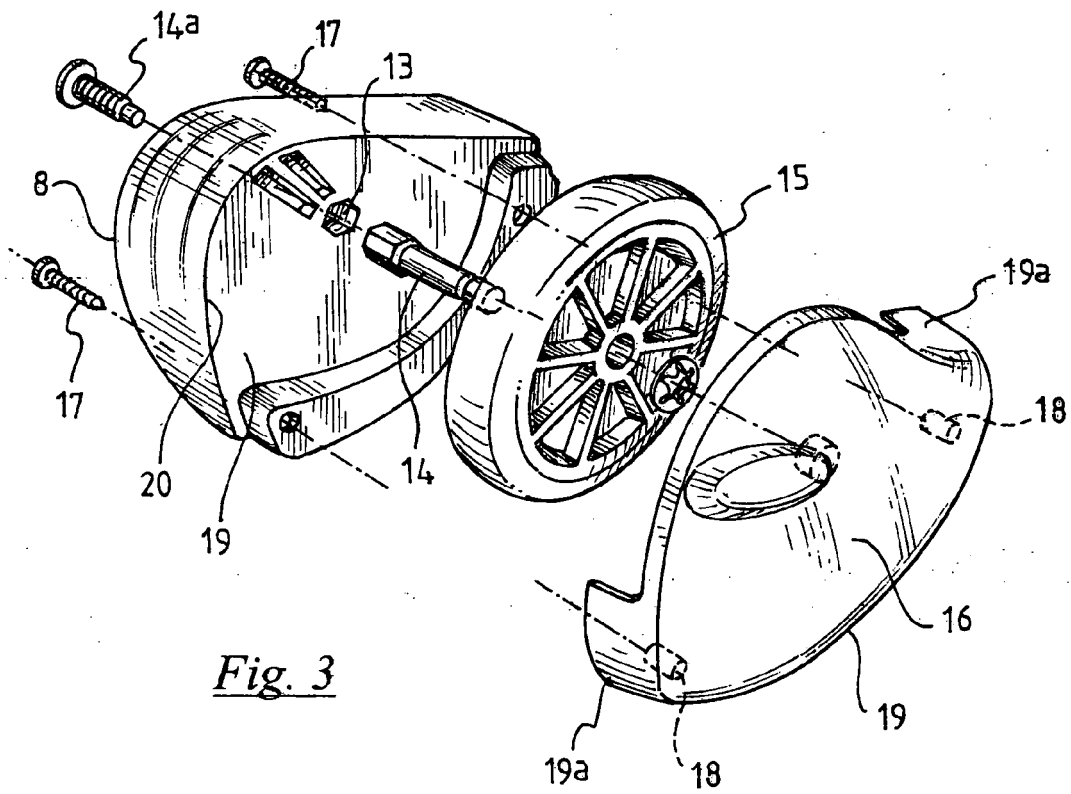


Fig. 3

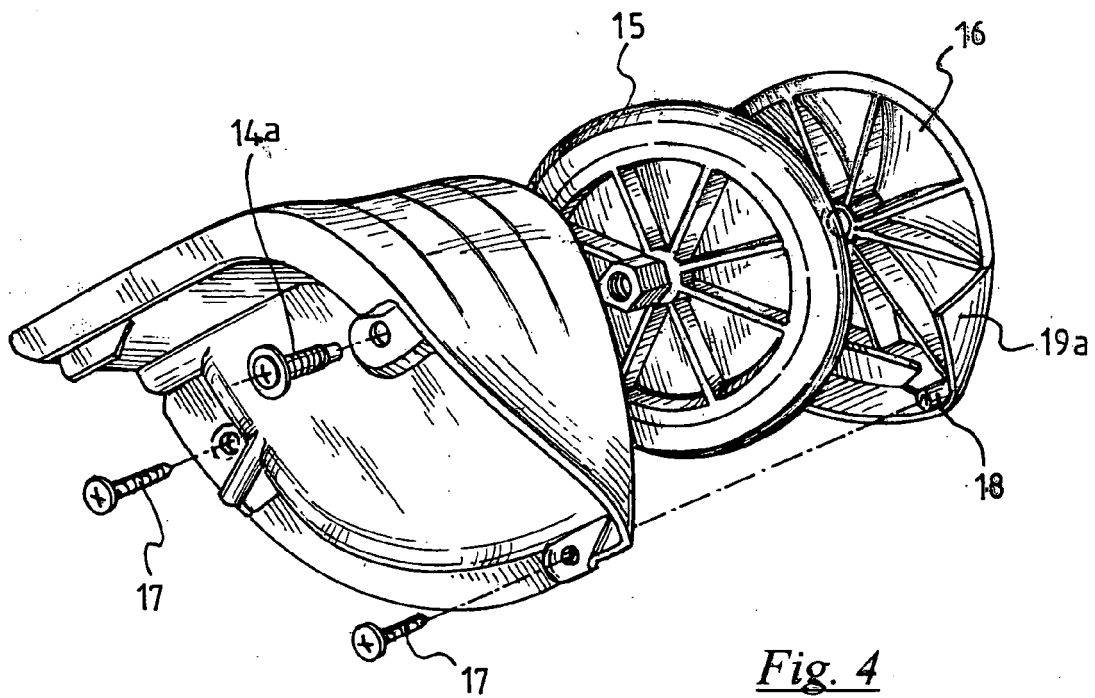


Fig. 4

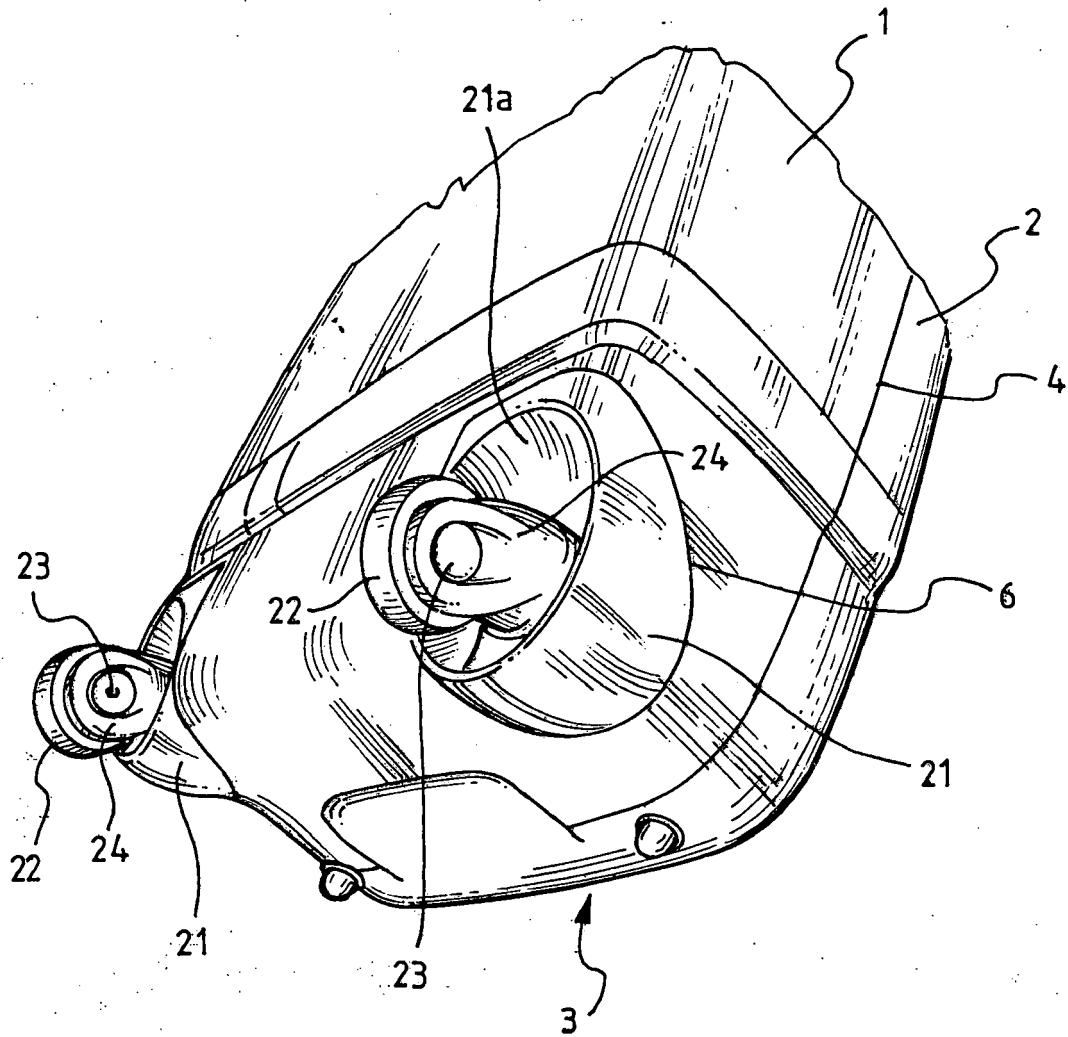


Fig. 5

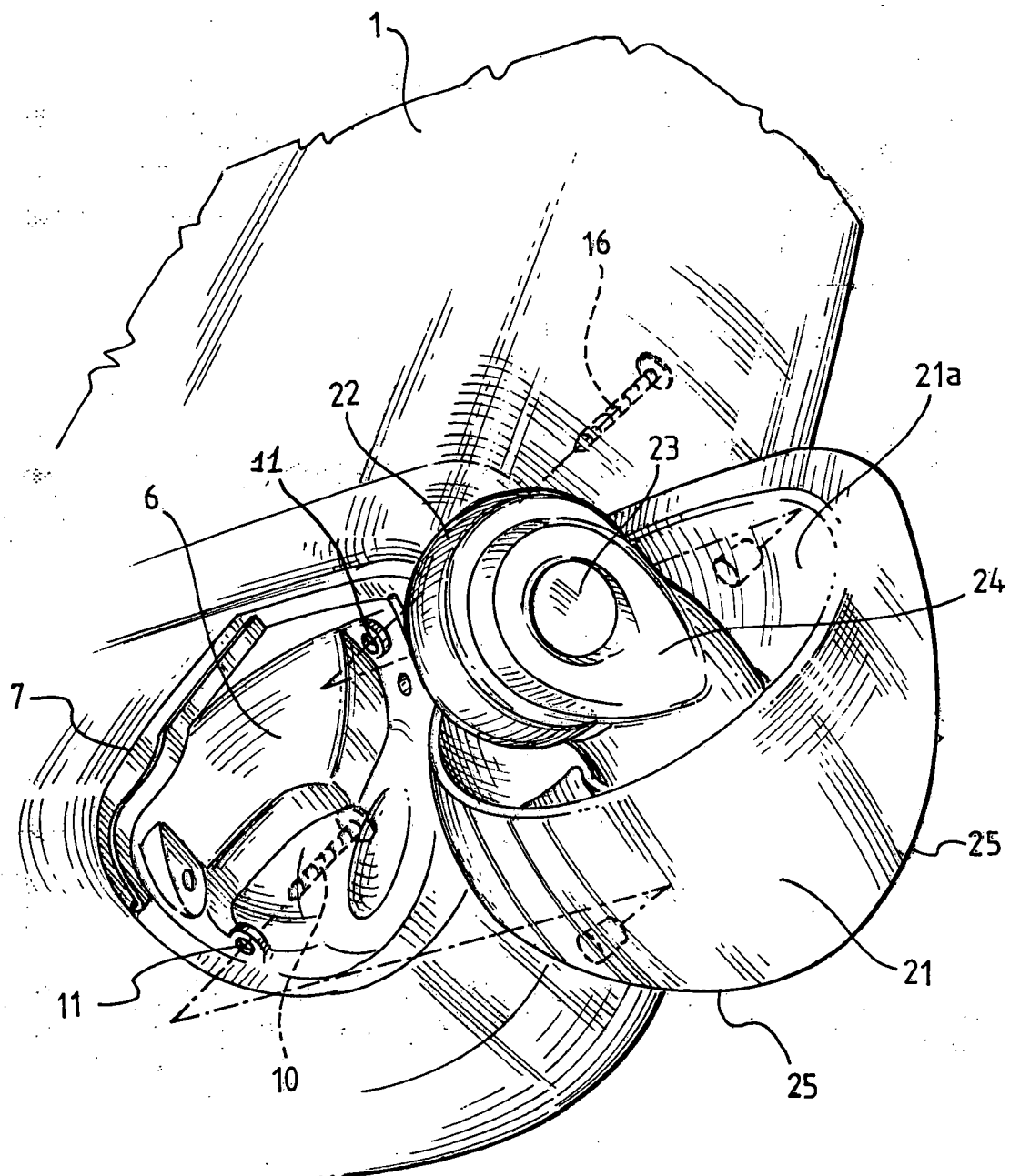


Fig. 6

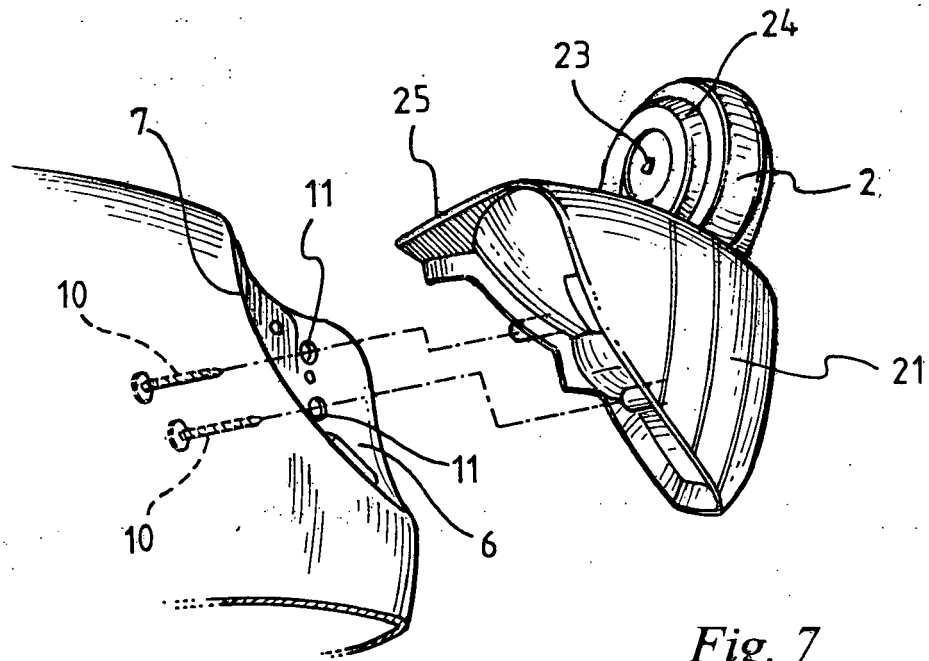


Fig. 7

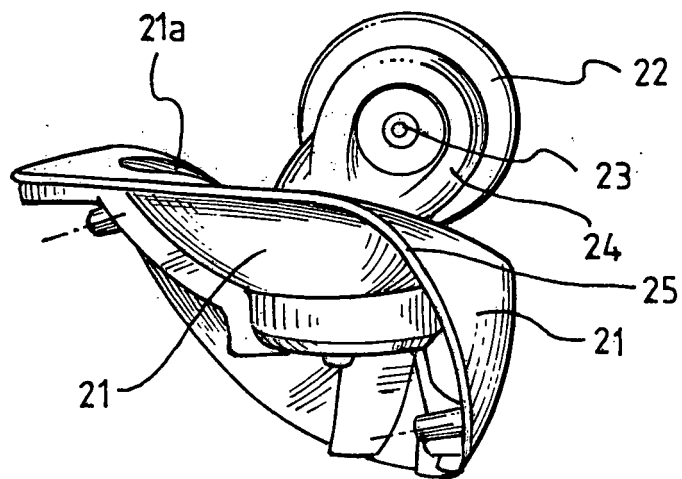


Fig. 8



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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 November 2005	Examiner Herry, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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