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(54) **Wall-supported waste container for public transport means, such as railway vehicles**

(57) Waste container for wall installation in public transport means, such as railways vehicles, comprising an outer case (1) having an opening (1a) with a lid (2) and a cup (3) housed within said case (1) and slidably connected to it to enable its removal, characterized in that in said case an elastic support (20-23, 25-26) for said cup (3) is provided which can assume a contracted condition, in which cup (3) is fully retracted in said case (1), and an extended condition, in which said cup (3) partially extends therefrom, means (9, 16) being provided for locking the sliding of said cup (3) from said retracted condition to said extended condition operable from the outside of said case.

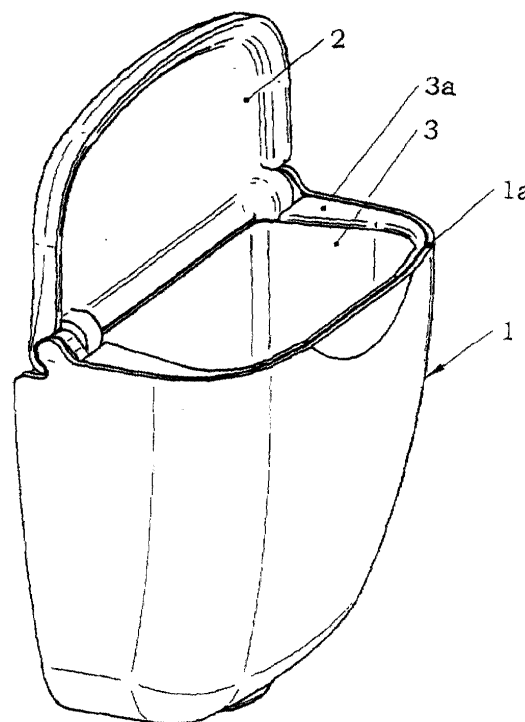


Fig. 1

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## Description

**[0001]** The present invention relates to a container for waste collection suitable to a wall installation in public transport means such as railway vehicles.

**[0002]** Various types of containers for the collection of small waste products, ash or cigarette stubs and the like the user can produce while resting on a public means are known. A widespread type of container of this type consists of a cup provided with a lid and pivotally fixed to a wall at the bottom thereof so as to allow a quick and easy emptying by upsetting. Another type of waste container intended for the same use is formed by an outer case, equipped with a lid and fixed to a wall, containing a cup which can be extracted from the case for the periodic operation of emptying and cleaning.

**[0003]** The waste containers of the above described type, like other similar ones presently in use, are subject to vandalism acts because of their structure: for example, the upsettable container can be overturned by the passengers, sometimes even accidentally, causing the waste contained therein to fall on the floor of the transport means. Likewise, the extractable cup unless properly made integral to the outer case (for example, by means of a metallic rope), can be removed and, in any case, can be unduly emptied of its content sailing the floor and the surrounding furnishing.

**[0004]** Furthermore, cup extraction has proven very uncomfortable for the cleaning staff which can put their fingers inside it, thus coming into contact with the waste contained therein, with possible risks, for example, due to the presence of cutting pieces or siringe needles.

**[0005]** It is therefore deeply felt the need for a wall-supportable waste container for public transport means, such as railway vehicles, with such a structure to ensure a sufficient resistance to vandalism acts and at the same time suitable of being easily emptied with no risk for the cleaning staff of coming into contact with the waste contained therein.

**[0006]** Therefore the purpose of the present invention is to provide a wall-supported waste container for public transport means such as, for example, railway vehicles, which allows to overcome the above mentioned drawbacks of the waste containers for the same destination of the known type.

**[0007]** The above objects and other ones which will be apparent from the following description are achieved with the waste container according to the present invention which is of the type comprising an outer case with an opening and a lid thereof and a cup housed within said case and slidably connected thereto so as to be removed. In the case an elastic support for the cup is provided which can be arranged in a contracted condition, in which the cap is fully retracted within the case, and an extended condition, in which the cup partially extend therefrom, and means for locking the cup sliding from the retracted condition to the extended condition are provided, operable from the outside of the case.

**[0008]** According to a preferred embodiment, the locking means comprise reversible connection means of the male-female type between cup and case elastically kept in an engaged condition and operating means accessible from the outside of the case to disengage the reversible connection means by overcoming the elastic reaction thereof. In particular, the elastic support of the cup comprises a plane holding on elastic means interposed between the plane and the case.

**[0009]** In this way, by actuating the operating means with a suitable tool which the cleaning staff is provided of, the cup can be disengaged from its case. The elastic support on which the cup is placed can exert a push action thereon to arrange it in a partially protruding condition from the case and hence easily drawable therefrom.

**[0010]** Further features and advantages of the waste container according to the present invention will be clearer from the following description of an embodiment thereof, made with reference to an exemplifying, non-limiting embodiment with reference to the attached drawings, in which:

- figure 1 is a side perspective view of the container according to the invention;
- figure 2 is a bottom perspective view of the container of figure 1;
- figure 3 is a front view of the container of the invention with the outer case removed;
- figure 4 is a side view of the container of the invention with sectioned parts for sake of clarity;
- figure 5 is a bottom view of the container of figure 3.

**[0011]** With reference to the above mentioned figures, it has been indicated at 1 an outer case fit for being fixed to a wall, not shown, delimiting an inner room of a public transport means. The case is formed with an opening 1a at its upper part, at an edge of which a lid 2 is pivotally connected. A removable cup 3 is housed within case 1.

**[0012]** As shown in more detail in figure 4, outer case 1 comprises a back plate 4, fixable to the wall by means of screws, not shown, and a shell 5, forming the front part of outer case 1, fixed by means of screws, not visible, to plate 4. For a proper positioning of the case a pair of wedge-shaped seats 6 are formed on respective wings 7 extending frontally from plate 4, within which corresponding ribs 8 formed on the inner surface of shell 5 are engaged. Lid 2 is hinged to the upper edge of plate 4. Obviously, equivalent structures of outer case 1 can be used as alternatives.

**[0013]** An appendage 9 externally extends from the bottom of cup 3 and a notch 10 is formed on said appendage. A support 11 extend frontally from the lower edge of plate 4 and a bracket 12 is fixed thereto in a spaced and parallel relationship. A circular seat 13 is formed on bracket 12. A pin 14 is formed with a square tang end 15 pivotally engaging within seat 13, said end 15 protruding downwardly from seat 13, and an arm 16 at the opposite end radially extending from pin 14 to en-

gage with notch 10 of appendage 9.

**[0014]** Tang end 15 protrudes externally from an opening 17 formed in the bottom of case 1. A wall 18 also extends from support 11 downwardly and a laminar elastic member 19 engaging with arm 16 to urge it in notch 10 is fixed to wall 18.

**[0015]** In a position substantially coplanar to support 11 and the sides thereof there is formed a pair of wings 20 and 21 frontally protruding from plate 4 and through seats are formed on said wings to engage respective pins 22 and 23 which are free to slide therein. At the lower end of pins 22 and 23 a respective plate 25 is provided for holding cup 3. A spring 26, which is compressed when arm 16 is engaged within notch 10 of appendage 9, is interposed between wings 20 and 21 and respective plates 25.

**[0016]** In the normal use of the waste container of the invention, cup 3 is fully housed in case 1, as it is kept in the lowered or retracted position by arm 16 which engages with notch 10 of appendage 9. By turning pin 14 with a suitable box spanner engaged with tang 15 arm 16 is caused to disengage from notch 10, whereby cup 3 is partially released from case 1 under the action of springs 26 pushing on it and causing it to slide upwardly. Once cup 3 is partially released from case 1, as shown in figure 2, the operator can easily pick it up for emptying and cleaning by grasping it with the fingers through a perimetrical edge thereof 3a protruding externally.

**[0017]** In order to make easier the sliding of cup 3 with respect to case 1, it is provided with a pair of ribs 27 extending from edge 3a along its side walls for engaging within a corresponding seat formed on the inner face of wings 7.

**[0018]** When cup 3 is emptied and cleaned up, it is placed back within case 1 by slightly forcing on it to overcome the elastic reaction of springs 26, thus allowing arm 16 to engage within notch 10. Advantageously, both arm 16 and notch 10 are formed with contrasting surfaces shaped so as to assist the coupling, in particular inclined of the same angle, to help relative sliding in the engagement step or when they are disengaged under the action of laminar spring 19.

**[0019]** In an alternative embodiment of the waste container according to the invention, not shown as obvious in its structure, the rotation axis of arm 16 is horizontal instead of vertical; in this case tang end 15 will protrude from a through seat 17 formed frontally on the lower part of case 1. Even though both solutions are technically and functionally equivalent, the solution in which the rotation axis is vertical is the preferred one both for aesthetic reasons and because the access to tang end 15 is much less visible than in the case in which the rotation axis is horizontal, this being considered of value in reducing the risks of vandalism act. Likewise, the structure of case 1 may be different from that described above, for example may be made of a single piece and have different exterior shapes from that shown above to reach special aesthetic results.

**[0020]** Several other variations and/or modifications can be made to the waste container for wall installation in public transport means according to the present invention, without departing from the scope of the invention as set forth in the appended claims.

## Claims

1. Waste container for wall installation in public transport means, such as railways vehicles, comprising an outer case (1) having an opening (1a) with a lid (2) and a cup (3) housed within said case (1) and slidably connected to it to enable its removal, **characterized in that** in said case an elastic support (20-23, 25-26) for said cup (3) is provided which can assume a contracted condition, in which cup (3) is fully retracted in said case (1), and an extended condition, in which said cup (3) partially extends therefrom, means (9, 16) being provided for locking the sliding of said cup (3) from said retracted condition to said extended condition operable from the outside of said case.
2. Waste container according to claim 1, wherein said locking means comprise reversible connection means (9,16) of the male-female type between cup (3) and case (1) elastically kept in an engaged condition, operating means (14) accessible from the outside of said case (1) being provided to disengage said connection means (9,16) by overcoming said elastic reaction.
3. Waste container according to claim 2, wherein said connection means comprise a seat (10) integral to said cup and a male member (16) fit for elastically engaging within said seat and integral to said case (1), said male member being connected to said operating means (15).
4. Waste container according to claim 3, wherein said seat (10) is formed on an appendage (9) externally protruding from the bottom of said cup (3), said male member comprising an arm (16) fit for elastically engaging within said seat and pivotally supported by said case and integral to said operating means.
5. Waste container according to any one of the previous claims, wherein said operating means comprise a pin (14) pivotally supported by said case (1), said arm (16) extending from one end of said pin, the other end being shaped in such a way to be operated by a box spanner tool.
6. Waste container according to any one of the previous claims, wherein said male member comprises first elastic means (19) located between the male member and said case to keep it in a forced con-

nection with said seat (10).

7. Waste container according to claim 1, wherein said elastic support comprises a plane (25) resting on second elastic means (26) located between said plane and said case (1). 5
8. Waste container according to claim 7, wherein said plane (25) is supported by at least a pin (23) slidably mounted with respect to said case and said second elastic means (26) are arranged coaxially to said pin (23). 10
9. Waste container according to claim 1, wherein said case comprises a back plate (4) for the connection to the wall and a front shell (5) fixable to said plate. 15

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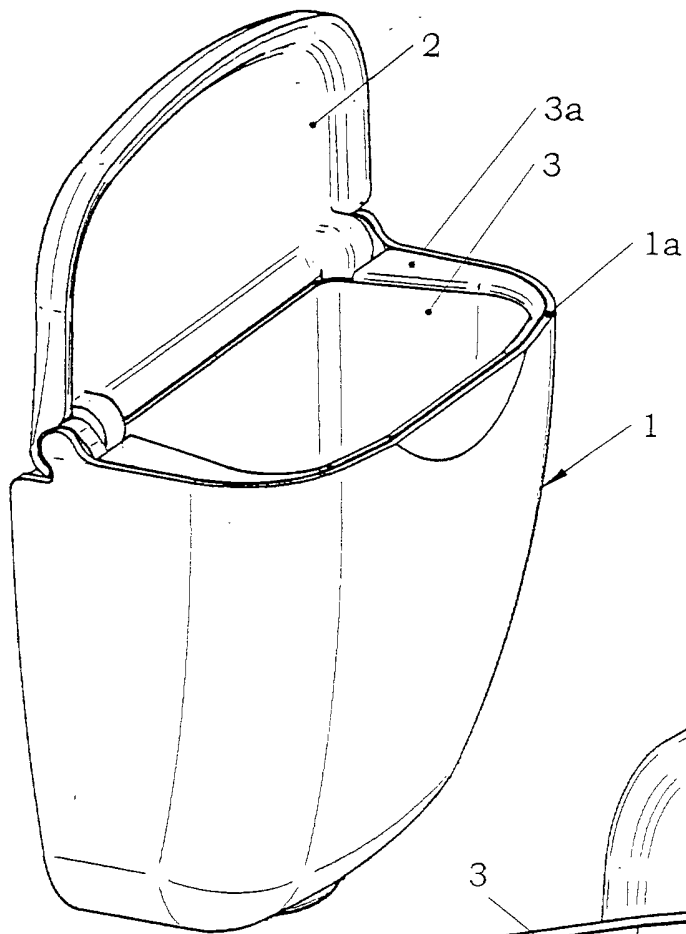


Fig. 1

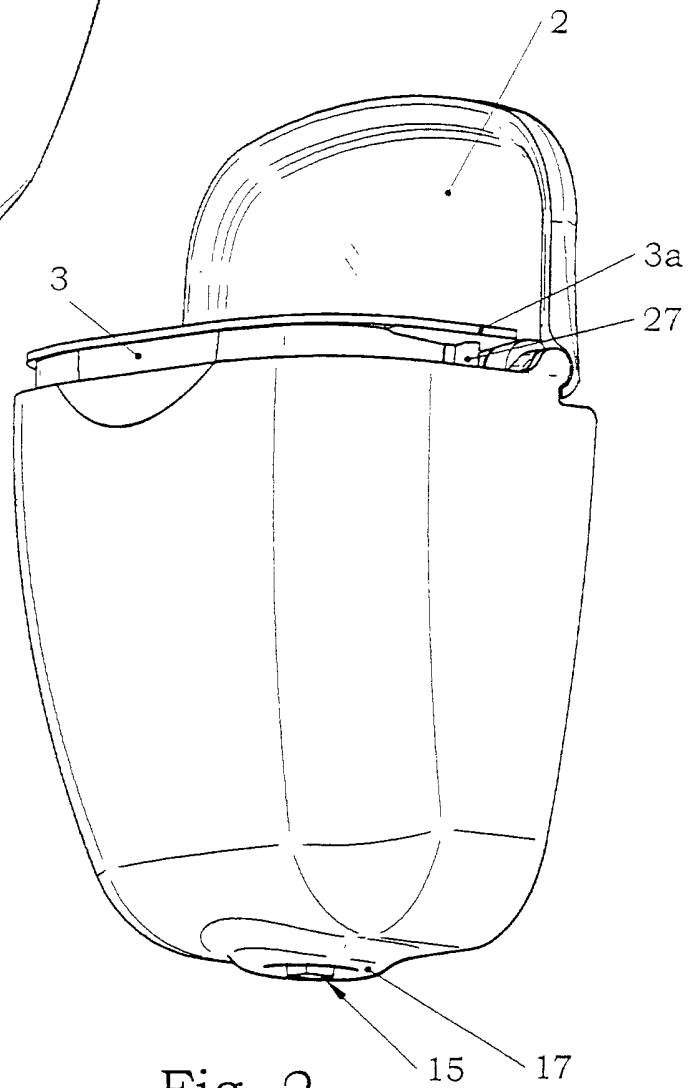


Fig. 2

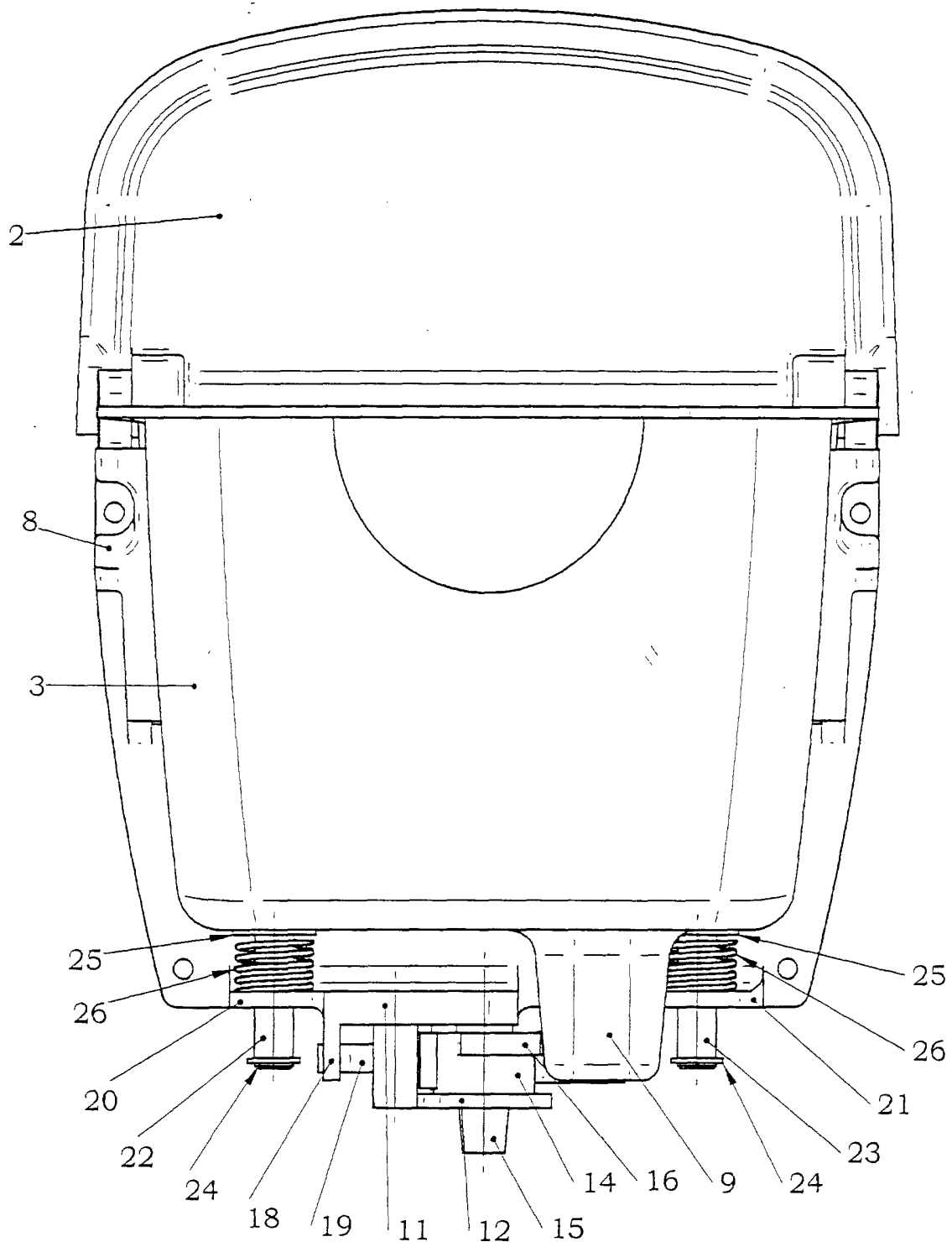


Fig. 3

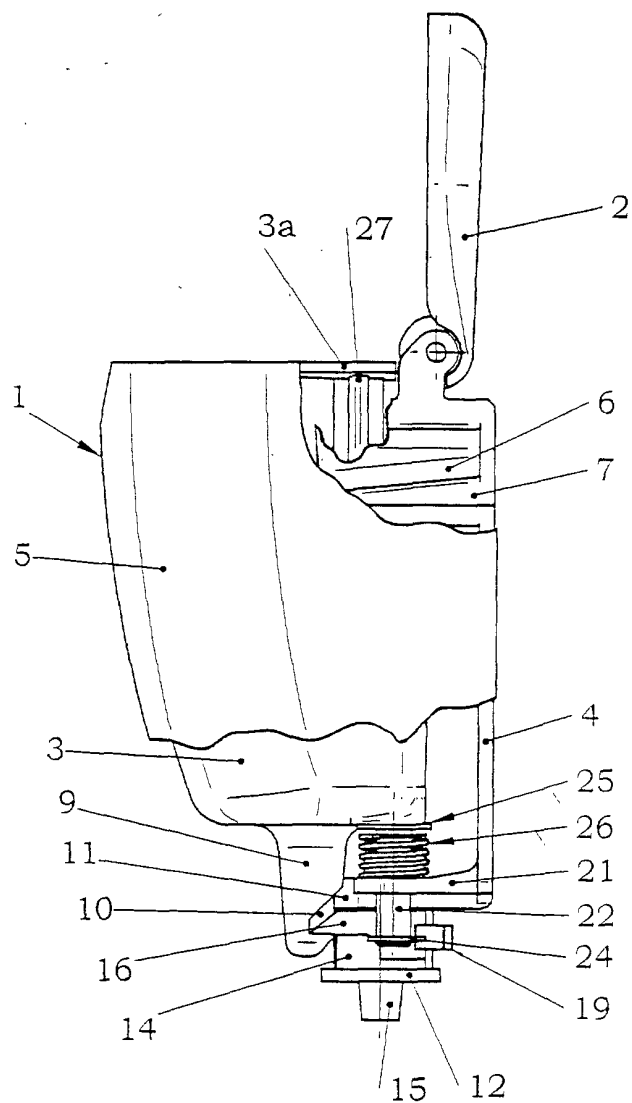


Fig. 4

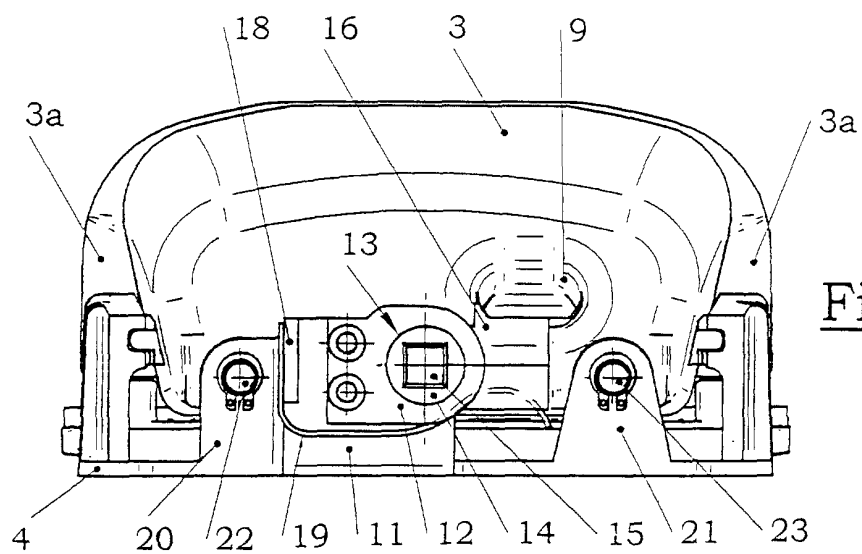


Fig. 5



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# EUROPEAN SEARCH REPORT

Application Number  
EP 00 83 0801

| DOCUMENTS CONSIDERED TO BE RELEVANT  |   |                                  |  |
|--|---|----------------------------------|--|
| Category   | Citation of document with indication, where appropriate, of relevant passages   | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| A  | FR 2 460 123 A (COMPAGNIE PLASTIC OMNIUM)<br>23 January 1981 (1981-01-23)<br>* page 2, line 25 - page 4, line 18 *<br>* figures 1-9 * | 1,2                              | B65F1/08<br>B65F1/14                         |
| A  | US 5 645 187 A (R. BROWN)<br>8 July 1997 (1997-07-08)<br>* column 5, line 51 - column 6, line 18 *<br>* figures 4-6 *                 | 1                                |  |
| A  | FR 2 659 605 A (RED NACIONAL DE LOS FERROCARRILES ESPA{ )<br>20 September 1991 (1991-09-20)   |                                  |  |
| A  | DE 94 13 069 U (C. LING)<br>27 October 1994 (1994-10-27)  |                                  |  |
|  |   |                                  | TECHNICAL FIELDS SEARCHED (Int.Cl.7)         |
|  |   |                                  | B65F<br>B60N<br>B61D                         |
| The present search report has been drawn up for all claims   |   |                                  |  |
| Place of search  |   | Date of completion of the search | Examiner                                     |
| THE HAGUE  |   | 21 June 2001                     | Smolders, R                                  |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |   |                                  |  |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 83 0801

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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21-06-2001

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----------------------------|---------------------|
| FR 2460123                                | A | 23-01-1981          | NONE                       |                     |
| US 5645187                                | A | 08-07-1997          | US 5316170 A               | 31-05-1994          |
| FR 2659605                                | A | 20-09-1991          | ES 1013152 U               | 01-11-1990          |
|   |   |                     | DE 9102930 U               | 29-05-1991          |
|   |   |                     | IT 221655 Z                | 23-07-1994          |
|   |   |                     | PT 8267 U                  | 15-10-1991          |
| DE 9413069                                | U | 27-10-1994          | NONE                       |                     |

EPO FORM P449

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82