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(71) Applicant: **Contenur, S.L.**  
**28906 Getafe, Madrid (ES)**

(72) Inventor: **de la Serna Jimenez, Jose Antonio**  
**20906 Getafe (Madrid) (ES)**

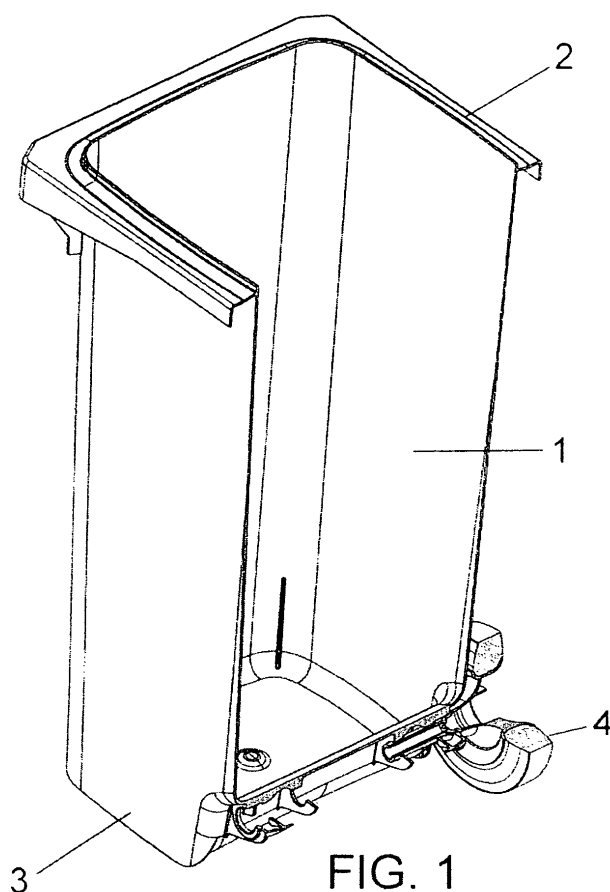
(74) Representative: **Gonzalez Palmero, Fé**  
**Calle Sagasta, 4**  
**28004 Madrid (ES)**

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(54) **Rolling gear for urban refuse containers**

(57) A rolling gear for containers in which each wheel (4) extends to a short axle (10), these forming a single item, and being physically independent from the other wheel (4), and which operates within the orifices (13,14) in the corresponding pair of tabs (11,12); these tabs

(11,12) feature on their outward side a third tab (17) which is likewise traversed by the axle (10) of the wheel (4), with the peculiarity that said tab (17) is connected at its free end, by means of the inclusion of a transversal wall (18), to the adjacent tab (12), forming in conjunction with the latter a tubular structure of considerable strength.



**FIG. 1**

## Description

### Object of the invention

[0001] The present invention relates to a rolling gear assembly especially designed for urban refuse containers, of the type generally located in the public thoroughfare, and which periodically have to be moved to the refuse collection truck and back.

[0002] The object of the invention is the production of a structurally simple assembly which shall be very easy to install, with the corresponding repercussions entailed by the same with regard to costs.

[0003] The object of the invention is also to achieve a significant noise reduction for said rolling gear, in order to prevent the typical noise pollution of these containers, due to the usual frequent impact of the wheels of the same against the kerbstones of the pavements or other obstacles.

### Background of the invention

[0004] Among the various types of urban refuse containers available on the market, one of the most frequent is the type where the container features, at the rearmost edge of its base, a pair of wheels for its displacement over the ground, in a slightly tilted position, with the help of a handle established in turn at the level of the line of the hinge of its cover.

[0005] Generally, the wheels of these containers are constituted from a plastic wheel rim on which a solid rubber tyre is established, the rims being connected to each other by means of a transversal axle which traverses the container, normally through perforated tabs which are operatively established in the same.

[0006] In order to assemble the rolling gear it is necessary to affix one of the wheels to one of the ends of the axle, for example, by means of press-fitting, and with the collaboration of a radial clip or other suitable means, passing said axle through operatively drilled holes in the aforementioned pairs of tabs, and finally affixing the second wheel in a similar fashion; all of this represents a laborious task, with a considerable consumption of labour, with the consequential negative effect represented by the same regarding costs.

[0007] With the aim of obviating this problem, and at the same time that of the aforementioned noise pollution, this same applicant is the titleholder of the Utility Model no. \_\_\_\_\_, wherein a soundproofed wheel for refuse containers is disclosed, a wheel which incorporates, produced as a single item, an axle of a reduced length which may be fixed to one of the aforementioned pairs of tabs of the container, in such a way that the typical axle which is common to both wheels is replaced by these two short axles which, being integrated with the respective wheels, and it being possible to press-fit the same into the tabs of the body of the container, represent a considerable simplification regarding the assembly of the wheels.

[0008] Furthermore, the wheels in themselves feature elastically deformable vanes which act as shock absorbers during impacts against kerbstones and suchlike, and considerably reducing noise pollution.

[0009] However, this wheel, while being perfectly valid from a theoretical point of view, in practice presents two drawbacks: on the one hand, the high cost derived from its structural complexity, and on the other hand problems of stability on the axle of the same with regard to the tabs of the body of the container.

## DESCRIPTION OF THE INVENTION

[0010] The rolling gear proposed by this invention, along the lines of the wheel of the aforementioned Utility Model, solves in a totally satisfactory manner the problems which are inherent to the latter, with regard to both of the aspects mentioned.

[0011] In order to do this, and more specifically, and in accordance with one of the characteristics of the invention, the lower base of the body of the container, in correspondence with each of the pairs of tabs for the assembly of the axle, incorporates a third tab, arranged externally, which is also fixed at its free edge to the adjacent tab, forming a tubular body with great structural rigidity. Additionally, the axle of the wheel features, at the level of this third tab, a cylindrical throat by which it is coupled to the orifice of the third tab, with freedom of turning movement.

[0012] This cylindrical body is located behind the typical lugs for the axial immobilisation of the axle, and which act on the internal side of the third tab.

[0013] In accordance with another characteristic of the invention, the aforementioned elastically deformable vanes which relate the hub with the rim of the wheel have been eliminated, the wheel incorporating exclusively rigid radial divisions which simplify considerably its structure and reduce its cost. In order to compensate for the absence of the aforementioned elastically deformable vanes, it has been foreseen that the rim, instead of being formed by a single rolling part defined by the plastic material which constitutes the wheel, should adopt a grooved configuration in order to accept a thick soft rubber ring, which will guarantee the necessary elasticity for the absorption of the aforementioned repeated impacts against kerbstones and similar.

## DESCRIPTION OF THE DRAWINGS

[0014] To complement the description which is being made, and with the purpose of contributing to a better understanding of the characteristics of the invention, in accordance with a preferred embodiment of the same, a set of drawings with an illustrative and non-limitative character is attached as an integral part of said description, wherein the following is portrayed:

Figure 1 portrays a general perspective view of an ur-

ban refuse container equipped with the rolling gear which constitutes the object of the present invention; said container is portrayed in partial cross-section, as is the rolling gear in itself, in order to portray the structure of this last with greater clarity;

Figure 2 portrays a partial detail of a lateral elevational view of the container represented in the previous figure, at the level of the rolling gear;

Figure 3 portrays, finally, a detail in cross-section of the assembly portrayed in the previous figure, in accordance with the cross-section line A-B in said figure.

## PREFERRED EMBODIMENT OF THE INVENTION

[0015] As has just been mentioned, in figure 1 an urban refuse container has been portrayed; the rolling gear of this invention is applicable to this; said container being of the type which features a body (1) whose upper mouth (2) may be closed by means of a cover, not portrayed, and which, when at rest, rests on the ground by its lower base (3), at the margin of which a pair of wheels (4) is established, in such a way that by means of a slight lateral tilting of the body (1), the base (3) lifts from the ground and the container may be moved on the aforementioned wheels (4), for example from the zone of its normal location to the vehicle into which its contents are to be emptied.

[0016] The wheel (4), as may be observed in particular in the detail in figure 3, is structured by means of a tubular hub (5), from which a plurality of radial vanes (6) distributed at equal angles emerge, and which join said hub to a rim (7) with a curved concavity, in which a rubber rolling ring (8) is lodged and remains perfectly stable; said ring shall preferably be of soft rubber.

[0017] The assembly described, that is to say, the rim (7) and the hub (5), solidly joined together by means of the aforementioned radial vanes (6) extend axially into a truncated cone-shaped body (9) with a curved concave generatrix, which extends in turn into a cylindrical rod (10), this being preferably tubular and acting as an axle, which when assembled traverses the pair of tabs (11) and (12) of the body (1) of the container, via respective perforations (13) and (14).

[0018] At the zone of convergence between the truncated cone-shaped body (9) and the axle (10) there is defined a cylindrical throat (15) which traverses and acts in a hole (16) in a third tab (17), parallel to the aforementioned holes (11 and (12) and located on the outside of these, in such a way that the axle (10) is connected with the body (1) of the container by means of three tabs, which endows it with a greater consistency and positional stability.

[0019] This is enhanced by means of the existence of a transversal wall (18) which links the external tabs (12) and (17), converting them into a single unit and, with the inclusion of the body (1), forming a tubular structure of

great strength.

[0020] The lugs (19) are lodged in this tubular structure; these, being at least two in number, axially lock the assembly comprised of the wheel (4) and its axle (10).

5 [0021] Finally, it only remains to be mentioned that in order to enhance further the structural rigidity of the rolling gear, specifically at the point where the greatest effort is exerted, the support of the throat (15) on the hole through the third tab (17), it has been foreseen that the tubular structure of both the body (9) and of the axle (10) should be interrupted at the level of the throat (15), where an internal discoidal division (20) makes the axle considerably more rigid; preferably said axle, as is portrayed in figure 3, shall feature a tubular internal implement (21) of a metal nature.

## Claims

- 20 1. A rolling gear for urban refuse containers, in particular for the containers whose body normally rests on the ground via its lower base and which features tabs which are perforated for the passage of the rolling axles of the container; said axles feature at their ends the corresponding wheels, and more specifically of the type where each wheel extends into a short axle, this forming a single part, this being physically independent from that which corresponds to the other wheel, and which operates within the orifices in the corresponding pair of tabs, **characterised in that** in correspondence with each aforementioned pair of tabs it features, on the outside the same, a third tab which is likewise traversed by the axle of the wheel, with the peculiarity that said tab is connected at its free end, by means of the inclusion of a transversal wall, to the adjacent tab, forming in conjunction with the latter a tubular structure of considerable strength.
- 25 2. A rolling gear for urban refuse containers, as claimed in claim 1, **characterised in that** the axle of the wheel features at the level of the third tab a cylindrical throat by means of which it rotates within the orifice of said third tab, the aforementioned axle, this being generally tubular, also featuring at the level of said throat an internal discoidal wall to give rigidity to the same.
- 30 3. A rolling gear for urban refuse containers, as claimed in preceding claims, **characterised in that** in the wheel, which with its complementary axle forms a single item, there is established a central tubular hub, from which a plurality of radial vanes emerge; these connect the same with a rim with a curved concave profile, in which a tyre ring made of rubber or other soft material is lodged.

