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**TROLLEY TYPE CONTAINER, CONVERTIBLE INTO A SCOOTER**

**CONTENANT A ROULETTES TRANSFORMABLE EN TROTTINETTE**

**Designated Contracting States:**
- AL
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**Designated Extension States:**
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- ME

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- MA

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**Proprietors:**
- Lunerti, Giacomo
  36100 Vicenza (VI) (IT)
- Vezzoli, Nausicaa Asia Matilde
  20021 Bollate (MI) (IT)

**Inventors:**
- Lunerti, Giacomo
  36100 Vicenza (VI) (IT)
- Vezzoli, Nausicaa Asia Matilde
  20021 Bollate (MI) (IT)

**Representative:**
Mittler, Enrico et al
Mittler & C. S.r.l.
Viale Lombardia, 20
20131 Milano (IT)

**References cited:**
- FR-A1- 2 915 454

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The present invention relates to a scooter-trolley, in which:

way of non-limitative example in the accompanying description of a practical embodiment thereof, shown by

In accordance with the present invention, said object is achieved by means of a trolley as claimed in

Suitcases with integrated scooter are known to solve this problem. In particular, trolleys comprising a pair of wheels installed on a first side of the trolley body and an extendable handle on an opposite side of said first side are known. A footboard hinged to the first side and comprising a further wheel at the free end of the footboard itself is also present. Such a footboard is configured to be movable between a rest position, in which the footboard is arranged by the side of the trolley body, and an operating position, in which the footboard is opened so that the further wheel is in contact with the ground. In the operating position, the trolley may support a user over the footboard and work as a vehicle.

For example, in FR-2915454 a detachable wallet fixed to a scooter with a telescopic tube and a front wheel and two rear wheels is shown.

However, the capacity of the entire device is approximately one hundred kilograms, including the full suitcase, and thus the risk of failure of the footboard when it is in the operating position is thus not unlikely. In addition to being bulky because it protrudes, the footboard hinged to the trolley body is an element which is susceptible to breakage or wear. Furthermore, the user must make a given physical effort in all cases in order to move the suitcase with scooter, requiring to push at least with a lower limb. Moreover, the configuration of the wheels does not allow to steer or perform curved trajectories aboard the aforesaid scooter.

Given the prior art, it is the object of the present invention to provide a scooter-trolley so as to overcome the aforesaid drawbacks.

In accordance with the present invention, said object is achieved by means of a trolley as claimed in claim 1.

The features and advantages of the present invention will become apparent from the following detailed description of a practical embodiment thereof, shown by way of non-limitative example in the accompanying drawings, in which:

figure 1 shows a perspective view of a trolley according to the present invention;
figure 2 shows the trolley in figure 1 in a first operating position;
figure 3 shows the trolley in figure 1 in a second operating position;
figure 4 shows an inner part of the trolley according to the present invention;
figure 5 shows a detail of the inner part of the trolley in figure 4;
figure 6 shows a bottom view of the inner part of the trolley in figure 4;
figure 7 shows a first detail of the trolley in figure 1;
figure 8 shows the trolley in figure 1 switching from the second operating position to a third operating position;
figure 9 shows the trolley in figure 1 according to a further configuration of use;
figure 10 shows the trolley in figure 1 according to a further configuration of use;
figure 11 shows a second detail of the trolley in figure 1;
figure 12 shows an electromechanical block chart of the trolley in figure 1.
The coupling between the extendable rod 3 and body 1 may be achieved by means of a supporting frame 8 fixed to said body 1 (Fig. 4), said frame 8 comprising a least one guide 16 on which at least one sliding block 17 is slidingly coupled, the latter being connected to an end 31 of the greater section element 30c of rod 3. Guide 16 is provided with end stops adapted to prevent the sliding block 17 from exiting from the guide when the extendable rod 3 reaches the closing or elongated position. In use, when the extendable rod 3 is taken from the closing position to the elongated position, the sliding block 17 connected to the larger section element 30c slides from a first end 20 of guide 16 towards a second end 21 (near the second side 12) and at the same time the elements are extracted from one another, thus locking when rod 3 reaches the maximum elongation (Fig. 3).

Preferably, there are two extendable rods 3 (Fig. 1-6) each comprising three square-sectioned, telescopic elements 30a, 30b and 30c. The coupling between extendable rods 3 and body 1 occurs by means of the frame 8 fixed to body 1 and comprises a pair of guides 16 on which the sliding blocks 17 slide being connected to the larger section element 30c of rods 3.

A fourth side 19 enclosed in the half-shell 101, and opposite to said third side 15, is configured so as to withstand the deformations generated by orthogonal forces while being made to offer a given grip. The wheels 4a are free to rotate on axes coupled to frame 8 near said first side 11 of body 1, in which specific holes are obtained so that at least one portion of the wheels 4a is outside body 1 to come into contact with the ground. The further wheels 4b are connected to frame 8 near said first side 11 of body 1, in which specific holes are obtained on the third side 15 so that at least one portion of each of the wheels 4b is outside body 1 to come into contact with the ground and can also rotate on said pins 24.

Said handle 2, connected to the extendable rods 3, and said fourth side 19 of the half-shell 101 of body 1 are configured to be a handlebar and a footboard of a vehicle 110 moving by means of said wheels 4a, 4b, respectively (Fig. 10).

Indeed, trolley 100 is such to be used in a first configuration (Fig. 9) as a normal suitcase with the wheels 4a adapted to facilitate the movement of trolley 100 without requiring to lift it, and in a second configuration as a vehicle 110 moving on wheels 4a and wheels 4b (Fig. 10). The switching from one configuration to the other is obtained by bringing the extendable rod 3 from the closing position to the folded position until the pin ensures the locking of the whole of telescopic elements 30, and by placing the trolley so as to rest on the ground on the third side 15 of the second half-shell 102, so that the wheels 4a and the further wheels 4b are equally in contact with the ground. At this point, the user can get onto the fourth side 19 holding onto said handle 2 which becomes the handlebar 20 of vehicle 110, the movement of which is described below.

The further wheels 4b are connected to frame 8 near said first side 11 of body 1, in which specific holes are obtained on the third side 15 so that at least one portion of each of the wheels 4b is outside body 1 to come into contact with the ground. At this point, the user can get onto the fourth side 19 holding onto said handle 2 which becomes the handlebar 20 of vehicle 110, the movement of which is described below.

The wheels 4b are connected to frame 8 near said first side 11 of body 1, in which specific holes are obtained on the third side 15 so that at least one portion of each of the wheels 4b is outside body 1 to come into contact with the ground. At this point, the user can get onto the fourth side 19 holding onto said handle 2 which becomes the handlebar 20 of vehicle 110, the movement of which is described below.
the wheels 4b and therefore the advance direction of vehicle 110.

[0025] Alternatively, instead of a frame fixed to body 1, trolley 100 could comprise a self-bearing body which has at least one guide adapted to be coupled to the extendable rod 3 and a structure to allow the connection of the wheels 4a, 4b and the housing of the electronic and mechanical components as described above.

[0026] The described trolley 100 can be used by the user as a suitcase and, if needed, as a vehicle 110 to move conveniently and totally effortlessly. Furthermore, trolley 100 has the same loading capacity as a traditional trolley and is cabin-sized, thus can be inserted into the overhead compartment or under the seat of an aircraft.

Claims

1. Trolley (100) comprising a body (1) provided with a handle (2), connected to at least one extendable rod (3), and wheels (4a) suitable to facilitate the moving without being required a lifting, said at least an extendable rod (3) being slidably coupled with said body (1) for being extracted and inserted inside the body (1), said trolley (100) comprising further wheels (4b) installed in a side (15) of the body (1) so that, when trolley (100) is resting on the ground with said side (15) facing the surface of the ground, said wheels (4a) and said further wheels (4b) are equally in contact with the ground, and in that said extendable rod (3), once extracted from the body (1), is configured to be able to rotate with respect to said body (1) around an axis perpendicular to the direction of the rod (3) so that said handle (2) and a further side (19) of said body (1), which is opposite to said side (15), are a handlebar and a footboard of a vehicle (110) movable on said wheels (4a, 4b), respectively.

2. Trolley (100) according to claim 1, characterized in that said body (1) comprises at least one guide (16) on which is slidingly coupled a sliding block (17) connected to said extendable rod (3) by means of at least a pin (18), said at least a pin (18) being suitable to make rotate said extendable rod (3) with respect to said body (1) once extracted from the body (1) so as to move in a position substantially perpendicular to said side (15) of the body (1).

3. Trolley (100) according to claim 1, characterized in that said further wheels (4b) are installed in the body (1) by means of spindles (23) pivoted to the body (1) through pins (24), said spindles (23) being mutually coupled by means of a steering rod (25) comprising at its ends connecting means (26) to said spindle (23) such as to allow, as a result of a longitudinal translation of the steering rod (25), a rotation of spindles (23) around the respective pins (4).

4. Trolley (100) according to claims 1, characterized by comprising a support frame (8) fixed to the body (1).

5. Trolley (100) according to claim 4, characterized in that said support frame (8) comprises at least one guide (16) on which is coupled the sliding block (17) connected to said extendable rod (3) by means of the at least a pin (18), said at least a pin (18) being suitable to make rotate said extendable rod (3) with respect to said body (1) once extracted from the body (1).

6. Trolley (100) according to claims 3-4, characterized in that said further wheels (4b) are connected to the support frame (8) by means of said spindles (23) pivoted to the support frame (8) through the pins (24), said spindles (23) being coupled to each other by means of the steering rod (25), comprising at its ends the connecting means (26) to said spindle (23) such as to allow, as a result of a longitudinal translation of the steering rod (25), a rotation of the spindles (23) around the respective pins (24).

7. Trolley (100) according to claim 3, characterized in that said vehicle (110) comprises a power steering (27) suitable to transmit the motion to said steering rod (25) and, consequently, to make steer said additional steering wheels (4b), said power steering (27) being controlled by means of a steering (6) housed on said handle (2).

8. Trolley (100) according to claim 7, characterized in that said steering (6) is a rotary potentiometer suitable to convert the rotary motion given by the user in a curvature of the wheels (4b) of radius proportional to the command given.

9. Trolley (100) according to claim 1, characterized in that said vehicle (110) comprises a motor (5) suitable to provide traction to at least one said further wheels (4b), said motor (5) being controlled by means of an accelerator (33) housed on said handle (2).

10. Trolley (100) according to claim 9, characterized in that said accelerator (33) is a slide potentiometer suitable to convert a linear movement given by the user in a proportional traction generated on the at least one of the additional wheels (4b).

11. Trolley (100) according to any one of the preceding claims, characterized in that said handle (2) comprises a reverse command (35) suitable to change the direction of rotation of said further wheels (4b) and consequently the direction of advance of the vehicle (110).
Patentansprüche

1. Rollkoffer (100) aufweisend ein Gehäuse (1) versehen mit einem Griff (2), verbunden mit mindestens einer ausziehbaren Stange (3), und Rädern (4a), welche geeignet sind, das Bewegen ohne erforderlichen Heben zu erleichtern, wobei die mindestens eine ausziehbare Stange (3) verschiebbar mit dem Gehäuse (1) verbunden ist, um aus dem Gehäuse (1) gezogen und hineingezogen zu werden, wobei der Rollkoffer (100) weitere Räder (4b) aufweist, welche in einer Seite (15) des Gehäuses (1) enthalten sind, so dass, wenn der Rollkoffer (100) mit der Seite (15) der Bodenoberfläche zugewandt, auf dem Boden ruht, die Räder (4a) und die weiteren Räder (4b) alle gleichermaßen in Kontakt mit dem Boden sind, und dass die ausziehbare Stange (3), einmal aus dem Gehäuse (1) herausgezogen, so beschaffen ist, um sich, relativ zum Gehäuse (1), um eine Achse aufrecht zu der Richtung der Stange (3) zu drehen, so dass der Griff (2) und eine weitere Seite (19) von dem Gehäuse (1), welche der Seite (15) gegenüber liegt, einen Lenker und ein Fußbrett eines Fahrzeugs (110) ausbilden, welches beweglich auf den Rädern (4a, 4b) ist.

2. Rollkoffer (100) gemäß Anspruch 1, dadurch gekennzeichnet, dass das Gehäuse (1) mindestens eine Führung (16) aufweist, mit der, verschiebbar verbunden, ein verschiebbarer Block (17), welcher mit der ausziehbaren Stange (3), mittels mindestens eines Stiftes (18), verbunden ist, wobei der mindestens eine Stift (18) geeignet ist, die ausziehbare Stange (3), wenn sie einmal aus dem Gehäuse (1) gezogen ist, im Verhältnis zu dem Gehäuse (1) drehebar zu machen, um sie in eine Position zu bewegen, welche im Wesentlichen aufrecht zu der Seite (15) des Gehäuses (1) ist.

3. Rollkoffer (100) gemäß Anspruch 1, dadurch gekennzeichnet, dass die weiteren Räder (4b) in dem Gehäuse (1) mittels Spindeln (23) angebracht sind, welche drehbar zu dem Gehäuse (1) mittels Stiften (24) ausgeführt sind, wobei die Spindeln (23) mittels einer Lenkstange (25) gegenseitig verbunden sind, welche an ihren Enden die Verbindungsmittel (26) zu der Spindel (23) aufweist, welche ihrerseits eine Führung (16) aufweist, um die entsprechenden Stifte (4) zu erlauben.

4. Rollkoffer (100) gemäß Anspruch 1, dadurch gekennzeichnet, dass er einen Tragrahmen (8), fest verbunden mit dem Gehäuse (1), aufweist.

5. Rollkoffer (100) gemäß Anspruch 4, dadurch gekennzeichnet, dass der Tragrahmen (8) mindestens eine Führung (16) aufweist, auf der der verschiebbare Block (17) gekoppelt ist, welcher mit der ausziehbaren Stange (3) mittels mindestens eines Stiftes (18) verbunden ist, wobei der mindestens eine Stift (18) geeignet ist, die ausziehbare Stange (3), wenn sie einmal aus dem Gehäuse (1) gezogen ist, im Verhältnis zum Gehäuse (1), drehebar zu machen.

6. Rollkoffer (100) gemäß der Ansprüche 3 bis 4, dadurch gekennzeichnet, dass die weiteren Räder (4b) mittels der Spindeln (23) mit dem Tragrahmen (8) verbunden sind, welche durch die Stifte (24) drehebar zu dem Tragrahmen (8) ausgeführt sind, wobei die Spindeln (23) mittels der Lenkstange (25) miteinander verbunden sind, welche an ihren Enden die Verbindungsmittel (26) zu der Spindel (23) aufweist, derart, dass als ein Ergebnis von einer longitudinalen Verschiebung der Lenkstange (25) eine Drehung der Spindeln (23) um die entsprechenden Stifte (24) ermöglicht wird.

7. Rollkoffer (100) gemäß Anspruch 3, dadurch gekennzeichnet, dass das Fahrzeug (110) eine Servolenkung (27) aufweist, welche geeignet ist, die Bewegung auf die Lenkstange (25) zu übertragen und, in der Folge, die zusätzlichen lenkbaren Räder (4b) zu lenken, wobei die Servolenkung (27) mittels einer Lenkung (6), enthalten in dem Griff (2), gesteuert wird.

8. Rollkoffer (100) gemäß Anspruch 7, dadurch gekennzeichnet, dass die Lenkung (6) als Drehpotentiometer ausgeführt ist, geeignet, um die Drehbewegung, welche von dem Benutzer aufgeprägt wird, in eine Krümmung der Räder (4b), mit einem Radius proportional zu dem gegebenen Kommando, umzuwandeln.

9. Rollkoffer (100) gemäß Anspruch 1, dadurch gekennzeichnet, dass das Fahrzeug (110) einen Motor (5) aufweist, welcher geeignet ist, an mindestens einem der Räder (4b) Traktion zu liefern, wobei der Motor (5) mittels eines Beschleunigungsstellgliedes (33) gesteuert wird, welches in dem Griff (2) enthalten ist.

10. Rollkoffer (100) gemäß Anspruch 9, dadurch gekennzeichnet, dass das Beschleunigungsstellglied (33) als Schiebepotentiometer ausgeführt ist, welches geeignet ist, eine lineare Bewegung, welche von dem Benutzer aufgeprägt wird, in eine proportionale Traktion, welche an mindestens einem der zusätzlichen Räder (4b) generiert wird, umzuwandeln.

11. Rollkoffer (100) gemäß einem der vorangegangenen Ansprüche, dadurch gekennzeichnet, dass der Griff (2) einen Rückwärtssteuerbefehl (35) aufweist, welcher geeignet ist, die Drehrichtung der weiteren Räder (4b) und folglich die Vortriebsrichtung
Revendications

1. Trolley (100) comprenant un corps (1) prévu avec une poignée (2), raccordée à au moins une tige extensible (3), et des roulettes (4a) appropriées pour faciliter le déplacement sans nécessiter de levage, ladite au moins une tige extensible (3) étant couplée de manière coulissante avec ledit corps (1) pour être extrait et insérée à l’intérieur du corps (1), ledit trolley (100) comprenant des roulettes supplémentaires (4b) installées dans un côté (15) du corps (1) de sorte que, lorsque le trolley (100) repose sur le sol avec ledit côté (15) faisant face à la surface du sol, lesdites roulettes (4a) et lesdites roulettes supplémentaires (4b) sont également en contact avec le sol, et en ce que ladite tige extensible (3), une fois extraita du corps (1), est configurée pour pouvoir tourner par rapport audit corps (1) autour d’un axe perpendiculaire à la direction de la tige (3), de sorte que ladite poignée (2) et un autre côté (19) dudit corps (1) qui est opposé au côté (15), sont un guidon et une planche de pied d’un véhicule (110) mobile sur lesdites roulettes (4a, 4b) respectivement.

2. Trolley (100) selon la revendication 1, caractérisé en ce que ledit corps (1) comprend au moins un guide (16) sur lequel est couplé le bloc coulissant (17) raccordé à ladite tige extensible (3) au moyen de la au moins une broche (18), ladite au moins une broche (18) étant appropriée pour faire tourner ladite tige extensible (3) par rapport audit corps (1), une fois extraita du corps (1).

3. Trolley (100) selon la revendication 1, caractérisé en ce que lesdites roulettes supplémentaires (4b) sont installées dans le corps (1) au moyen de fusées (23) pivotées par rapport au corps (1) par le biais des broches (24), lesdites fusées (23) étant mutuellement couplées au moyen d’une bielle de direction (25) comportant, au niveau de ses extrémités, des moyens de raccordement (26) par rapport à ladite fusée (23) afin de permettre, suite à une translation longitudinale de la bielle de direction (25), une rotation des fusées (23) autour des broches (4) respectives.

4. Trolley (100) selon la revendication 1, caractérisé en ce qu’il comprend un bâti de support (8) fixé au corps (1).

5. Trolley (100) selon la revendication 4, caractérisé en ce que ledit bâti de support (8) comprend ledit au moins un guide (16) sur lequel est couplé le bloc.
REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

• FR 2915454 A [0004]