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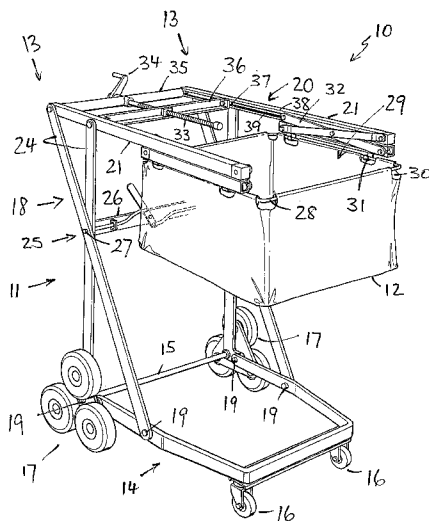
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(54) Title: FOLDING SHOPPING TROLLEY



(57) Abstract: A foldable shopping trolley (10) having a frame (11) adapted to be folded into a size suitable for transportation in a motor vehicle (40) is disclosed. The frame (11) when in an erect configuration has a lower frame portion (14) with ground engaging wheels (16, 17) attached thereto, an upper frame portion (20) having a handle and being adapted to have basket, container, bag (12) or the like suspended therefrom, and a structural frame portion (18) connecting between the lower and upper frame portions (14, 20). The upper frame portion (20) includes a lowering mechanism (32) adapted to lower the bag (12) the motor vehicle boot where the bag (12) can be detached from the upper frame portion (20). The frame (10) is able to be folded into a compact configuration whereby the lower, upper and structural frame portions (14, 20, 18) are substantially aligned in a parallel arrangement.



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FOLDING SHOPPING TROLLEY

Field of the Invention

The present invention relates to shopping trolleys and, in particular, to a
5 folding shopping trolley adapted to carry shopping bags, baskets, containers and the
like

Background Art

Shopping for groceries becomes a chore when goods have to be handled
10 several times, ie from the shelves to the checkout; to the motor vehicle; from the
motor vehicle into the to the house or apartment and then stored in a pantry or the
like.

It has become common for shoppers to carry their own cloth shopping bags to
15 transport their bought goods home from the supermarket and the like. Reusable
shopping bags are brought to and from the supermarket to transport the items bought
by the shopper. This situation has developed because of environmental concerns
regarding plastic shopping bags and their detrimental effects on the environment. In
the future if there is a ban on the use of plastic bags and the like, it will become
20 mandatory for shoppers to have cloth bags or other forms of containers to transport
their groceries home from the supermarkets and like institutions.

It is also anticipated that the larger supermarkets will introduce different
modes for establishing a bill for the customer, whereby instead of having a cashier
25 check-out the goods at a check-out counter, the shopper will be billed as they pass a
sensor means which reads data applied to the goods' packaging. Therefore it would
appear to be appropriate that the goods or grocery items are packed by the shopper as
they traipse around the supermarket. There will be no need to unload the items from
the shopping trolley onto a check-out counter as is now the case. Therefore it is seen
30 that it would be advantageous for the shoppers to have a trolley with a detachable
container which they can use to carry the groceries to their motor vehicle located in
the carpark or indeed to their home if they are walking.

It is also noted that there is a problem with shopping trolleys being removed from the supermarket precinct or shopping centre and later abandoned by the shopper as they wheel the trolley to their vehicle or to their homes. It has been suggested that local authorities may bring in regulations and the like to fine the supermarkets for not
5 ensuring that the trolleys not be removed from their premises or they may even take action to destroy such abandoned shopping trolleys.

Genesis of the Invention

The genesis of the present invention is a desire to enable shoppers to use their
10 own trolley for grocery shopping which can be transported to and from the supermarket or the like.

Summary of the Invention

In accordance with a first aspect of the present invention there is disclosed a
15 foldable shopping trolley having a frame adapted to be folded into a size suitable for transportation in a motor vehicle, said frame when in an erect configuration having a lower frame portion with ground engaging wheels attached thereto, an upper frame portion having a handle means and being adapted to have basket, container, bag or the like suspended therefrom, and a structural frame portion connecting between the
20 lower and upper frame portions, wherein said upper frame portion includes a lowering mechanism means adapted to lower said basket, container, bag or the like into motor vehicle boot or the like where said basket, container, bag or the like can be detached from said upper frame portion, and said frame being able to be folded into a compact configuration whereby the lower, upper and structural frame portions are substantially
25 aligned in a parallel arrangement.

Brief Description of the Drawings

A preferred embodiment of the present invention will now be described with reference to the drawings in which:

30 Fig. 1 is a perspective view of a shopping trolley of the preferred embodiment shown in an erect configuration with shopping bag suspended therefrom,

Figs. 2 to 5 are side views of the shopping trolley of Fig. 1 showing the sequence of steps of placing the shopping bag into the boot of the motor vehicle, and

Figs. 6 to 8 are side views of the shopping trolley of Fig. 1 shown with the shopping bag removed therefrom and showing the sequence of steps of folding the trolley into a collapsed configuration.

5 Detailed Description

As seen in Fig. 1, a foldable shopping trolley 10 is shown in its erect use configuration. The trolley 10 has a frame 11 from which a cloth shopping bag 12 is detachably suspended therefrom. The cloth shopping bag 12 is the preferred method of carrying the grocery items as it is thought that such use of cloth bags is
10 environmentally friendly, however, the use of metal baskets, plastics containers and other forms of containers or bags is within the scope of the present invention. The frame 11 of the trolley 10 has two parallel sides 13 spaced apart by cross members (described later) between which the shopping bag 12 is suspended within the two sides 13 of the frame 11.

15

The frame 11 has a lower frame member 14 in the form of a U-shaped bar with a strut 15 connected between the two free ends thereof. A pair of front castor wheels 16 is provided at the front whilst a pair of sets of stair climbing triple wheel sets 17 is provided at the rear of the lower frame member 14. A pair of structural
20 frame members 18 is pivotally connected by pins 19 to the lower frame member 14. The structural frame members 18 are pivotally connected at their other end to an upper frame member 20 formed by a pair of parallel elongate arms 21 spaced apart. The upper frame member 20 is substantially horizontal when in the erect configuration.

25

Each of the structural frame members 18 is formed by two elongate bars 24 pivotally connected intermediate their ends at a joint 25 which is spaced apart from the other joint 25 by a locking strut mechanism 26. The ends of the bars 24 are pivotally connected to the lower and upper frame members 14 and 20 respectively,
30 and as such are moveable from an open erect configuration to a closed folded configuration. The bars 24 move in a scissors type or pantograph arrangement. The locking strut mechanism 26 uses pins 27 to lock the bars 24 in the erect configuration as seen in the drawings.

The cloth shopping bag 12 as seen in the drawings is four sided with a base with a rectangular metal rib 28 attached to the opening 29. The rib 28 is sewn into the cloth fabric and is exposed at a number of apertures 30 whereby the shopping bag 12 is adapted to be held by hooks 31 on the arms 21. The arms include a scissor type or pantograph extension 32 and are used to lower the shopping bag 12 by opening the scissor type extensions 32. The extensions 32 are opened and closed by the manipulation of a worm drive 33 operated by a rotatable handle 34. The worm drive 33 is received in a threaded opening in a fixed strut 35 which is one of the cross members of the frame 11 and in a threaded opening in a movable strut 36. The movable strut 36 has a pair of wheels 37 fixed to the ends of the movable strut 36, the wheels 37 move along a track 38 in the arms 21 and force a push bar 39 fitted to the extension 32 in the track 38 to thereby open and close the extension 32 according to the direction of travel of the push bar 39. The fixed strut 35 forms the handle of the trolley 10 by which they can push the trolley 10.

The shopping trolley 10 in its erect configuration is used within the supermarket by the shopper to collect items for purchase. The items are placed within the cloth shopping bag 12 and taken to the checkout. At present the items are checked out in the normal fashion and replaced back into the cloth shopping bag 12 for removal from the supermarket. An alternative to the above described method of checking out items of grocery, ie that an electronic scanner reads the data applied to packaging on the items without the need to remove and replace the items from the cloth shopping bag 12.

Once the shopper has finished checking out the items purchased, the shopper can then proceed to their motor vehicle 40 as seen in Figs. 2-5 of the drawings. When the boot lid 41 of the motor vehicle 40 is open, the trolley 10 is moved into position whereby the shopping bag 12 can be lowered into the boot compartment by turning the handle 34 of the worm drive 33. This is particularly advantageous if the items contained within the shopping bag 12 are very heavy. The shopping bag 12 is then lifted off the hooks 31. The extensions 32 which were opened to lower the bag 12

into the boot compartment are then retracted by rewinding the worm drive 33 by the handle 34.

5 Once the shopping goods have been loaded into the boot of the motor vehicle 40, the trolley 10 can then be folded as seen in Figs. 6-8. The cross members are unlocked and as all the joints are pivotal connections, the various portions of the frame 11 can be pivotally moved as seen in Fig. 7. The frame 11 is moved into its final folded configuration as seen in Fig. 8 whereby the members are substantially parallel and in close proximity. The folded trolley 10 can then be placed within the
10 motor vehicle for transportation to the shopper's home where the trolley can be used to unload the grocery items in the shopping bag 12 by carrying out the reverse of the steps described above. The stair climbing wheels as seen in the drawings are suitable for use to climb stairs which may be found at the shopper's home or apartment.

15 It is seen that the shopping trolley of the preferred embodiment is suitable to be used by a shopper outside the supermarket to transport grocery items as described. The shopping trolley is preferably used and owned by the shopper but if desired, can be owned by the supermarket and returned to the supermarket for use by other shoppers.

20

The foregoing describes only one embodiment of the present invention and modifications, obvious to those skilled in the computing arts, can be made thereto without departing from the scope of the present invention.

25 It is noted that the term shopping "trolley" is interchangeable with the terms: cart, buggy, carriage, bascart, and the like while the term "boot" is interchangeable with the term trunk and the like.

30 The term "comprising" (and its grammatical variations) as used herein is used in the inclusive sense of "including" or "having" and not in the exclusive sense of "consisting only of".

CLAIMS:

1. A foldable shopping trolley having a frame adapted to be folded into a size suitable for transportation in a motor vehicle, said frame when in an erect configuration having a lower frame portion with ground engaging wheels attached thereto, an upper frame portion having a handle means and being adapted to have basket, container, bag or the like suspended therefrom, and a structural frame portion connecting between the lower and upper frame portions, wherein said upper frame portion includes a lowering mechanism means adapted to lower said basket, container, bag or the like into motor vehicle boot or the like where said basket, container, bag or the like can be detached from said upper frame portion, and said frame being able to be folded into a compact configuration whereby the lower, upper and structural frame portions are substantially aligned in a parallel arrangement.
2. The trolley as claimed in claim 1 wherein said upper frame portion includes two parallel arms extending forwards from the handle means, said basket, container, bag or the like being suspended from the arms.
3. The trolley as claimed in claim 2 wherein said lowering mechanism includes a pantograph which open in a downwards direction.
4. The trolley as claimed in claim 3 wherein the pantograph is opened by a worm drive which moves push bar means to open said pantograph.
5. The trolley as claimed in anyone of the preceding claims wherein said ground engaging wheels include a pair of stair climbing wheel sets located adjacent rear of the trolley and castor type wheel(s) located adjacent front of said trolley.
6. The trolley as claimed in anyone of the preceding claims wherein said structural frame portion includes a pair of structural frame members located on each side of said trolley, the pair of structural frame members being pivotally connected intermediate the ends and at the ends to the lower and upper frame portions.
7. The trolley as claimed in claim 6 wherein pins form the pivotal connections.
8. The trolley as claimed in claim 6 or 7 wherein a locking mechanism in a cross member is used to lock the trolley in its erect configuration.

9. The trolley as claimed in claim 8 wherein the upper portion, the structural portion and the lower portion are able to be pivoted against each other after the locking mechanism is unlocked and in the folded position are parallel and in close proximity to each other.

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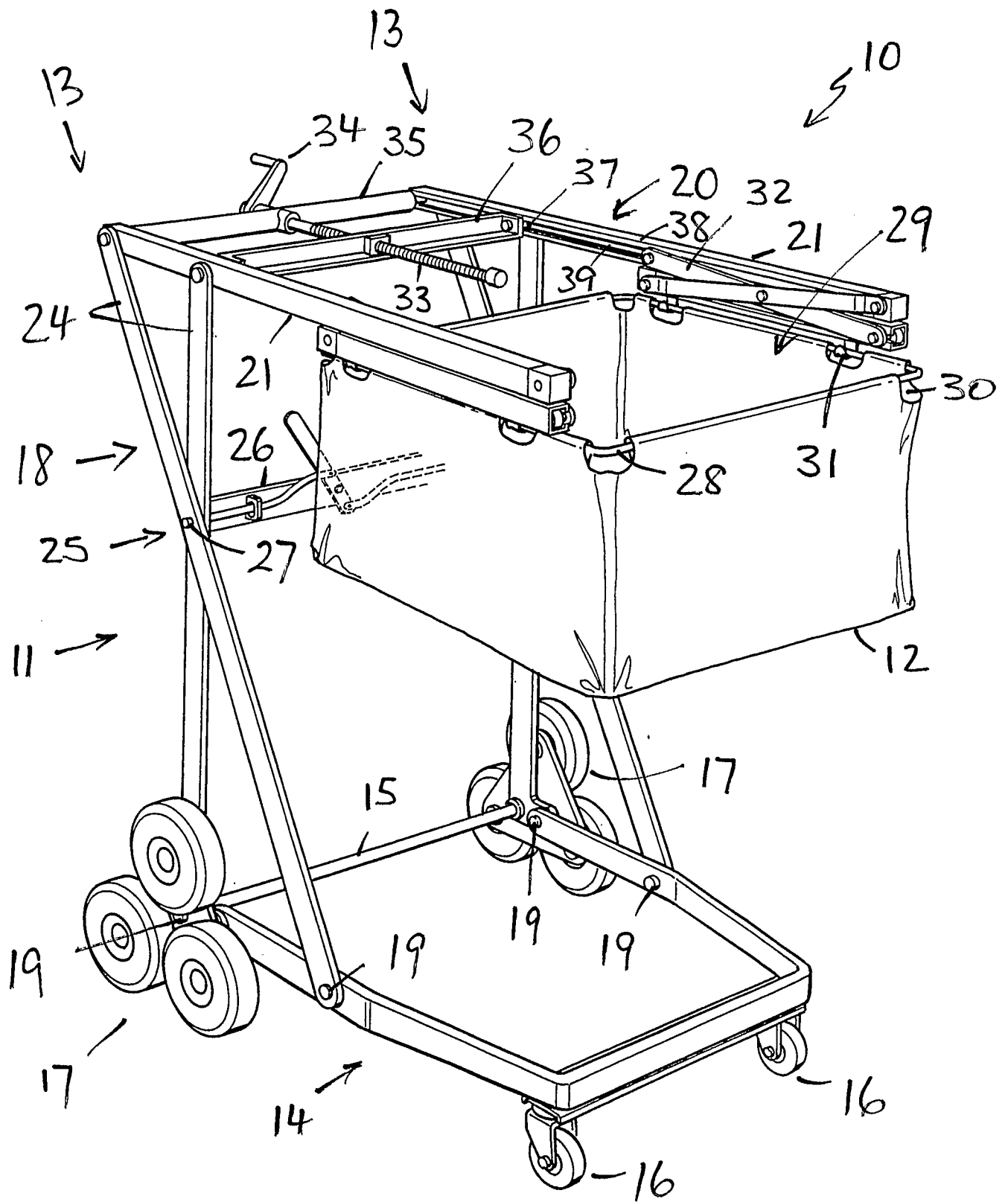


FIG. 1

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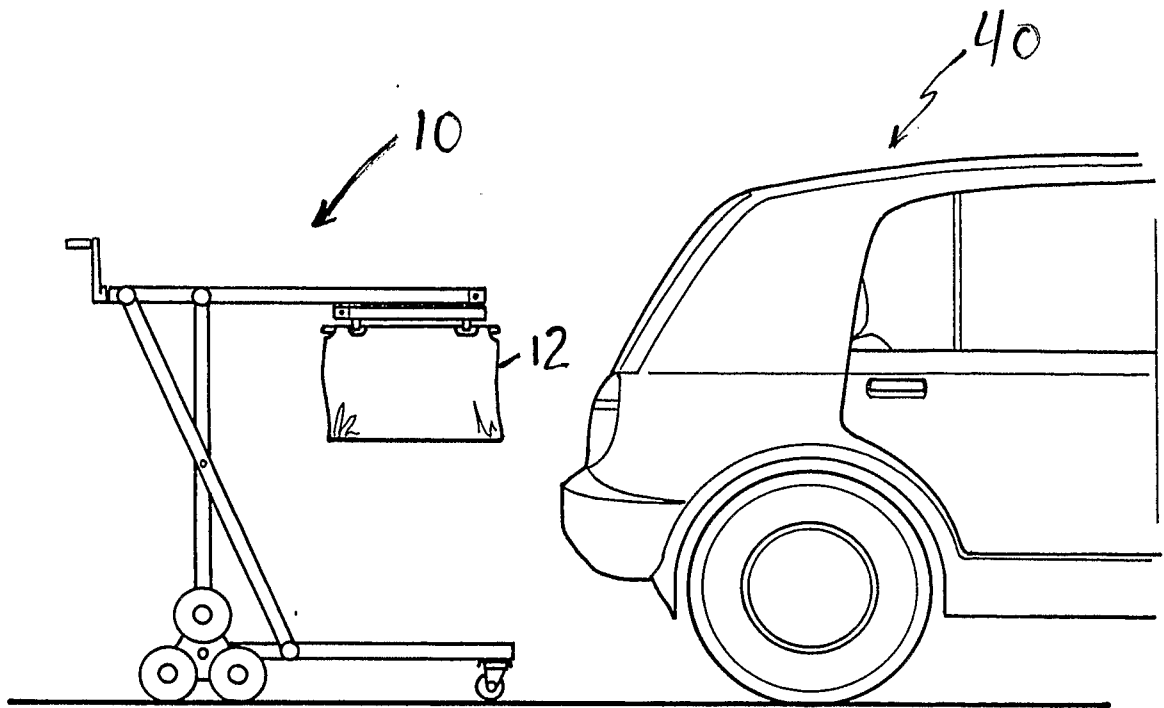


FIG. 2

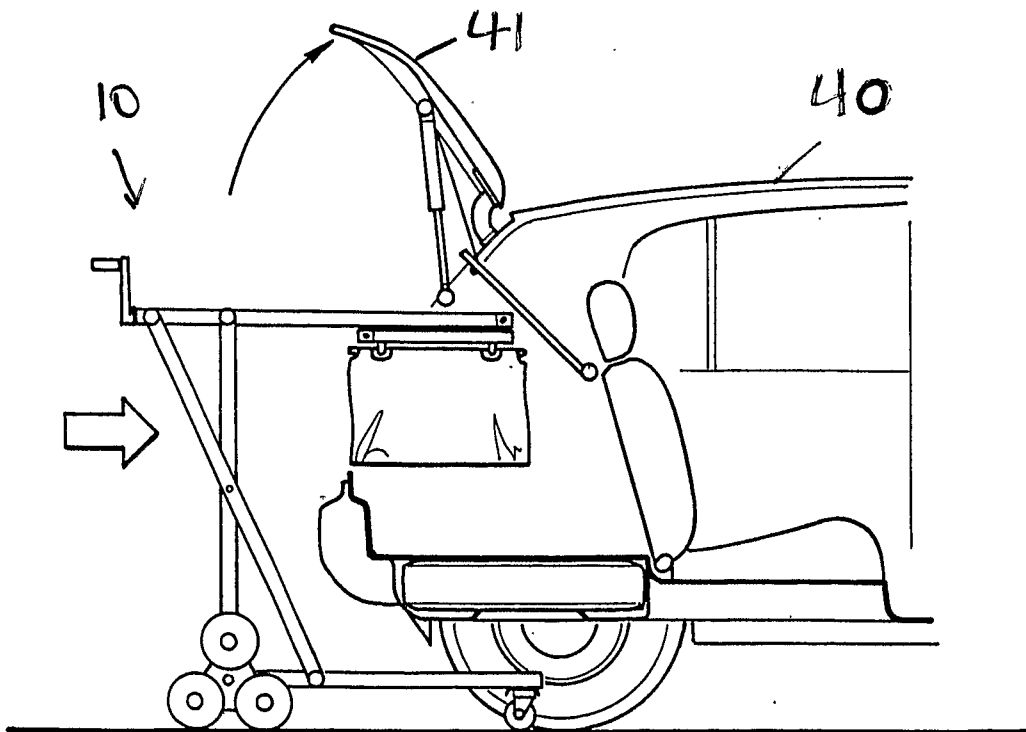


FIG. 3

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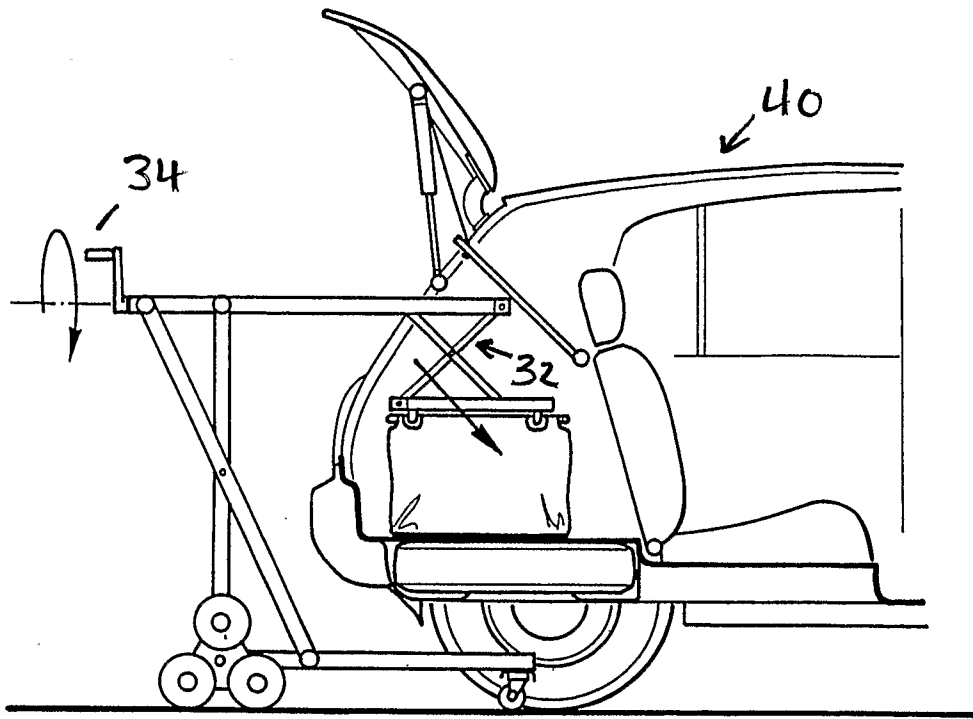


FIG. 4

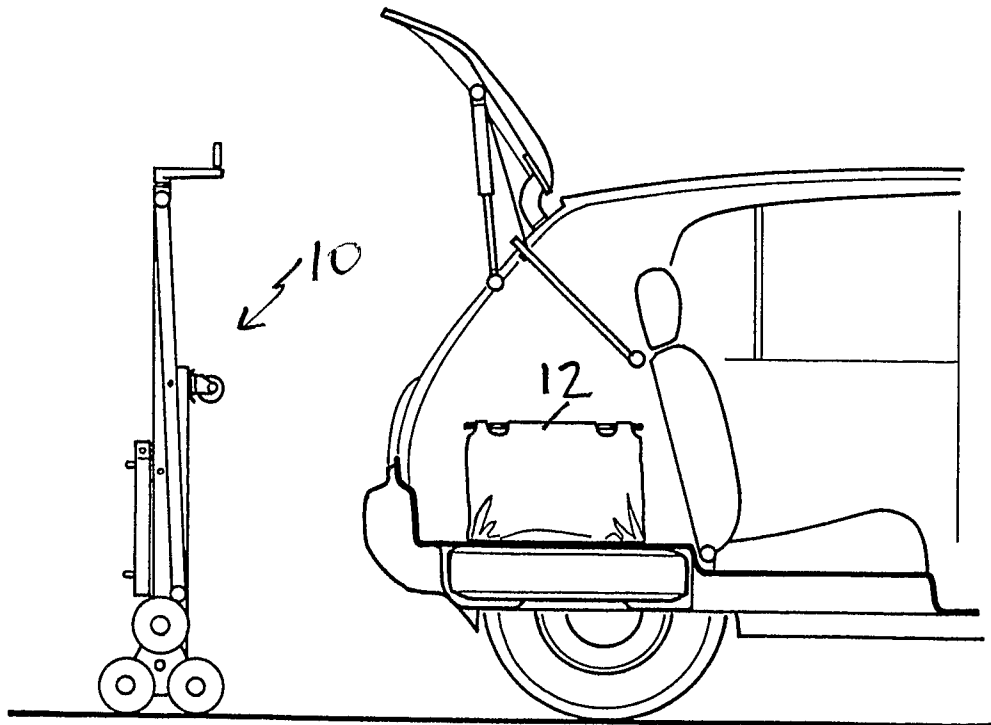


FIG. 5

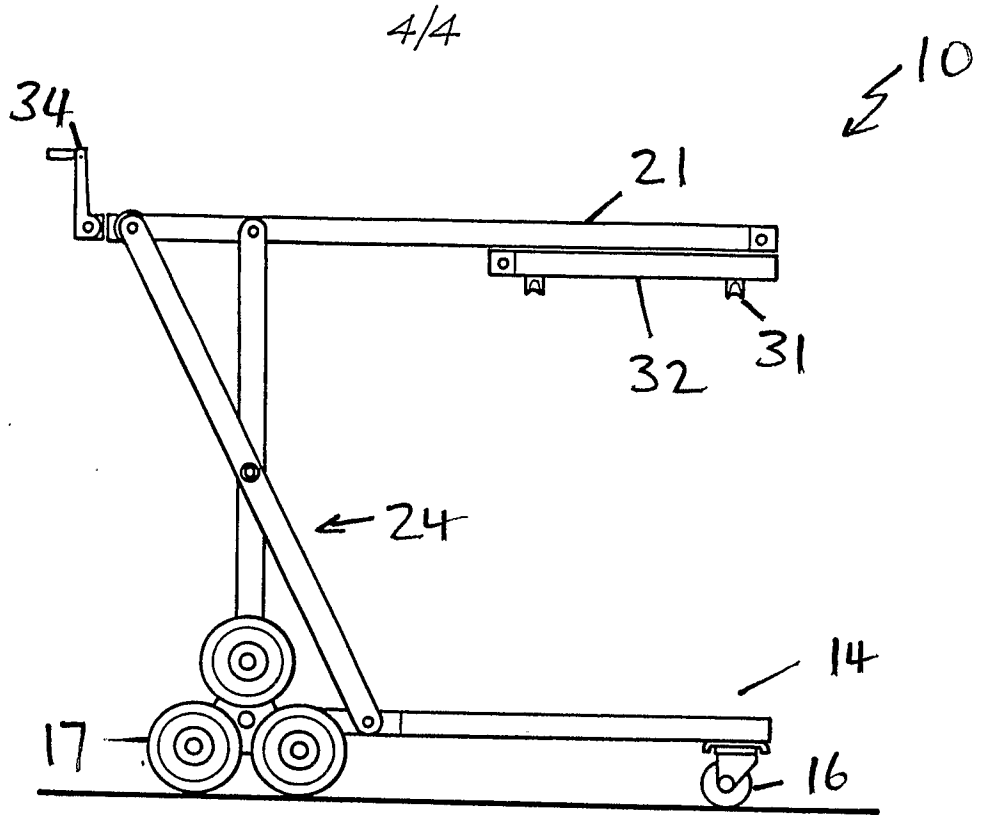


FIG. 6

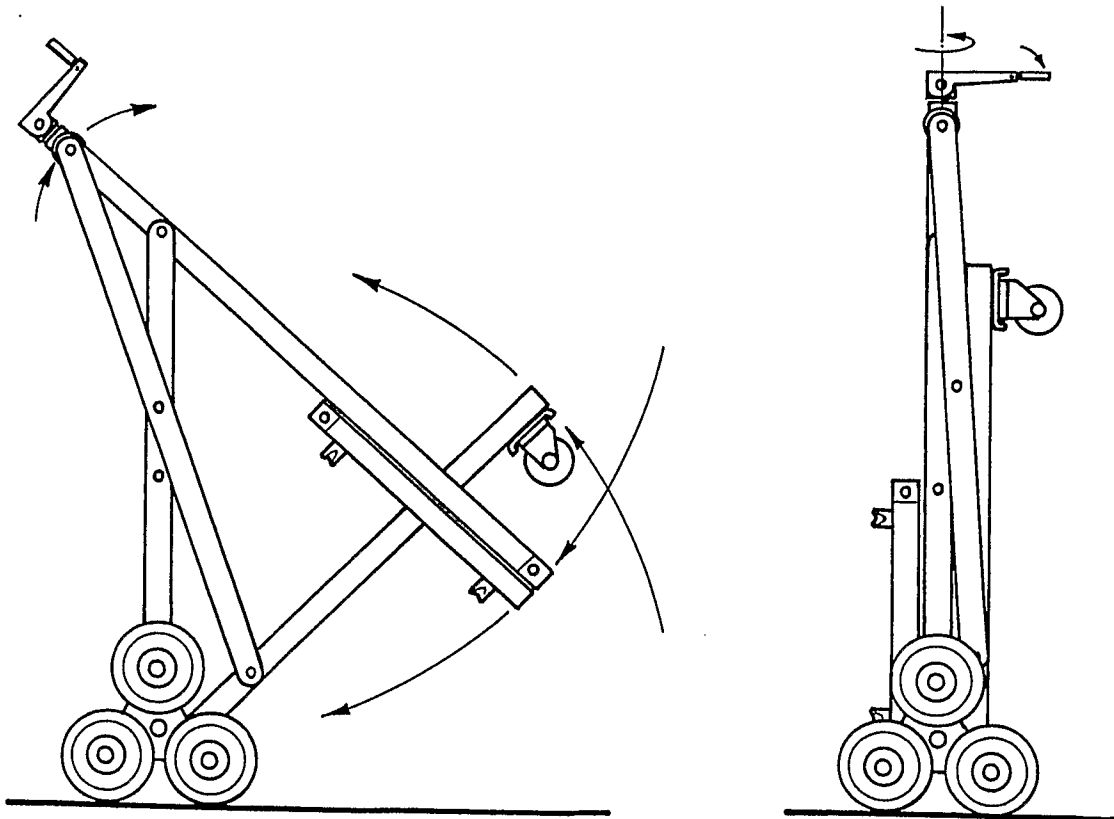


FIG. 7

FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/000349

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

B62B 3/02 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU: IPC B62B 3/02, 3/14, 3/18

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: IPC B62B with keywords such as shop, collapse, suspend and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X | US 6024527 A (SORIANO) 15 February 2000 Whole document | 1, 2, 5-9 |
| Y | Whole document | 3, 4 |
| Y | FR 2836444 A (CLOUVEL) 29 August 2003 Whole document | 3, 4 |
| X | FR 2708898 A (DE MARIGNY) 17 February 1995 Whole document | 1, 2, 5-9 |
| X | GB 2234472 A (GILL) 6 February 1991 Whole document | 1, 2, 5-9 |

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* Special categories of cited documents:

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Date of the actual completion of the international search
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/000349

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|---|--|-----------------------|
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| A | FR 2836445 A (CLOUVEL) 29 August 2003 | |
| A | EP 1180463 A (PLASFIL – PLASTICOS DA FIGUEIRA, LDA) 20 February 2002 | |
| A | NL 1013992 C (BREUGEM) 3 July 2001 | |
| A | DE 19812119 A (KRYGER) 23 September 1999 | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2006/000349

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | Patent Family Member |
|---|----------------------|
| US 6024527 | EP 849140 FR 2756242 |
| FR 2836444 | FR 2836445 |
| FR 2708898 | NONE |
| GB 2234472 | NONE |
| FR 2836445 | FR 2836444 |
| EP 1180463 | NONE |
| NL 1013992 | NONE |
| DE 19812119 | NONE |

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX