

The Australian Innovation Patent

(background to the “wheel” patent)

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Circular transportation facilitation device

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ABSTRACT

In accordance with a first aspect of the present invention, there is provided a transportation facilitation device including a circular rim, a bearing in which a hollow cylindrical member is rotatable about a rod situated within the hollow cylindrical member, and a series of connecting members connecting the circular rim with the hollow cylindrical member to maintain the circular rim and the hollow cylindrical member in substantially fixed relation, wherein the rod is positioned on an axis perpendicular to the plane of the circular rim, and substantially central of the circular rim.

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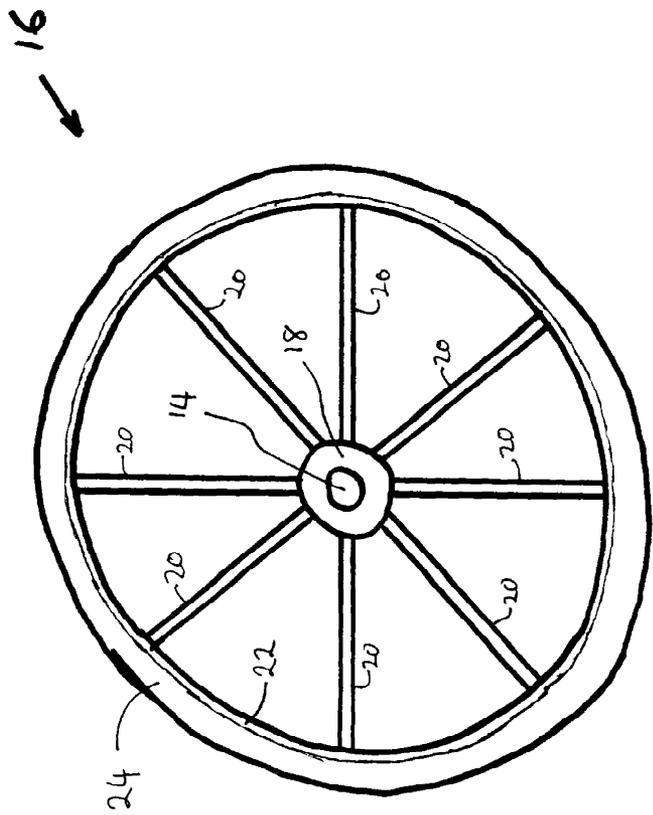


FIGURE 2

A U S T R A L I A

Patents Act 1990

**COMPLETE SPECIFICATION
INNOVATION PATENT**

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Invention Title: **CIRCULAR TRANSPORTATION FACILITATION
DEVICE.**

TITLE: CIRCULAR TRANSPORTATION FACILITATION DEVICE

FIELD OF THE INVENTION

- 5 The invention relates to a device for facilitating transport of goods and persons. In particular, the device relates to a circular object which enables such goods and persons to be held above a surface and simultaneously moved with respect to the surface approximately parallel thereto.

10 **BACKGROUND OF THE INVENTION**

In the past, transportation of goods and persons has been conducted in a number of ways. The predominant means has been transport of persons on foot, and carrying thereby of goods requiring transport.

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Other means of transport have included, in colder climates, skis, sleds, toboggans and the like, which slide over a smooth (low coefficient of friction) surface such as ice or snow, thus transporting the person and/or goods. These modes of transport have the advantage that when travelling down a sloped surface, free movement, that is, unassisted forward
5 motion, is possible. The user is only required to apply effort to cause movement when travelling uphill or on a substantially flat plane, and this reduced effort helps the user move to the desired destination more quickly and more easily.

Unfortunately, such smooth surfaces for sliding over are not generally available in
10 warmer climates where snow and ice do not form naturally. As such, and in the absence of alternatives, foot transport may be required. It would be useful if a device was available which enabled such unassisted forward motion on downhill slopes on surfaces having a much higher coefficient of friction than snow or ice.

15 **SUMMARY OF THE INVENTION**

In accordance with a first aspect of the present invention, there is provided a transportation facilitation device including:-

20 a circular rim;

a bearing in which a hollow cylindrical member is rotatable about a rod situated within the hollow cylindrical member; and

25 a series of connecting members connecting the circular rim with the hollow cylindrical member to maintain the circular rim and the hollow cylindrical member in substantially fixed relation; wherein

the rod is positioned on an axis perpendicular to the plane of the circular rim, and
30 substantially central of the circular rim.

PREFERRED ASPECTS OF THE INVENTION

In a preferred form of the present invention, a rubber layer is provided on an outer surface of the circular rim to allow smoother rolling of the circular rim over a surface on which it is placed, and to protect the outer surface of the circular rim.

- 5 In a further preferred form of the invention, the rubber layer includes an inflatable tube.

BRIEF DESCRIPTION OF THE VIEWS OF THE DRAWINGS

The invention will now be further described in relation to the attached drawings, in
10 which:-

Figure 1 is a perspective drawing of a cart incorporating a series of circular transportation facilitation devices in accordance with a preferred aspect of the present invention; and

- 15 Figure 2 is a side elevational view of a circular transportation facilitation device in accordance with a preferred aspect of the present invention.

DETAILED DESCRIPTION WITH RESPECT TO THE DRAWINGS

- 20 Turning firstly to Figure 1, there is provided a cart 10 in the form of an open topped box 12. Mounted to the underside of the box 12 are rods (or axles) 14. The rods 14 are mounted perpendicularly to the direction of movement indicated by arrow A.

- Mounted on each end of each rod 14 is a circular transportation facilitation device 16,
25 also shown in Figure 2. Each circular transportation facilitation device 16 lies in a plane substantially perpendicular to the axis of its respective rod 14.

- Each circular transportation facilitation device 16 includes a hollow cylindrical bearing member 18, a series of connecting members 20 and a circular rim member 22. Attached
30 to each rim member 22 is a protective rubber sheath 24, which may be inflated with air to provide cushioning to the cart 10 and protect the rim member 22 during use.

The hollow cylindrical bearing member 18 of each circular transportation facilitation

device 16 is rotatably mounted on a rod 14. The hollow cylindrical bearing member 18 is fixed to the circular rim member 22 by the series of connecting members 20 as shown.

As constructed, the cart 10 is movable backwards or forwards in line with axis A, to effect carriage of goods and/or persons (not shown) in the open box 12. As the cart 10 moves in a given direction on a surface on which it is placed, the circular transportation facilitation devices 16 simultaneously rotate to allow smooth forward or backward movement of the cart 10, largely unaffected by the coefficient of friction between the surface on which the cart 10 is situated and the part of the circular transportation facilitation device 16 which is in contact with the surface. The rotating motion of the circular transportation facilitation devices 16 means that there is little, if any relative movement between the surface on which the cart 10 is situated and the part of the circular transportation facilitation device 16 which is in contact with the surface.

The circular transportation facilitation device 16 clearly has wide applicability in transport of goods and persons from one point to another, and it is anticipated that the scope of the claims defined hereunder would cover such various forms of transport as well as a wide range of other uses.

THE CLAIMS OF THE INVENTION ARE AS FOLLOWS:

1. A transportation facilitation device including:-
 - 5 a circular rim;
 - a bearing in which a hollow cylindrical member is rotatable about a rod situated within the hollow cylindrical member; and
 - 10 a series of connecting members connecting the circular rim with the hollow cylindrical member to maintain the circular rim and the hollow cylindrical member in substantially fixed relation; wherein
 - the rod is positioned on an axis perpendicular to the plane of the circular rim, and
 - 15 substantially central of the circular rim.
2. A transportation facilitation device in accordance with claim 1, wherein a rubber layer is provided on an outer surface of the circular rim.
- 20 3. A transportation facilitation device in accordance with claim 2, wherein the rubber layer includes an inflatable tube.

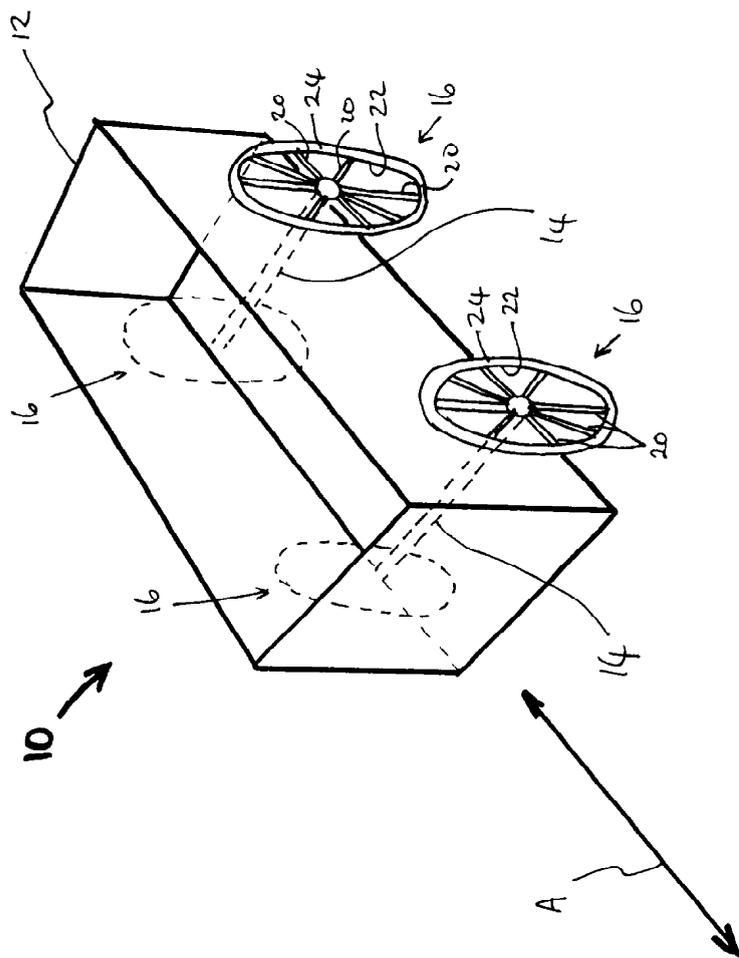


FIGURE 1

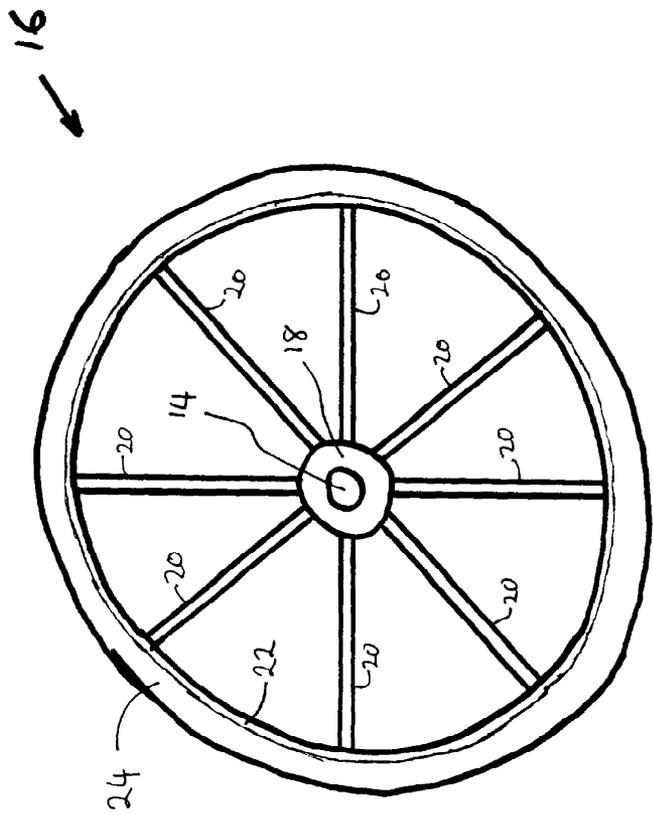


FIGURE 2