(12) UK Patent Application (19) GB (11) 2 043 547 A

(21) Application No **7907680**
(22) Date of filing
5 Mar 1979
(43) Application published
8 Oct 1980
(51) **INT CL³ B62B 3/02**
(52) Domestic classification
B7B 365 367 TC
(56) Documents cited
GB 1375755
(58) Field of search
B7B
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(54) Improvements in or relating to load transporters

(57) A load transporter of the sack-barrow type having a load-carrying platform 20 movable from the illustrated horizontal position to a position parallel to a main frame 2, and a movable wheeled support 14 capable of converting the sackbarrow into a four-wheeled trolley. Auxiliary handles 12, 13 and ball bearings 31 enable the barrow to be easily loaded into a van

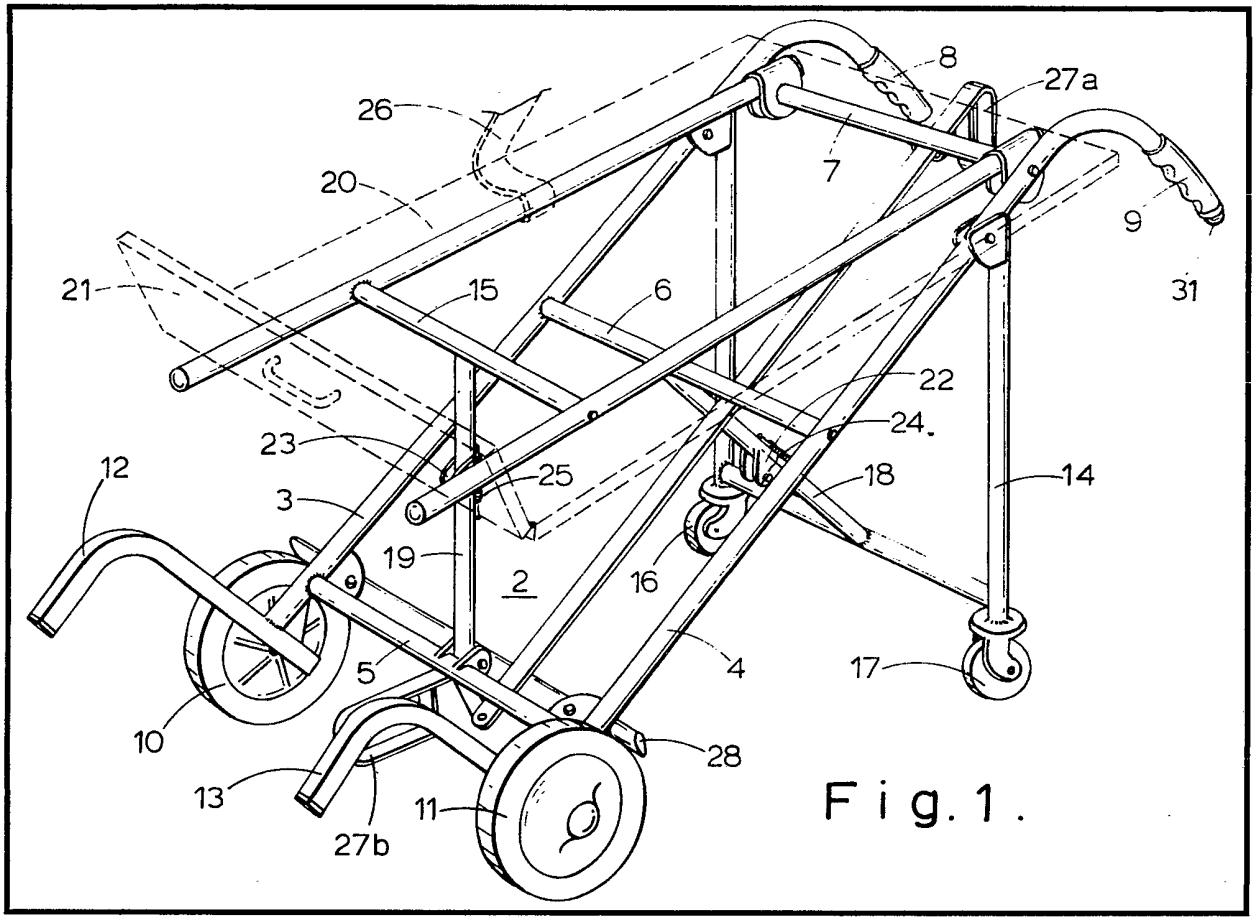

Fig. 1.

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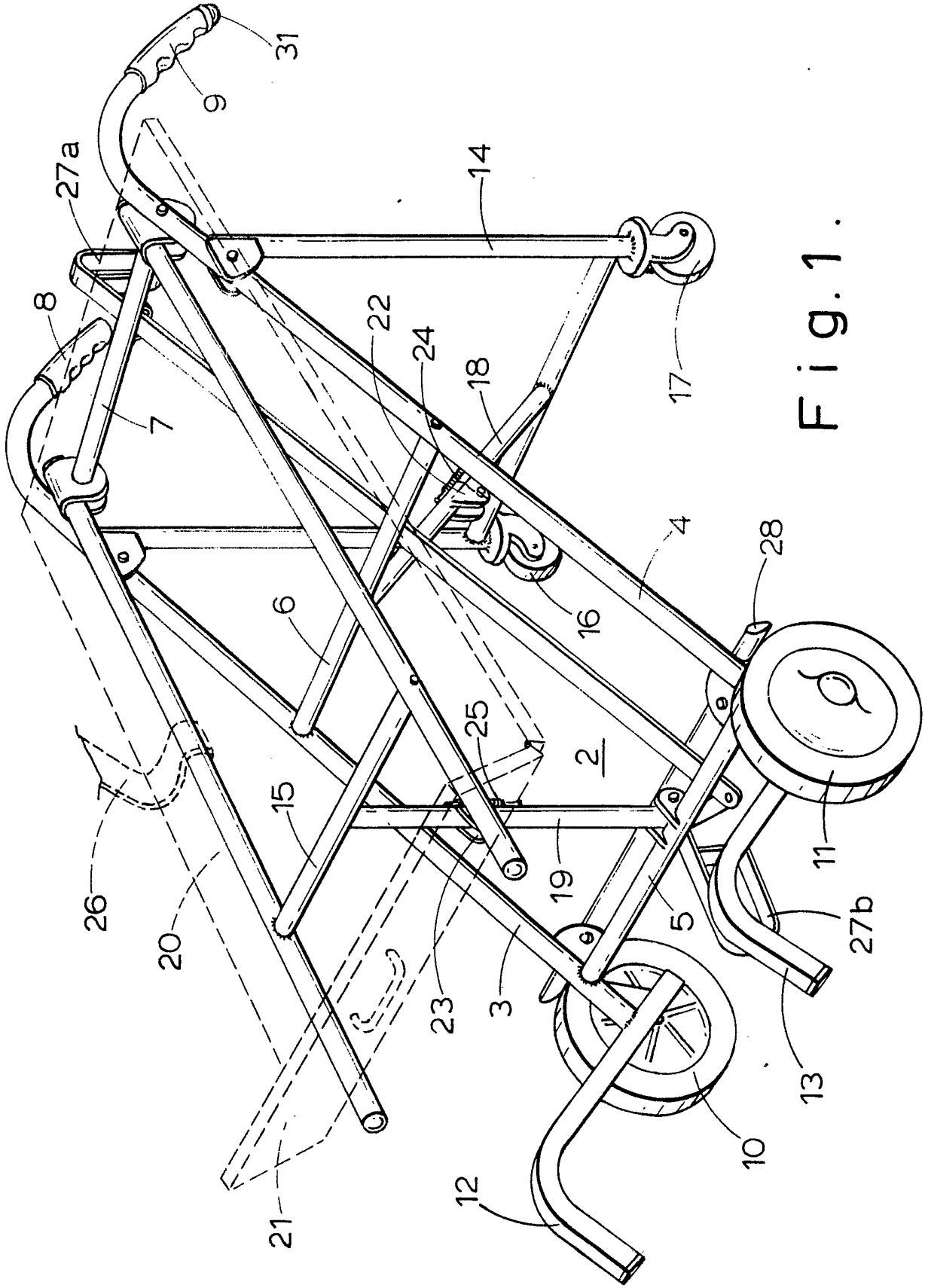

31
9
27a
14
8
22
24
18
17
7
4
28
16
6
25
2
15
26
20
19
5
27b
11
23
3
13
10
12
21

Fig. 1.

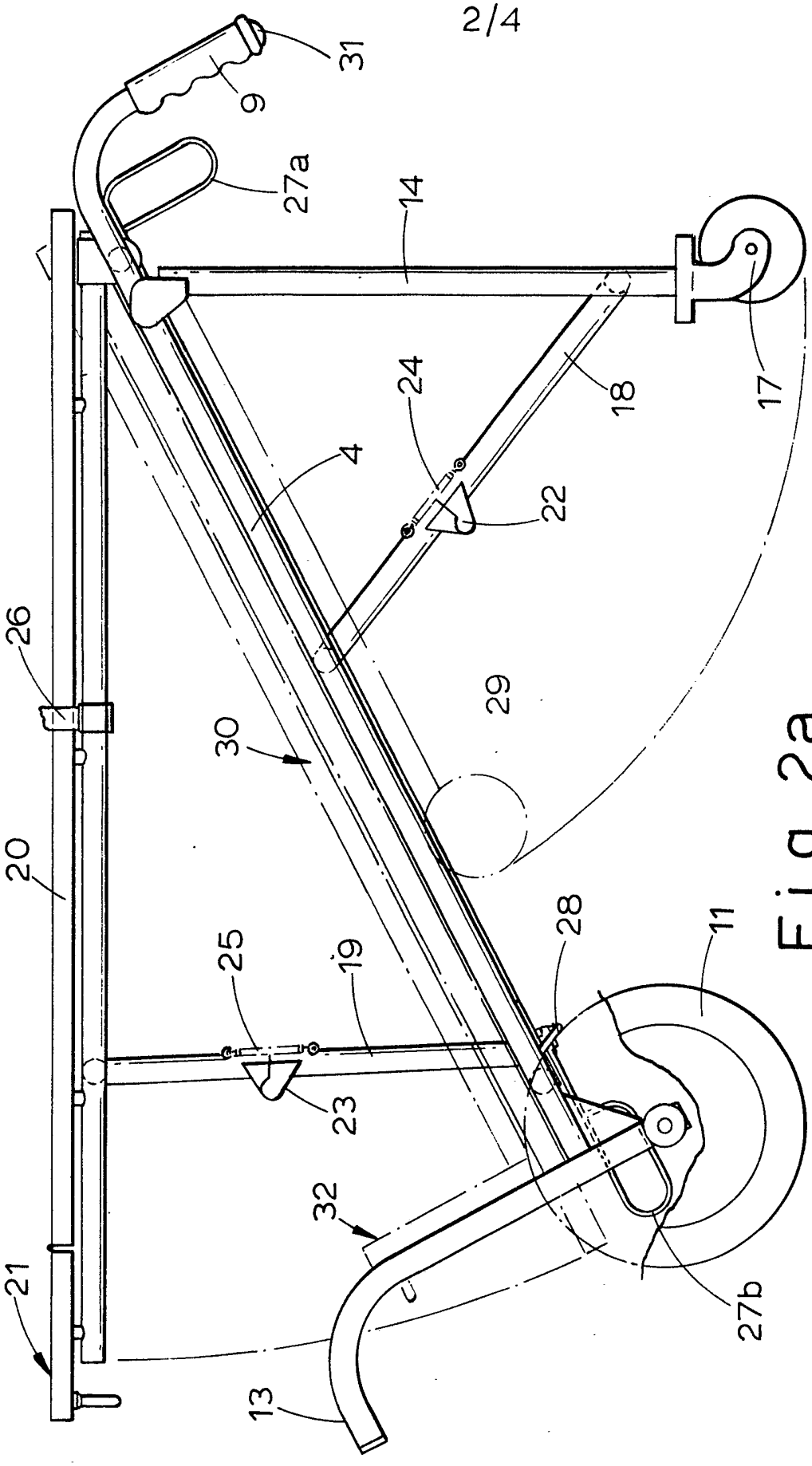


Fig. 2a.

Fig. 2b.

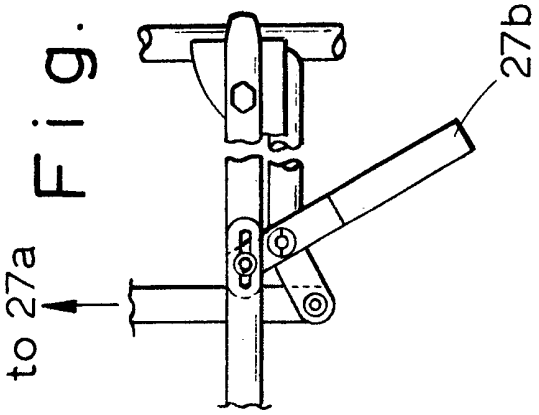
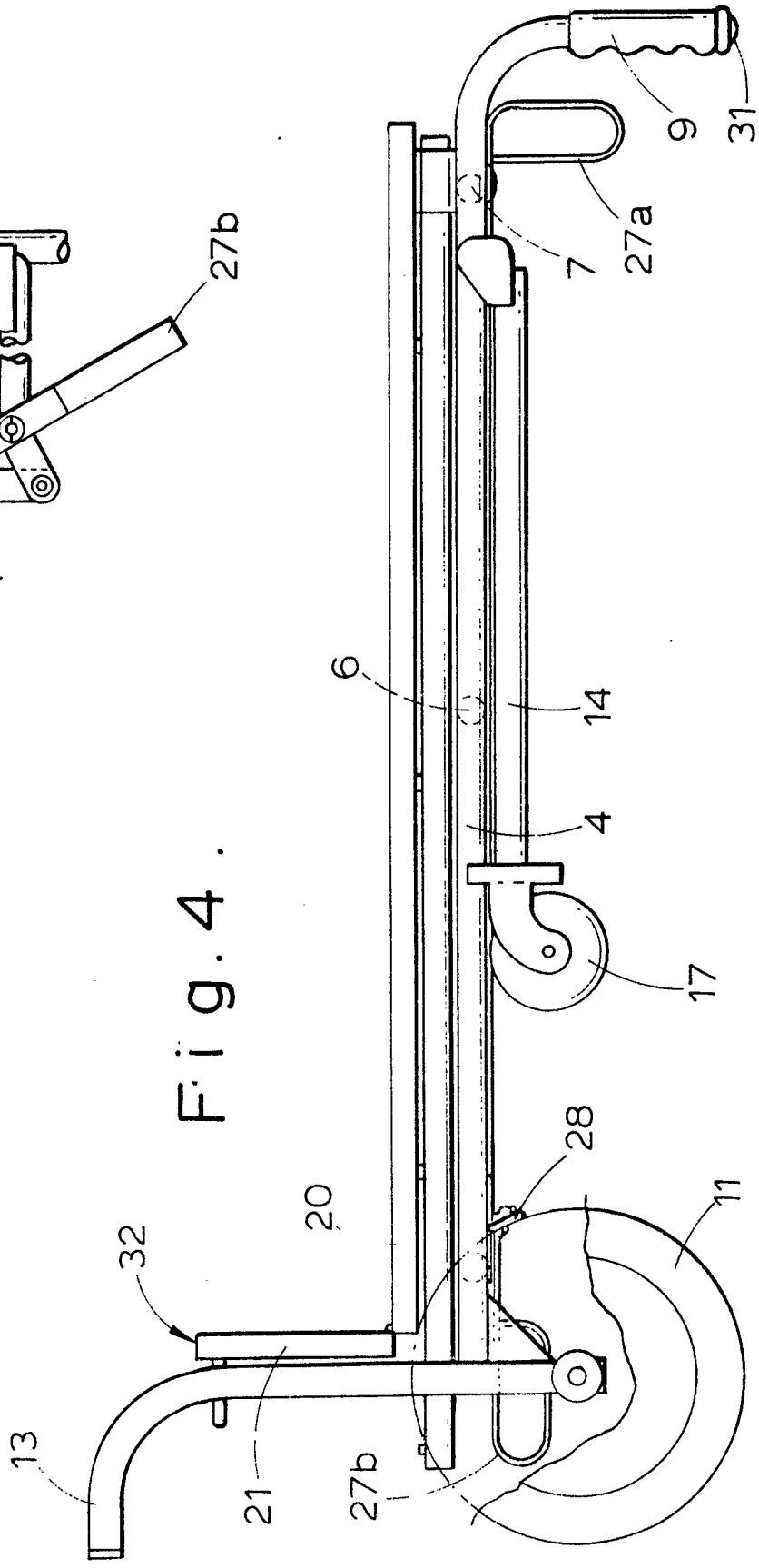


Fig. 4.



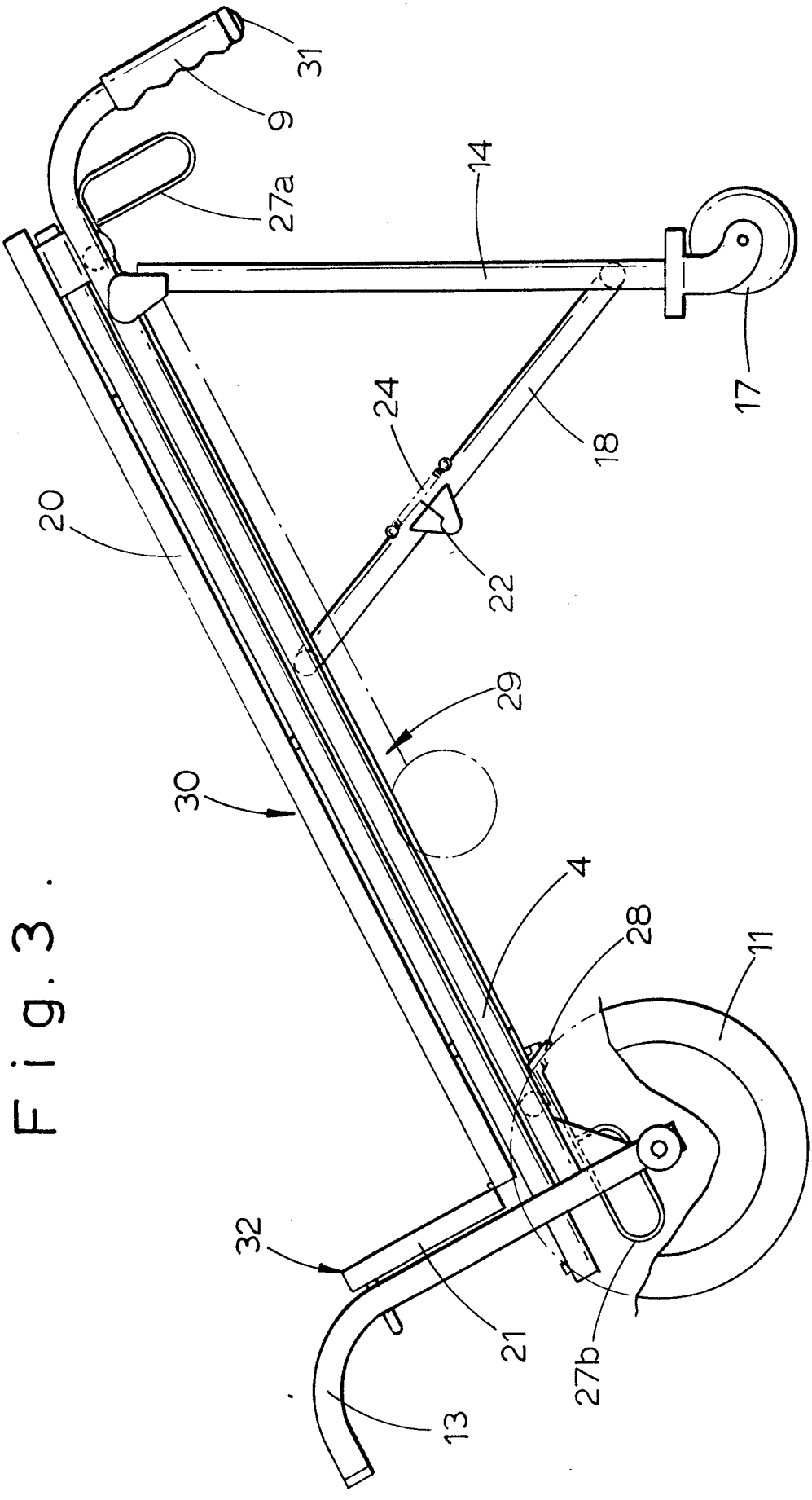


Fig. 3.

SPECIFICATION

Improvements in or relating to load transporters

This invention relates to load transporters, and particularly to manual transporters for transportation of commercial or domestic articles.

At the present time more thought and consideration is being given to the conditions under which employees and others have to work. In particular, it is now recognised that injuries, particularly to the back, can be caused by the carrying of heavy articles and that the provision of mechanical aids to handling of heavy objects is of great benefit both to the employee and the employer.

One area in which the provision of mechanical aids is difficult is where a piece of heavy machinery has to be transported between two places by means of a van or lorry, and may have to be transported at one or both ends of the journey up stairs, through corridors and in lifts. In many cases as well the heavy load has to be lifted off a shelf at the start of its journey, and has to be placed on a shelf or table at the end.

It would be particularly useful if a mechanical aid for transporting heavy loads could be arranged so that the load could be slid off the shelf directly onto a platform on the mechanical aid at the start of the journey and if the load could remain strapped to the mechanical aid until it reached the end of the journey. Obviously, such a mechanical aid would have to be manoeuvrable, would have to provide a firm horizontal platform for loading and unloading, and would have to be easily lifted into the back of a van or lorry. In particular, the load transporter would have to be designed so that it did not cause further problems by its own weight.

According to the invention there is provided a load transporter including

a main frame having load-carrying wheels at a first end and a handle at a second end,
a load-carrying platform pivotally mounted at the second end of said main frame being movable between a first position substantially parallel to said main frame and a second position
and a wheeled support member pivotally mounted at the second end of said main frame and movable from a first position substantially parallel to said main frame to a second position,
the whole being arranged so that when the load carrying wheels of said support member in said second position are grounded the load-carrying platform in said second position is substantially horizontal.

Preferably said load-carrying platform and said wheeled support member are retained in said second positions by spring-loaded collapsible locking bars.

It is further preferred that said handle includes rotating bearing means to support partially the weight of said load transporter at the same time allowing it to be rolled along the ground. Said rotating bearing means may be ball bearings mounted in the ends of said handles it is also preferred that at said first end of said main frame there is provided a secondary handle.

It is also preferred that said load carrying platform has a hinged portion at the end remote from the end pivoted to said main frame, said hinged portion rotating into a load-retaining position substantially perpendicular to the plane of said load carrying platform. When said load carrying platform is provided with said hinge portion, it is preferred that said main frame is arranged to pivot said hinge portion into said load-retaining position when said load carrying platform member is pivoted from said second to said first position.

It is also preferred that said load-supporting member be provided with straps, which may be elasticated, to retain thereon a load.

It is also preferred that said load-carrying wheels are provided with brakes which may be operated by actuating handles at either end of said main frame.

The invention will now be described by way of example only and with reference to the accompanying drawings of which

Figure 1 is a perspective view of the load transporter, and

Figures 2–4 are side views of the load transporter in three different configurations.

Referring now to Fig. 1, the load transporter 1 is constructed basically from a tubular metal frames. A main frame 2 has side members 3 and 4 of tubular metal with cross bracing struts 5, 6 and 7. At the upper end of the main frame are two handles 8, and 9 and at the lower end are a pair of main load-carrying wheels 10 and 11, and a pair of additional handles 12 and 13.

Pivoted to the main frame 2 towards the upper end thereof is a wheeled support member 14 and also a load-carrying member 15. Each of these is again constructed from a tubular metal frame work having main side members and cross bracing struts. The wheeled support member has two small caster wheels 16 and 17 at its lower end, that is at the end not pivoted to the main frame. A collapsible strut 18 holds the wheeled support member in the position shown in Fig. 1, and the wheeled member can be pivoted, when the strut 18 is collapsed, to be parallel with the main frame 2.

The load carrying member 15 is also supported in the position of Fig. 1 by a collapsible strut 19 and can also be pivoted when the strut is collapsed to be parallel with the main frame 2. To support the actual load, a wooden platform 20 is provided attached to

the tubular frame of the load carrying member 15. The geometry of the transporter is such that when the wheeled support member and the load carrying member are supported by the struts 18 and 19 in the position of Fig. 1, when all four wheels of the transporter are on level ground, the platform 20 is also level.

Part of the platform 20 at the end remote from the end pivoted to the main frame is hinged, to provide a load retaining flap 21. The geometry is so arranged that as the load carrying platform pivot towards the main frame 2 the additional handles 12 and 13 engage on one side of the flap 21 and move it into and support it in the position at right angles to the platform 20 so that it can help to retain a load on the platform.

Referring now to Figs. 2–4, the mechanical details of the transporter are shown in greater detail but in side view, and the various configurations in which the transporter is used are shown. The same reference numerals are used throughout the drawings.

Additional points shown in Figs. 2–4 that should specially be noted are

(a) the hinges 22 and 23 and the springs 24 and and 25 in the struts to enable them to collapse yet support the parts of the transporter.

(b) the strap 26 to hold a load on the platform.

(c) the brake handles 27 a and b and the brakes 28. The arrangement of the brake mechanism is shown in the part sketch of Fig. 2b.

(d) the positions of the wheeled support member 14 and load-carrying member 15 when parallel to the main frame 2 (positions 29 and 30 respectively). The interaction of flap 21 and additional handle 13 (and 12) should be noted.

(e) in the end of handle 9 is a ball bearing 31 which can act as a support for the transporter when it is rested on the end of the handles 9 and 8 and also allows the transporter to be rolled on the ball bearing. A second ball bearing is of course provided in the end of handle 8, but is not shown in the Figures.

The operation of the transporter will now be described, using as an example the transport of a teleprinter from a stores to a subscriber's premises.

In the stores the teleprinter will be in the configuration of Fig. 2 put on the transporter; usually assistance will be available for this operation. The load-carrying member can then be lowered to the position 30 after the teleprinter has been strapped on using the straps 26. It can also be rested against the flap 21 which is of course in its load retaining position. This configuration is shown in Fig. 3.

The transporter is then wheeled to the van, on all four wheels where possible. Where there are stairs, lifts or narrow passages, more usually to be found in customers' premises than stores, the wheeled support member can be raised to its position 29 (the configuration shown in Fig. 3) and the transporter used as a sack barrow held by handles 8 and 9.

To load into the van, the doors at the back of the van are opened and the transporter put into the sack barrow configuration. The transporter is moved up to the van and the handle end is manoevered so that the ends of the handles 8 and 9 are over the van floor, so that the handle end of the transporter can be allowed to rest on the van floor supported on the ball bearings (31) and its like in handle 8). The operator then can grasp the additional handles 13 and 12 and roll the transporter into the van on the ball bearings.

On arrival at the subscriber's premises the procedure can be reversed, and the height of the platform 20 is arranged to be just about level with commonly used desks and tables.

CLAIMS

1. A load transporter including

a main frame having load-carrying wheels at a first end and a handle at a second end,

a load-carrying platform pivotally mounted at the second end of said main frame being movable between a first position substantially parallel to said main frame and a second position,

and a wheeled support member pivotally mounted at the second end of said main frame and movable from a first position substantially parallel to said main frame to a second position,

The whole being arranged so that when the load carrying wheels of said support member in said second position are grounded, the load-carrying platform in said second position is substantially horizontal.

2. A load transporter as claimed in claim 1 wherein said load-carrying platform and said wheeled support member are retained in said second positions by spring-loaded collapsible locking bars.

3. A load transporter as claimed in claims 1 or 2 wherein said handle includes rotating bearing means to support partially the weight of said load transporter at the same time allowing it to be rolled along the ground.

4. A load transporter as claimed in claim 3 wherein said rotating bearing means are ball bearings mounted in the ends of said handles.

5. A load transporter as claimed in any of claims 1 to 4 wherein a secondary handle is provided at said first end of said main frame.

6. A load transporter as claimed in any of claims 1 to 5 wherein said load carrying platform has a hinged portion at the end remote from the end pivoted to said main frame, said hinged portion rotating into a load-retaining position substantially perpendicular to the plane of said load carrying plat-

form.

7. A load transporter as claimed in claim 6 wherein said main frame is arranged to pivot said hinge portion into said load-retaining position when said load carrying platform member is pivoted from said second to said first position.

8. A load transporter as claimed in any of claims 1 to 7 wherein said load-supporting member is provided with straps, to retain thereon a load.

9. A load transporter as claimed in any of claims 1 to 8 wherein said load-carrying wheels are provided with brakes, operated by actuating handles at either end of said main frame.

10. A load transporter substantially as described herein with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd.—1980.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.