



Office de la Propriété  
Intellectuelle  
du Canada

Un organisme  
d'Industrie Canada

Canadian  
Intellectual Property  
Office

An agency of  
Industry Canada

CA 2606299 C 2014/12/09

(11)(21) **2 606 299**

(12) **BREVET CANADIEN**  
**CANADIAN PATENT**

(13) **C**

(22) Date de dépôt/Filing Date: 2007/10/05

(41) Mise à la disp. pub./Open to Public Insp.: 2008/04/06

(45) Date de délivrance/Issue Date: 2014/12/09

(30) Priorité/Priority: 2006/10/06 (EP06020982.2)

(51) CI.Int./Int.Cl. **B62D 55/00** (2006.01)

(72) **Inventeurs/Inventors:**

DORAI, SEBASTIEN, CA;  
PELLETIER, MICHEL, CA;  
RUNGGALDIER, MARTIN, IT

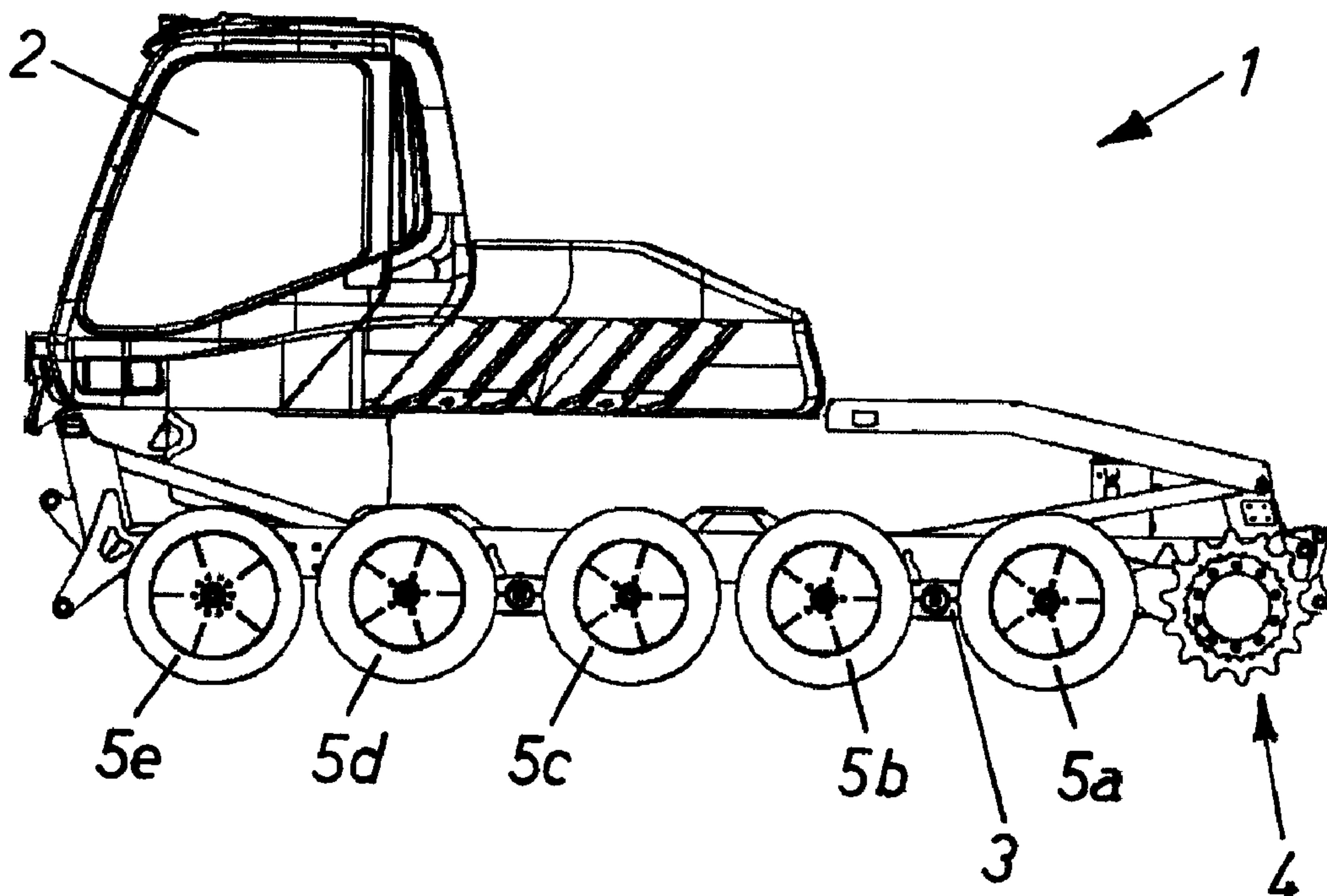
(73) **Propriétaire/Owner:**

SNOWGROLIC S.A R.L., LU

(74) **Agent:** BERESKIN & PARR LLP/S.E.N.C.R.L., S.R.L.

(54) Titre : VEHICULE CHENILLE

(54) Title: TRACKED VEHICLE



(57) Abrégé/Abstract:

A tracked vehicle, particularly a piste grooming vehicle, comprising a chassis frame and at least one sprocket for a track is characterized in that the sprocket has limited movement between a working position - in which the sprocket protrudes beyond the chassis frame - and a transit position in which the sprocket is located at least partially, preferably totally, within the width of the chassis frame.

## ABSTRACT

A tracked vehicle, particularly a piste grooming vehicle, comprising a chassis frame and at least one sprocket for a track is characterized in that the sprocket has limited movement between a working position - in which the sprocket protrudes beyond the chassis frame - and a transit position in which the sprocket is located at least partially, preferably totally, within the width of the chassis frame.

10

(FIG. 4b, FIG. 5)

- 1 -

#### TRACKED VEHICLE

The present invention relates to a tracked vehicle, particularly a piste grooming vehicle, comprising a chassis 5 frame and at least one sprocket for a track.

To optimize footprint performance in minimum time, vehicles (snow cats) with an ever-wider track are employed for piste grooming so that wider tracks, fixed and rotary ploughs can 10 be fitted to the vehicle to get the job done quicker in fewer operating hours of the vehicle. When these snow cats need servicing or are relocated, they often need to be loaded on trucks for transit. Because these snow cats are so wide they often necessitate extra-wide special transit 15 vehicles which, apart from being a traffic nuisance, are very costly. Apart from this, such special transit trucks are barred from access to ski resorts on many high pass and side roads.

20 The object of present invention is thus to propose a generic tracked vehicle for facilitated transit.

According to the present invention there is provided a tracked piste grooming vehicle comprising a chassis frame 25 and at least one sprocket for a track, which is mounted on

- 2 -

the chassis frame by a sprocket mount provided with limited movement between a working position in which the sprocket protrudes beyond the chassis frame and a transit position in which the sprocket is located at least partially within 5 the width of the chassis frame; wherein the sprocket mount is mounted on the chassis frame for pivoting about a horizontal axis.

The sprocket now has limited movement between a working 10 position - in which the sprocket protrudes beyond the chassis frame - and a transit position in which the sprocket is located at least partially, preferably totally within the width of the chassis frame.

15 In this way the sprockets, usually engineered highly massive, can now be moved - preferably on both opposite sides of the tracked vehicle - to a position within the width of the chassis frame so that the width of the snow cat for transit effectively corresponds to the maximum 20 width of the chassis frame, thus achieving a reduction in the effective width of the snow cat and making now truck transit possible to ski resorts with difficult road access.

- 3 -

It is preferable if the sprocket mount is mounted on the chassis frame for pivoting, preferably about a horizontal axis, advantageously in a pivoting range of 0° to 180°, preferably 0° to 90°.

5

The sprocket mount can be locked in the working position and/or in the transit position relative to the chassis frame. This is important so that the sprocket mount, especially in road transit, is unable to make any 10 uncontrolled movements. This is why the relative position of the sprocket mount is lockable in at least one of the two final positions relative to the chassis frame.

The sprocket can be powered by a hydraulic drive, it being 15 expedient in this respect when the hydraulic drive comprises at least one hydraulic tubing, preferably a flexible hydraulic tubing, mounted on the sprocket mount. One special feature of the invention concerned is that the hydraulic tubing can remain connected to the sprocket mount 20 in the restricted range of movement between the working position and the transit position in thus enabling the sprocket mount together with the flexible hydraulic tubing connected thereto to move from the working position, as described, into the transit position or vice-versa without

- 4 -

it being necessary to disconnect the hydraulic tubing or also having to drain the hydraulic tubing.

This avoids the time-consuming hassle of having to remove 5 and refit the hydraulic tubing. Since a piste grooming vehicle features in addition to the actual sprockets also several idlers for supporting the track it is expedient when the idlers are mounted on the chassis frame via mounts. This results in an advantageous aspect of the 10 invention in that the mounts are arranged on the chassis frame releasably secured, preferably bolted, in thus eliminating any parts projecting from the chassis frame during transit constituting an accident risk.

15 Further details of the invention will now be explained with reference to the drawing in which:

FIG. 1 is a side view of a piste grooming vehicle.

FIG. 2 is a front view of the piste grooming 20 vehicle,

FIG. 3 is a top-down view of the piste grooming vehicle,

FIG. 4a is a view in detail of a chassis frame mounted sprocket mount in the working position as viewed 25 in a perspective front view,

- 5 -

FIG. 4b is a view in detail of a chassis frame mounted sprocket mount in the working position as viewed in a perspective rear view,

FIG. 5 is a perspective rear view of the sprocket mount 5 pivoted in the transit position

FIG. 6a is rear view of the sprocket mount in the working position,

FIG. 6b is a rear view of the sprocket mount in the transit position,

10 FIG. 7a is a top-down view of the sprocket mount in the working position,

FIG. 7b is a top-down view of the sprocket mount in the transit position

15 Referring now to FIG. 1 there is illustrated a diagrammatic side view of a piste grooming vehicle 1 comprising a driver's cab 2 mounted on a substantially rectangular chassis frame 3. Arranged on the chassis frame 3 on each side of the piste grooming vehicle 1 is at least one 20 sprocket 4 for a track (not shown) for driving the vehicle.

Provided in addition to the sprocket 4 are idlers 5a - 5e for supporting the track. The embodiment shown is intended merely as an example. Indeed, a plurality of sprockets 4 on each side of the piste grooming vehicle 1 may also be 25 provided, the sprockets 4 having limited movement from the

- 6 -

described working position into the transit position and vice-versa.

Referring now to FIG. 2 there is illustrated a front view  
5 of the piste grooming vehicle 1 showing the driver's cab 2  
and the idlers 5e mounted on the chassis frame 3 on both  
sides of the vehicle.

Referring now to FIG. 3 there is illustrated a diagrammatic  
10 top-down view of the piste grooming vehicle 1. The  
following relates just to the lower sprocket 4 and to the  
configuration of the idlers 5a - 5e, i.e. on the left-hand  
side of the vehicle. Provided at the chassis frame 3 in  
addition to the load-communicating idlers 5a - 5e is the  
15 sprocket 4 for the track. The sprocket 4 is mounted on the  
chassis frame 3 by a sprocket mount 6. The sprocket 4 is  
shown in the working position. i.e. in the position as  
usual for powering the track in piste grooming. In  
accordance with the invention at least one sprocket 4 or  
20 its sprocket mount 6 has limited movement relative to the  
chassis frame 3 such that the sprocket 4 and its sprocket  
mount 6 respectively can be moved into a transit position  
which is within the width B of the chassis frame 3 as  
detailed in the comments as to the following FIGs.

- 7 -

Referring now to FIG. 4a there is illustrated a front view in perspective of the chassis frame 3 with the sprocket 4 and idlers 5a removed to show the sprocket mount 6 and the mount 7 for the idler 5a. As shown in this FIG. the 5 sprocket mount 6 is in the working position in which it projects sideways from the chassis frame 3. The mount 7 for the idler 5a comprises a releasable fastener for releasably connecting the mount 7 with the chassis frame 3, i.e. the mount 7 can be easily unbolted from the chassis frame 3 for 10 transit.

Referring now to FIG. 4b, there is illustrated the same as in FIG. 4a in a perspective rear view in which the flexible hydraulic tubing 8a and 8b are evident as part of a 15 hydraulic transmission for the sprocket 4. Also evident is a wedge-shaped fastener 9 for locking the relative position of the sprocket mount 6 in the working position as well as in the transit position.

20 Referring now to FIG. 5 there is illustrated the sprocket mount 6 pivoted into the transit position. For this purpose the wedge-shaped fastener 9 (FIG. 4b) has been unbolted so that the sprocket mount 6 can be pivoted about at least one - preferably horizontal - axis, resulting in the sprocket 25 mount 6 now being within the width B (FIG. 3) of the

chassis frame 3. It is evident how the two flexible hydraulic tubings 8a and 8b always remain connected to the sprocket mount 6 during the limited movement between the working position as shown in FIG. 4b and the transit 5 position as shown in FIG. 5 to thus eliminate the time and trouble as would otherwise be needed to remove and refit the flexible hydraulic tubing 8a and 8b. The unbolted fastener 9 as shown in FIG. 4b is then bolted relocated to lock the transit position. Thus, one and the same fastener 10 9 serves to lock both final positions.

Referring now to FIGs. 6a and 6b there is illustrated the working position (FIG. 6a) as compared to the transit position (FIG. 6b) in a rear view. The range available for 15 pivoting the sprocket mount 6 is preferably from 0° to 90°, it being in any case favorable, however, that the sprocket mount 6 in the transit position remains within the width of the chassis frame 3.

20 Referring now to FIGs. 7a and 7b there is illustrated the working position (FIG. 7a) as compared to the transit position (FIG. 7b) in a top-down view. Evident in FIG. 7a is the fastener 9 locking the working position whilst in FIG. 7b the fastener 9 is mounted relocated in locking the 25 transit position.

The present invention is not restricted to the embodiment shown, it instead covers all and any technical variants and technical equivalents within the scope as claimed. The locational indications too, as selected in the description, 5 such as for instance, up, down, side etc. relate to the usual position as installed or to the FIG. as described directly and shown and in a change in position are to be transposed correspondingly to the new position. The means for limited pivoting of the sprocket 4 or its sprocket 10 mount 6 between the working position and the transit position can, of course, feature at least one, preferably hydraulically powered, piston-cylinder unit.

- 10 -

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. A tracked piste grooming vehicle comprising a chassis frame and at least one sprocket for a track, which is mounted on the chassis frame by a sprocket mount provided with limited movement between a working position in which the sprocket protrudes beyond the chassis frame and a transit position in which the sprocket is located at least partially within the width of the chassis frame; wherein the sprocket mount is mounted on the chassis frame for pivoting about a horizontal axis.
- 15 2. The tracked ski piste grooming vehicle as claimed in claim 1, characterized in that the sprocket mount is lockable in the working position and/or in the transit position relative to the chassis frame.
- 20 3. The tracked ski piste grooming vehicle as claimed in claim 2, characterized in that the locking means comprise at least one fastener releasably securable to the chassis frame, on the one hand, and to the sprocket mount, on the other.

- 11 -

4. The tracked ski piste grooming vehicle as claimed in claim 3, characterized in that one and the same fastener is provided to lock the working position and the transit position.

5

5. The tracked ski piste grooming vehicle as claimed in claim 1, characterized in that the sprocket is powered by a hydraulic drive.

10 6. The tracked ski piste grooming vehicle as claimed in claim 5, characterized in that the hydraulic drive comprises at least one hydraulic tubing mounted on the sprocket mount.

15 7. The tracked ski piste grooming vehicle as claimed in claim 6, characterized in that the hydraulic tubing always remains connected to the sprocket mount during the limited movement between the working position and the transit position.

20

8. The tracked ski piste grooming vehicle as claimed in claim 1, characterized in that several idlers are provided for the track.

- 12 -

9. The tracked ski piste grooming vehicle as claimed in claim 8, characterized in that the idlers are mounted on the chassis frame via mounts.
- 5 10. The tracked ski piste grooming vehicle as claimed in claim 9, characterized in that the mounts are releasably secured to the chassis frame.

Fig.1

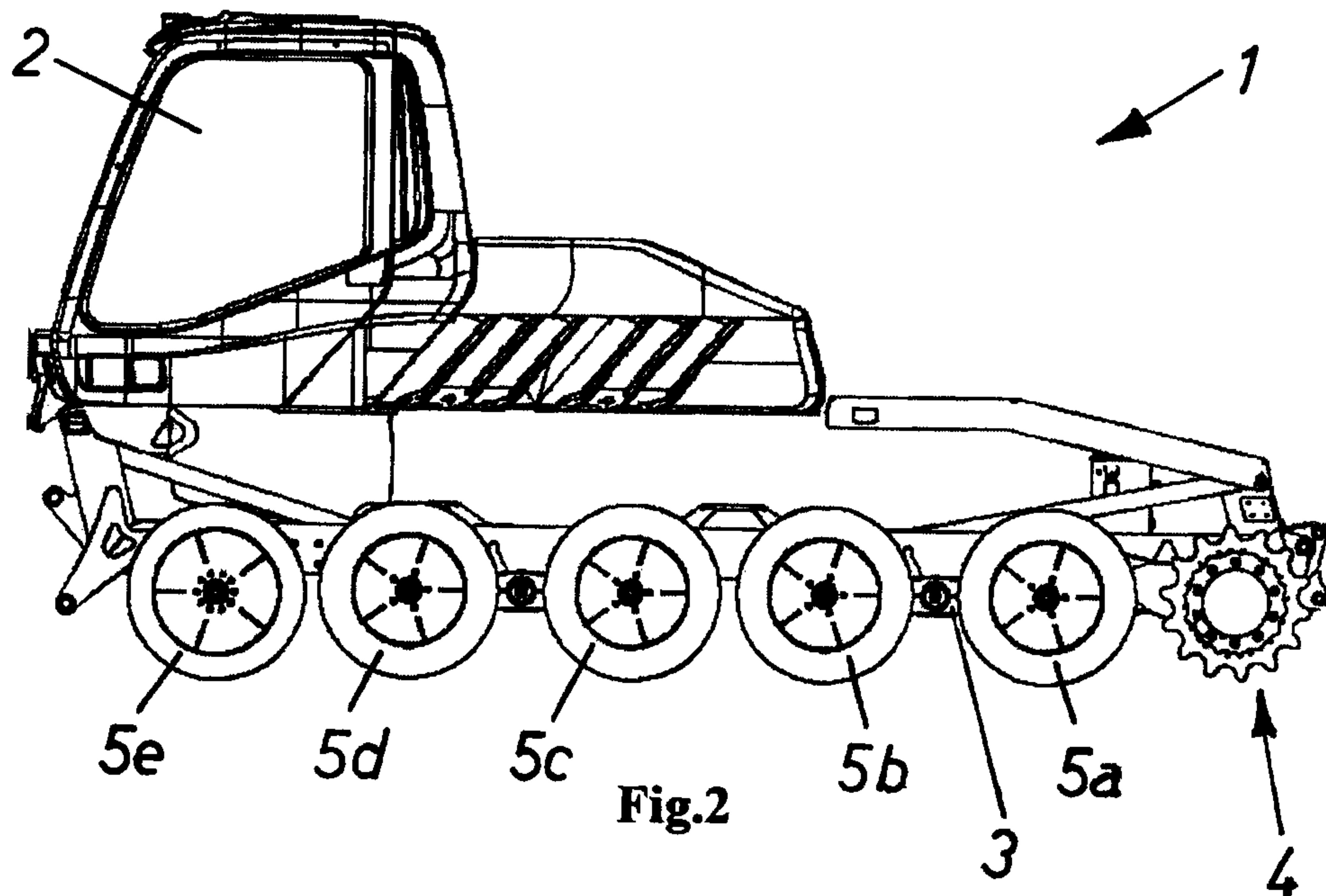


Fig.2

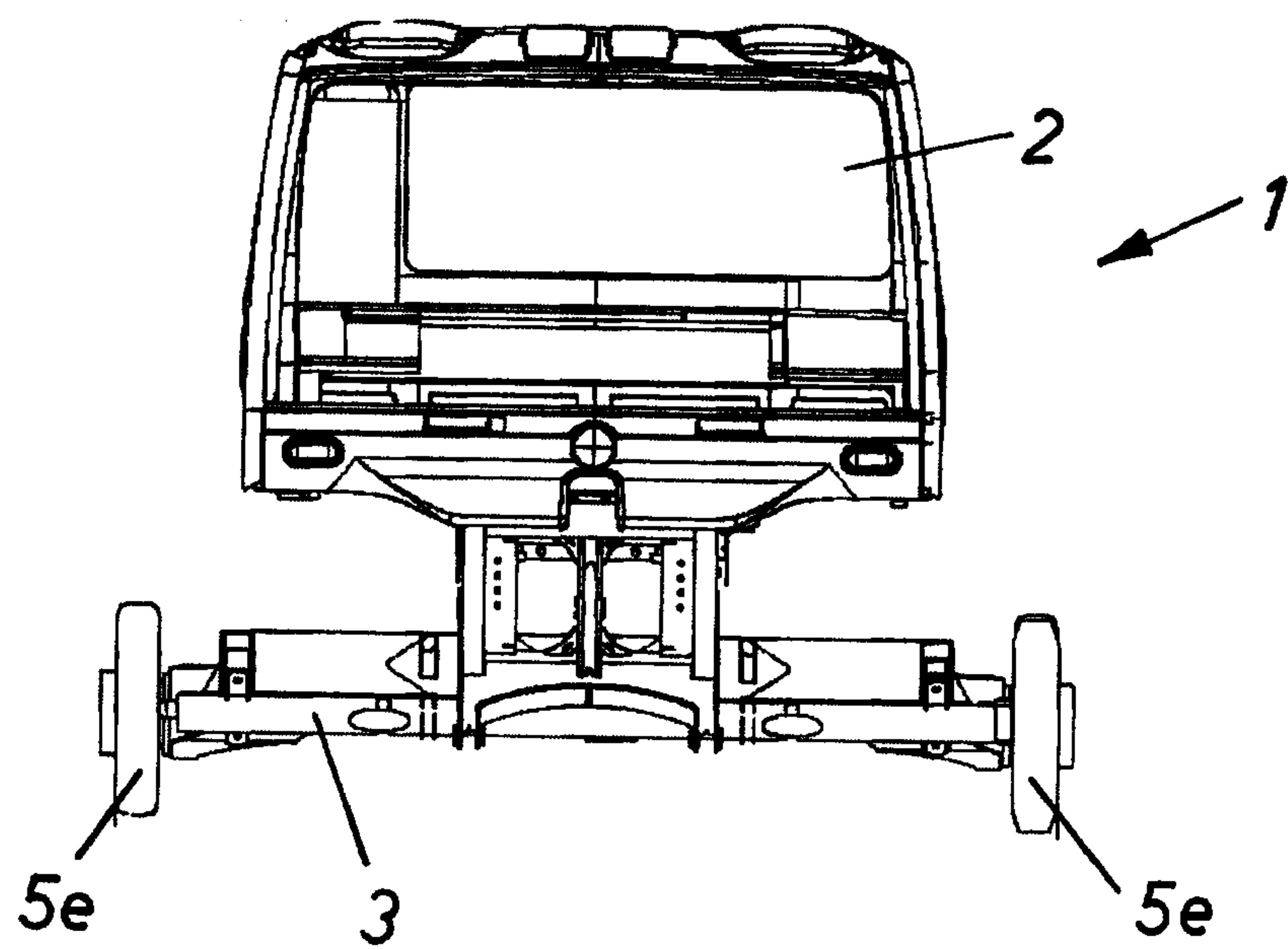


Fig.3

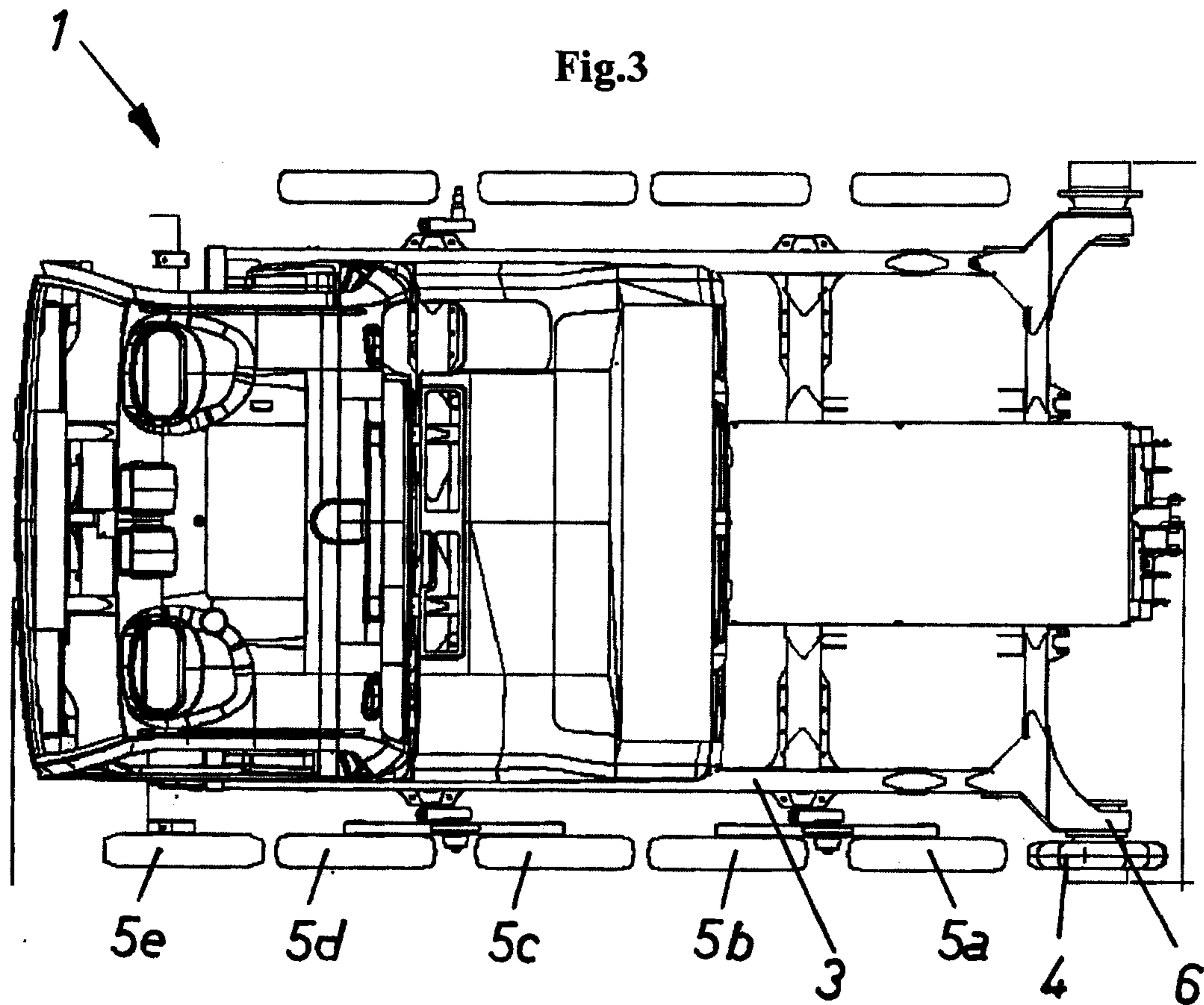


Fig.4a

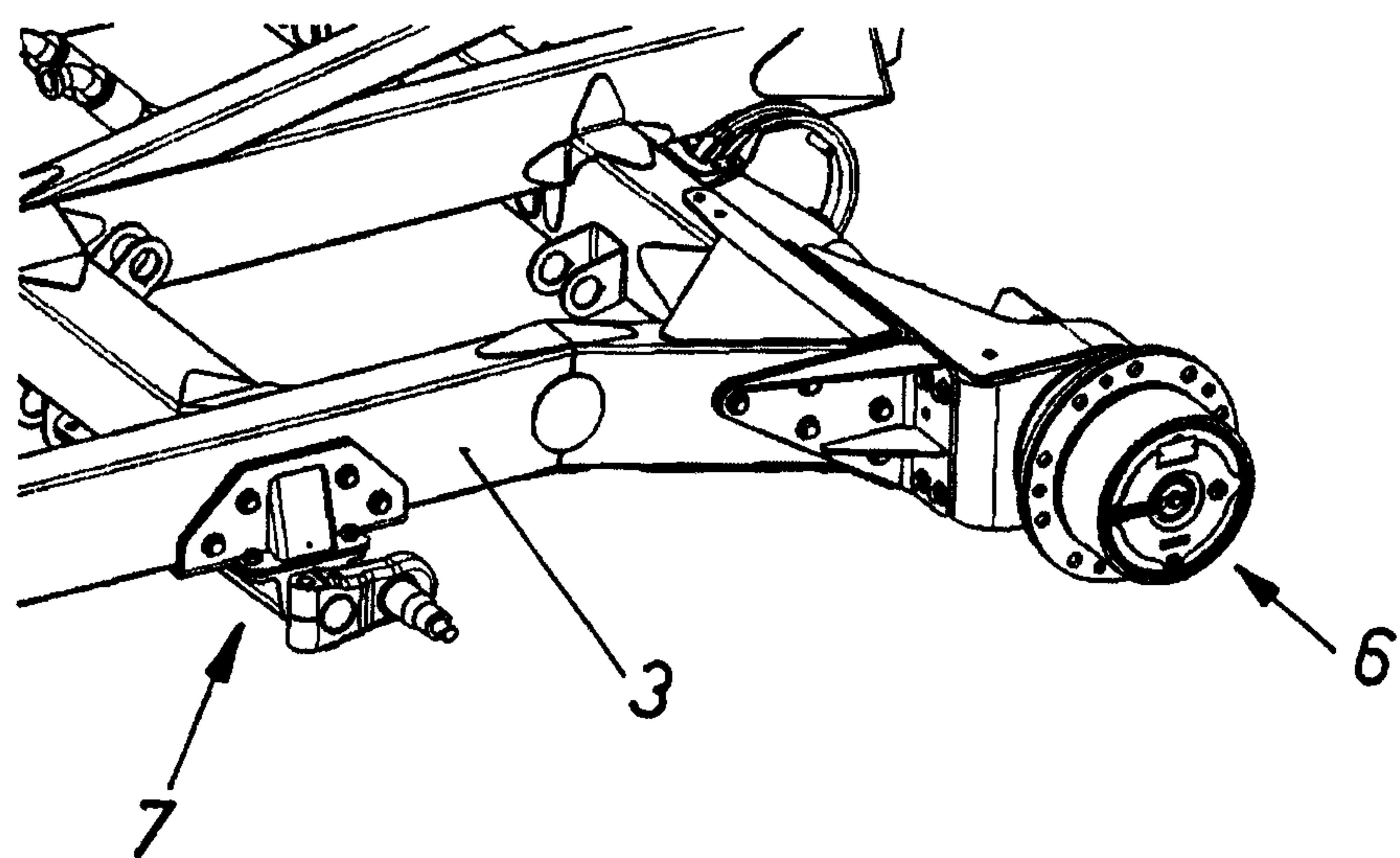


Fig.4b

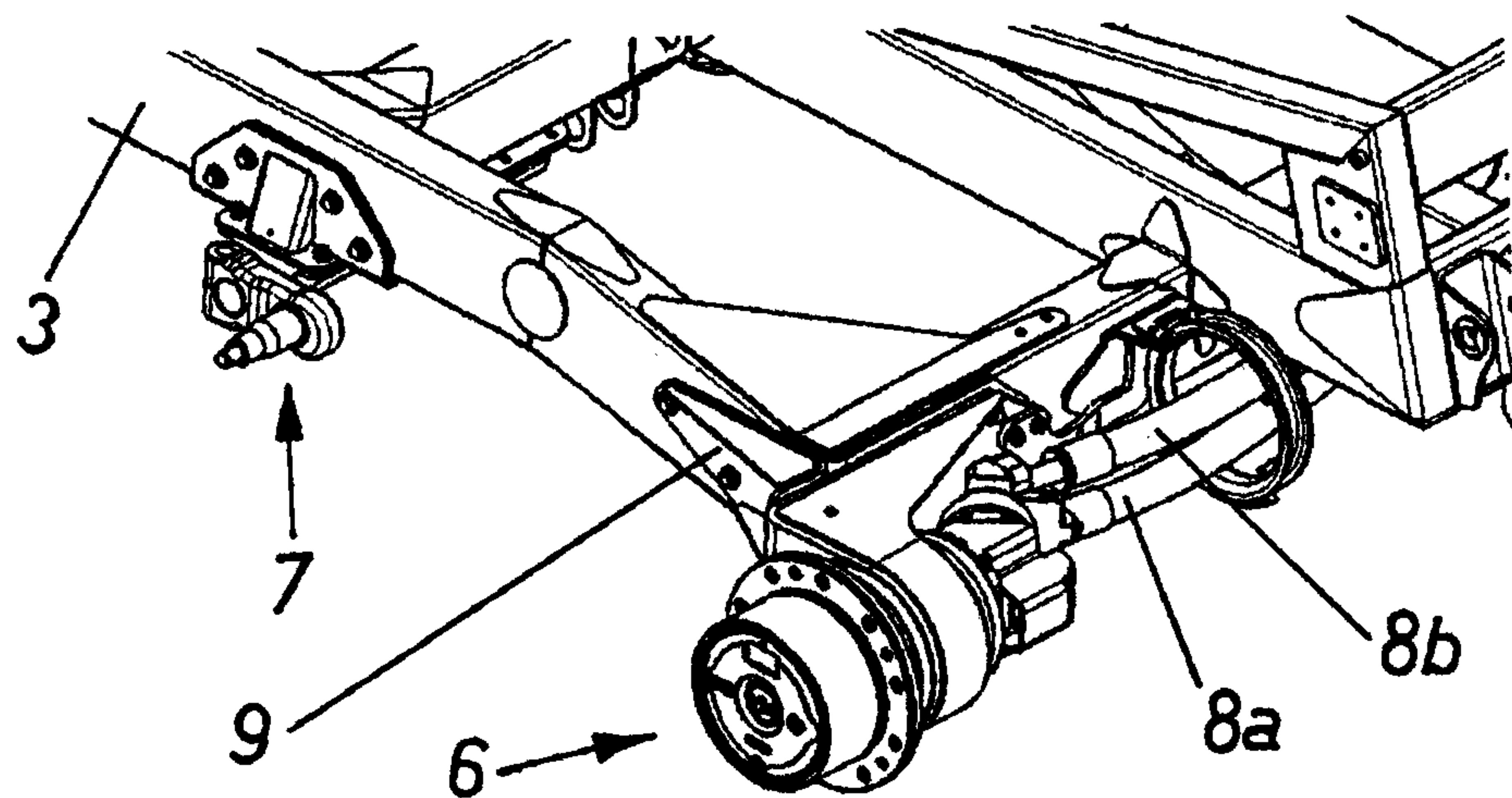
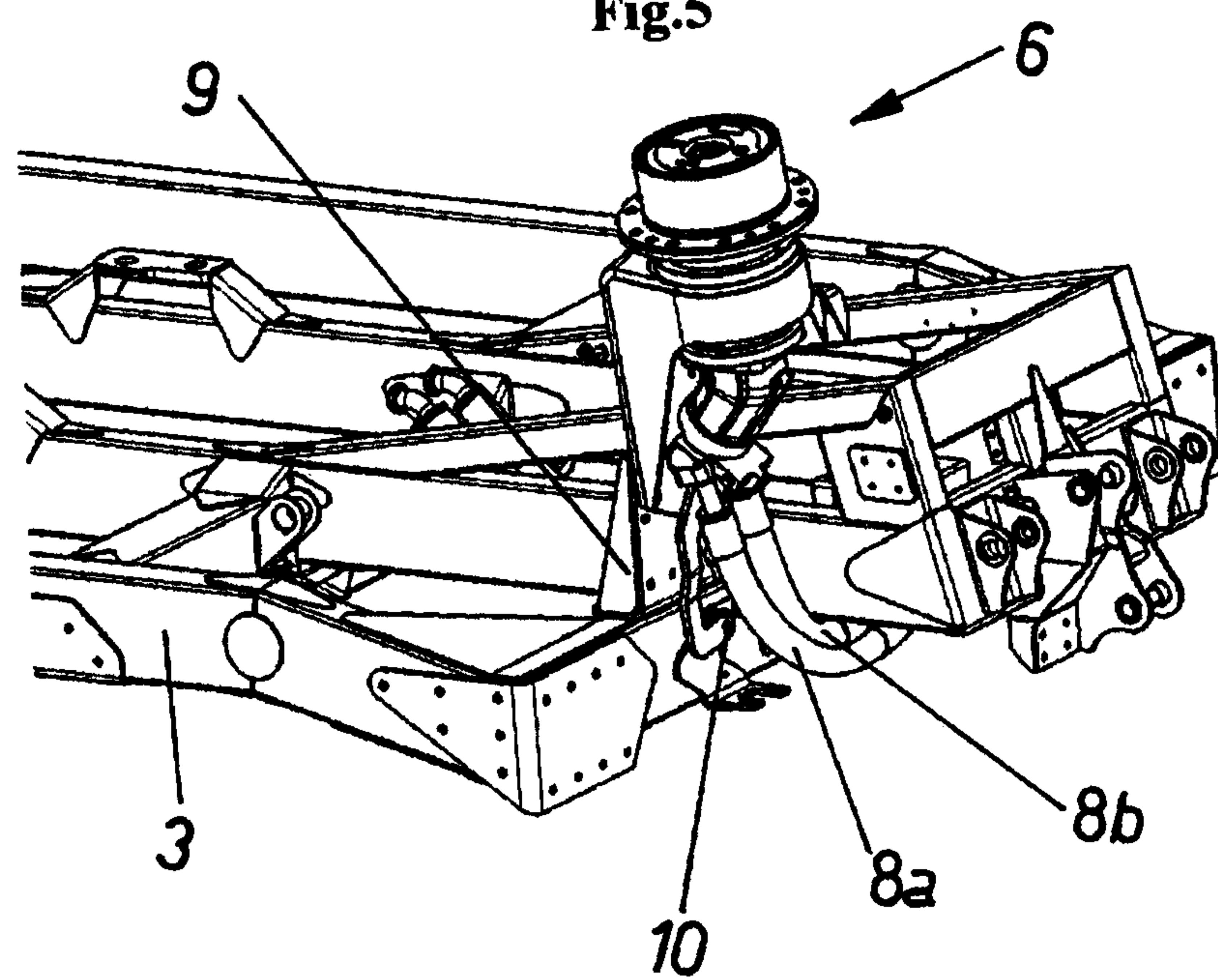
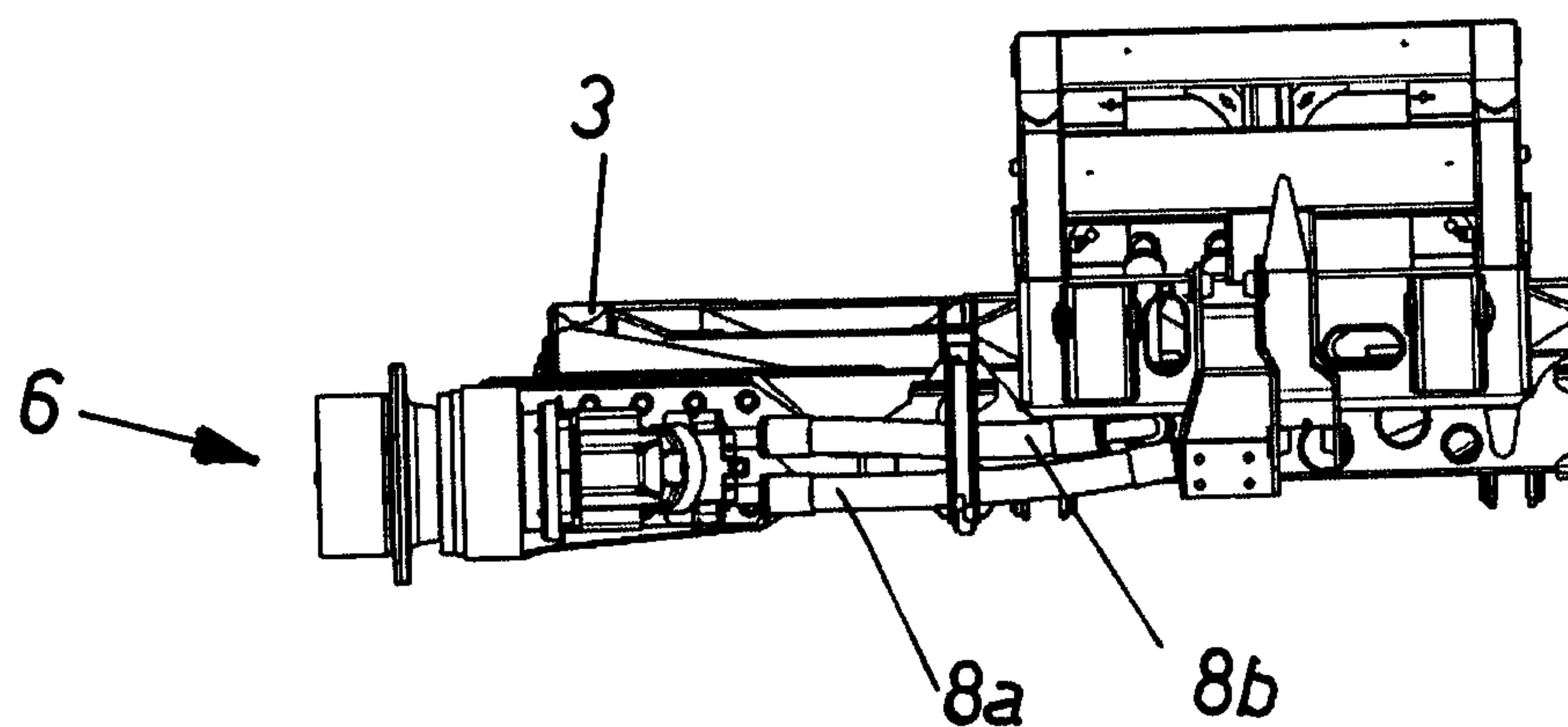


Fig.5



**Fig.6a**



**Fig.6b**

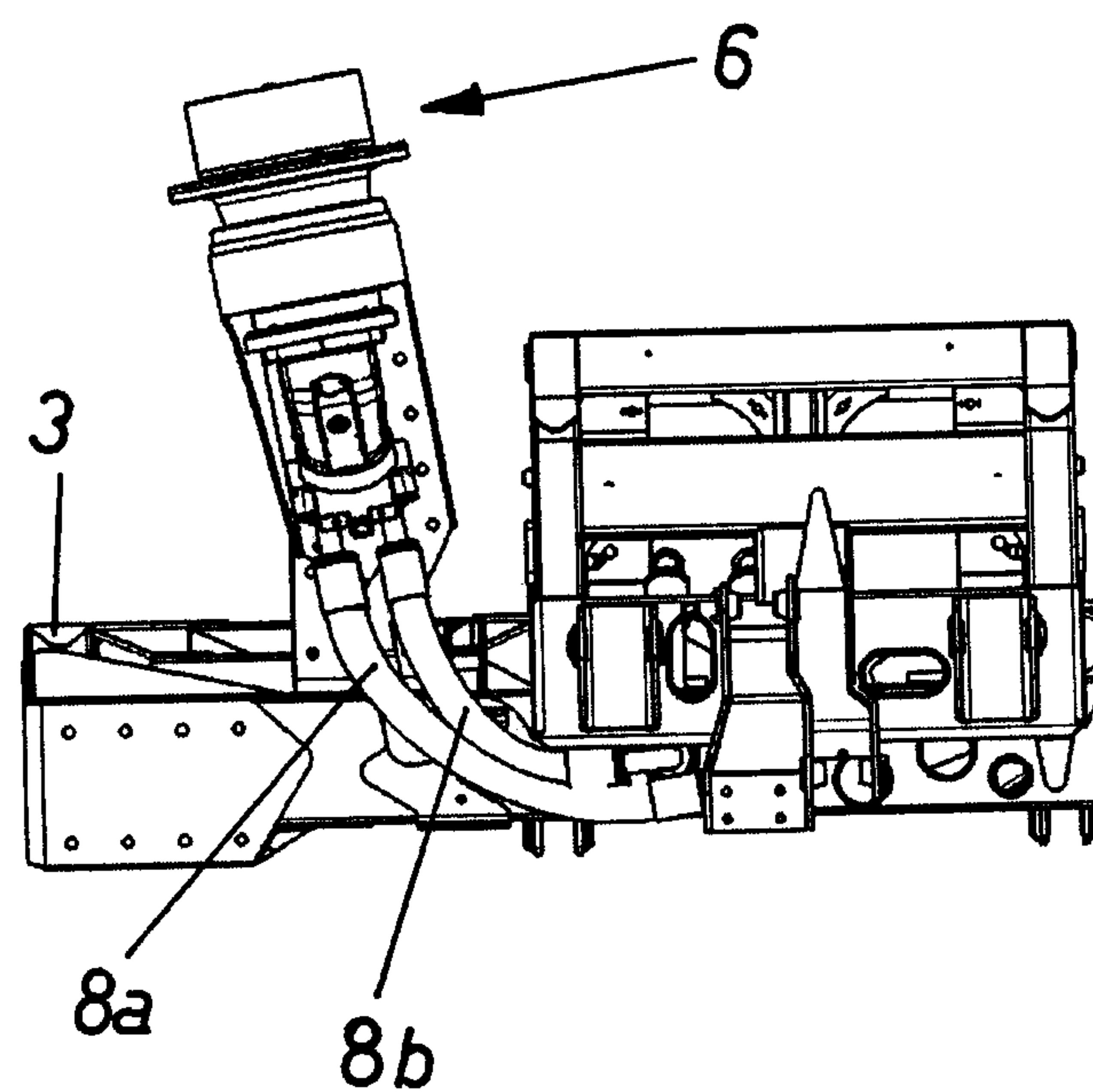


Fig.7a

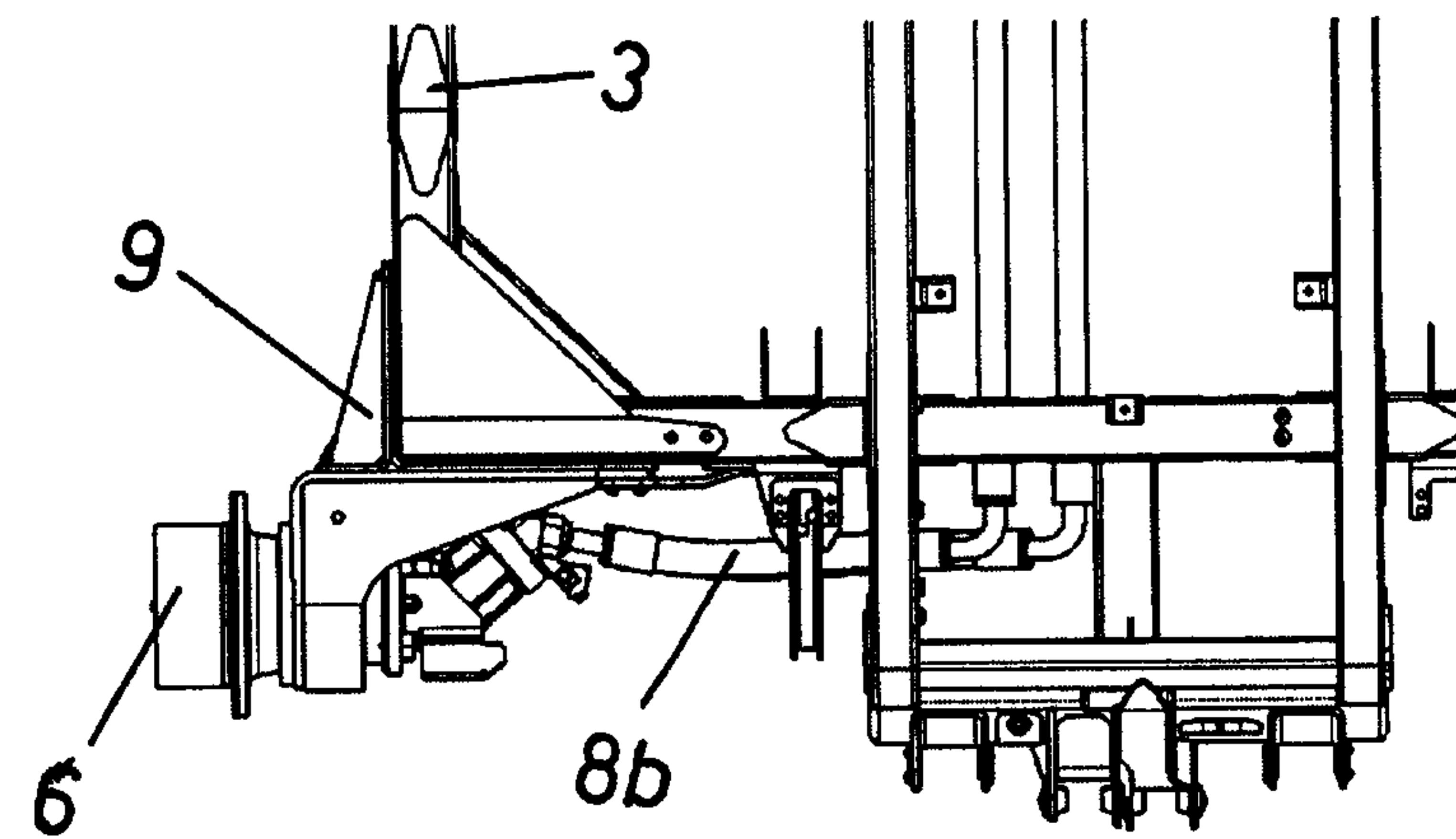


Fig.7b

