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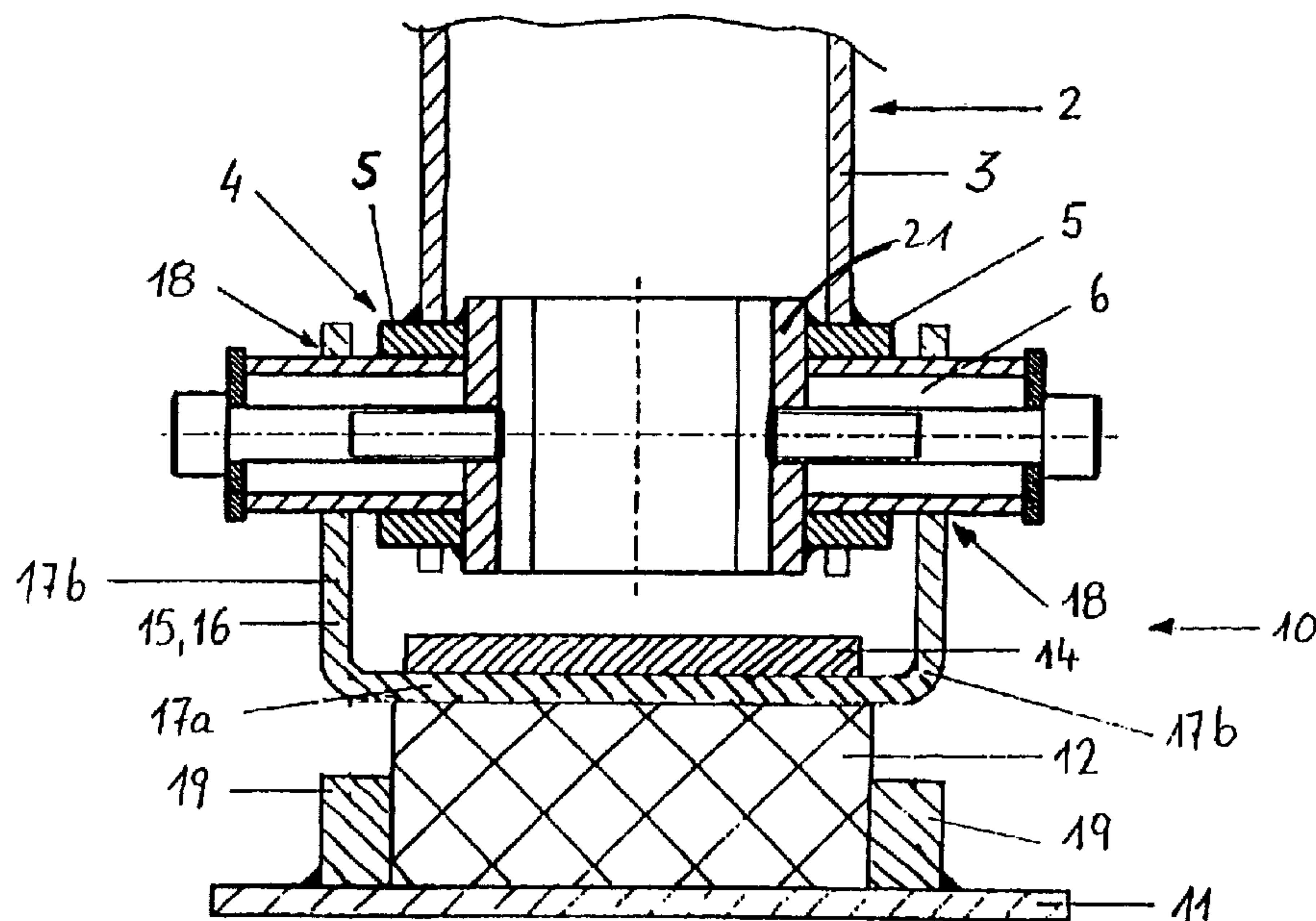
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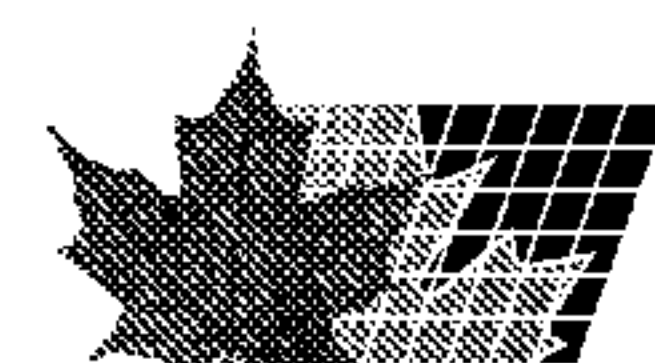
(54) Titre : PIED D'APPUI POUR SUPPORT DE DE SEMI-REMORQUE

(54) Title: SUPPORT FOOT FOR SEMI-TRAILER LANDING GEAR



(57) Abrégé/Abstract:

This invention relates to a support foot for semi-trailer landing gear which is equipped with a damping element and exhibits improved pivotability. The fixing element for pivotable fastening to a foot receiving device either rests on or is fastened to the damping element whereby the fixing element is held by a bracket overlapping the fixing element and attached to the foot plate



Abstract

This invention relates to a support foot for semi-trailer landing gear which is equipped with a damping element and exhibits improved pivotability. The fixing element for pivotable fastening to a foot receiving device either rests on or is fastened to the damping element whereby the fixing element is held by a bracket overlapping the fixing element and attached to the foot plate

Support Foot for Semi-Trailer Landing Gear

Description

The invention relates to a support foot for support devices for semi-trailers with a foot plate, a damping element arranged on the foot plate and a fixing element with two holes for receiving at least one bearing element for pivotable fastening to a foot receiving device of the support device. An example of such a support foot is available in the EP-A-0430 643.

Support devices are, as a rule, arranged in pairs in the front areas of the underside of semi-trailers and are always used when the semi-trailer is separated from its semi and parked. With air-spring semi-trailers it is, however, known that after a more-or-less extended period left standing, air leaks out of the springs, with the consequence that the rear end of the trailer wagon drops, so that it assumes an inclined and/or backward tilting position with regard to the ground. This is why the support feet and/or their footplates must be arranged to be pivotable, in order to even out this tilted position. The same is also true when the semi-trailer is parked on uneven surfaces. In addition to the pivoting ability of the foot and/or the footplate, it is desirable to set down the moving parts of the support device gently onto the ground while retracting the support devices, in order to avoid any damage. To this end, corresponding damping elements have been provided in the support feet.

8/12/2000

2

Since it is very difficult to satisfy all these constraints with only one foot embodiment, different foot variations are generally used according to the conditions of use.

The necessary embodiment of the foot must usually be decided before the purchase of the support jack, since the foot is a part of the jack and is correspondingly mounted on it.

The differing embodiment of the foot mostly also determines different precautions and preliminary work stages on the support jack itself. This yields a specific embodiment of the support jack for each type of foot at the time.

The advantage in this is that the foot and the support jack can be optimally balanced with each other.

There are, however, also significant disadvantages.

This way, many different kinds of work must be carried out in the manufacturing process of the support jack for each type of foot, with corresponding expenditures for tools, devices, material supplies, space requirements and logistics.

In addition, the final consumer or the middleman usually no longer has the option of interchanging different types of feet with each other, following the manufacture of the support jack.

It is, therefore, worthwhile to develop types of feet that are as versatile as possible and, accordingly, have a wide range of applications.

The current status of technology includes a foot embodiment, hereinafter referred to as a disk foot. This foot is a rigid shape that has a disk-shaped standing surface and which is able to pivot around an axis

AMENDED PAGE

8/12/2000

3

located in the inside pipe of the support jack in a position horizontal and diagonal to the traveling direction. Thus the foot is able to adjust to certain inclinations of the roadway, such as entrance ramps, upward inclines, etc. and thus facilitate parking the trailer.

Through the rather rigid embodiment of the foot, however, impact loads, such as those arising, for example, while shunting the trailer, are directly transferred to the support jack and also immediately to the vehicle. This can lead to functional disturbances or even damage to both over time.

In order to reduce or even avoid such damage, there are foot types that have elastic elements that absorb the kinematic energy of the impact and should therefore protect the mechanical components.

A support device is known from the DE-OS 31 19 359, on which a bottom plate is provided, overlapping on its side at the lower end of the retractable support part of this protective piece, through which a rubber compression body is arranged between these bottom plates and the foot plate. A holding ring welded to the foot plate overlaps the ring-shaped part of the bottom plate standing to the side with an upper edge segment, allowing a certain amount of play between the holding ring and the retractable support part. The pivoting elbow joint and spring path of the foot plate is limited here by the compressibility of the elastic compression body and the distance between the holding ring and the retractable support piece. This construction only allows limited adjustment of the footplate to greater unevenness of the ground.

AMENDED PAGE

It is the challenge of the invention to create a support foot in the manner described above, which is connected to the support device and is supported on the support device by means of a damping element, and which is easily adjustable to different support devices with adequate damping and pivoting ability.

To meet this challenge the fixing element rests on or is fastened to the damping element, whereby the fixing element is held by a bracket fastened to the footplate and overlapping the fixing element.

In its unloaded condition, the footplate hangs on the bracket on the fixing element, and the damping element is not compressed. The fixing element is located between the damping element and this bracket. When the support foot lands on the ground the fixing element is released from the bracket and compresses the damping element. The fixing element does not need to be able to pivot in the area of the damping element, because the pivoting suspension of the fixing element is provided on the foot-receiving device of the support device.

In particular, the fixing element is a U-shaped component with two legs pointed vertically upward, so that both legs line up with both holes for receiving the bearing element for the pivoting suspension. The pivoting suspension and damping element are arranged one above the other and are completely disconnected, so that both movements neither influence nor impede each other.

In particular, two stops are attached on the footplate under the fixing element, so as to limit movement of the fixing element. These stops are helpful in protecting the damping element from excessive loads.

According to one aspect of the invention, there is provided a support foot for support devices for semi-trailers with a foot plate, a damping element arranged on the foot plate and with a fixing element with two holes receiving at least one bearing element for pivotable fastening to a foot receiving device of the support device, wherein

the fixing element either rests upon the damping element or is attached thereto, so that the fixing element is held by a bracket fastened to the footplate and overlapping the fixing element.

8/12/2000

5

An example of an embodiment of the invention is explained below with the use of drawings.

These figures depict:

Fig. 1 Embodiment of a support foot, vertical, cross-sectional view,

Fig. 2 Support foot, as shown in Fig. 1, side view.

In Fig. 1, the lower end of the support device 2 is shown. On the inside collar 3 on the lower end there is a foot receiving device 4 with a pipe-shaped, vertically aligned central body 21, on which horizontally aligned sleeves 5, overlapping on their sides, and the bearing elements are attached in the form of bearing pipe segments 6. A U-shaped component 16 is arranged to be able to pivot at these bearing pipe segments 6, which forms the fixing element 15 for the support foot 10.

The U-shaped component 16 features a horizontally arranged middle piece 17a and two vertical, rising legs 17b. In the legs 17b, holes 18 are arranged for reaching the bearing pipe segment 6. The fixing element 15 rests on the damping element 12 and is overlapped by a bracket 14, which, as indicated in Fig. 2, is fastened to the top side of the foot plate 11.

In touching down the support foot 10, the fixing element 15 moves down and thus compresses the damping element 12. The middle piece 17a is then released from the bracket 14. To limit movement on the side of the damping element 12, two stops 19 are arranged on the footplate 11, which the fixing element 15 supports under extreme load. Vertical movement is guaranteed by the damping element 12 and, independent of this, the

AMENDED PAGE

8/12/2000

6

pivoting ability is ensured by the embodiment of the U-shaped component, in connection with the foot receiving device 4.

AMENDED PAGE

8/12/2000

7

Reference Signs

- | | |
|-----|---------------------------------------|
| 2 | Support device |
| 3 | Inside collar |
| 4 | Foot receiving device |
| 5 | Sleeve |
| 6 | Bearing pipe segment, Bearing element |
| 10 | Support foot |
| 11 | Foot plate |
| 12 | Damping element |
| 13 | Connection plate |
| 14 | Bracket |
| 15 | Fixing element |
| 16 | U-shaped component |
| 17a | Middle piece |
| 17b | Leg |
| 18 | Hole |
| 19 | Stop |
| 21 | Pipe-shaped central body |

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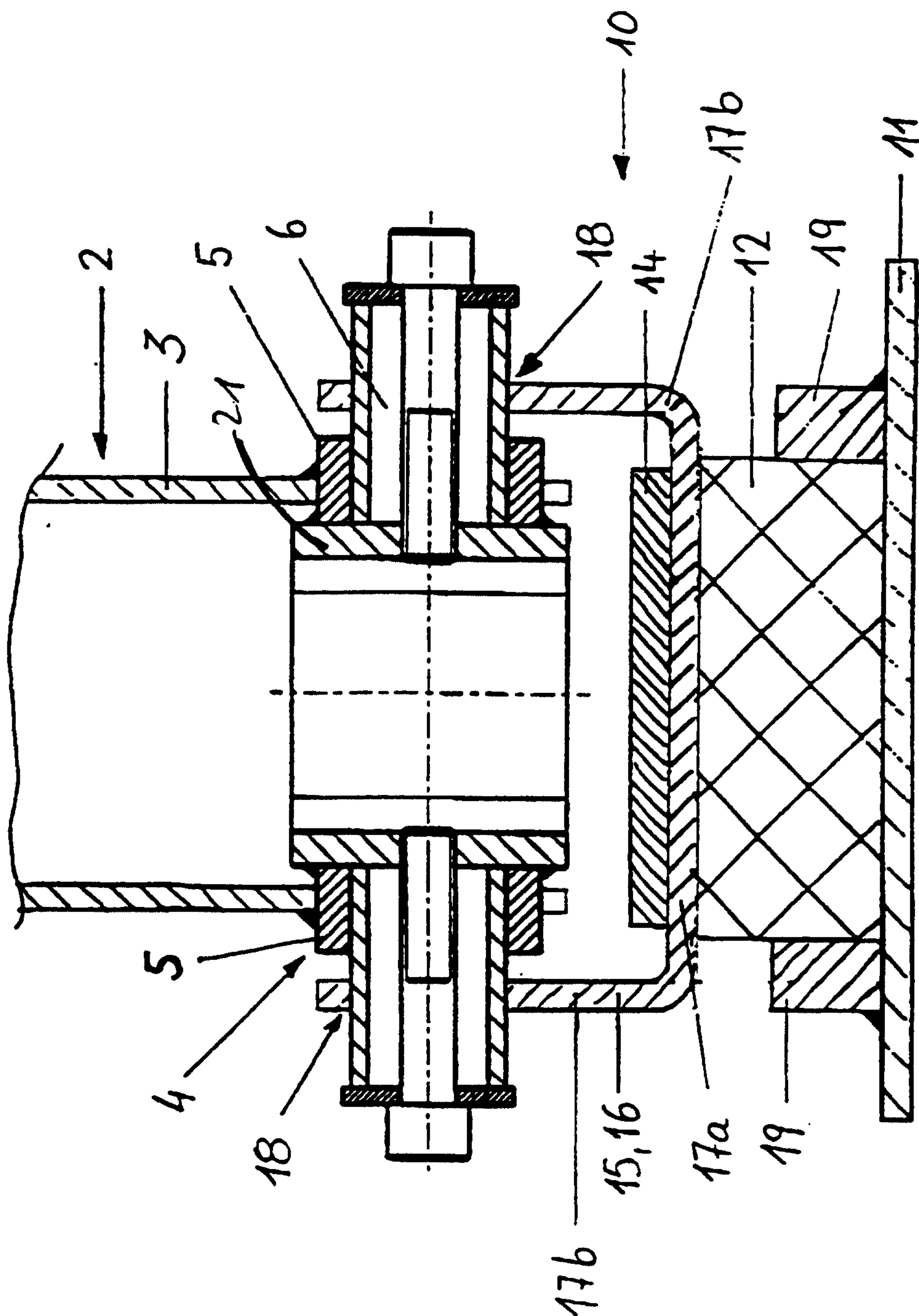
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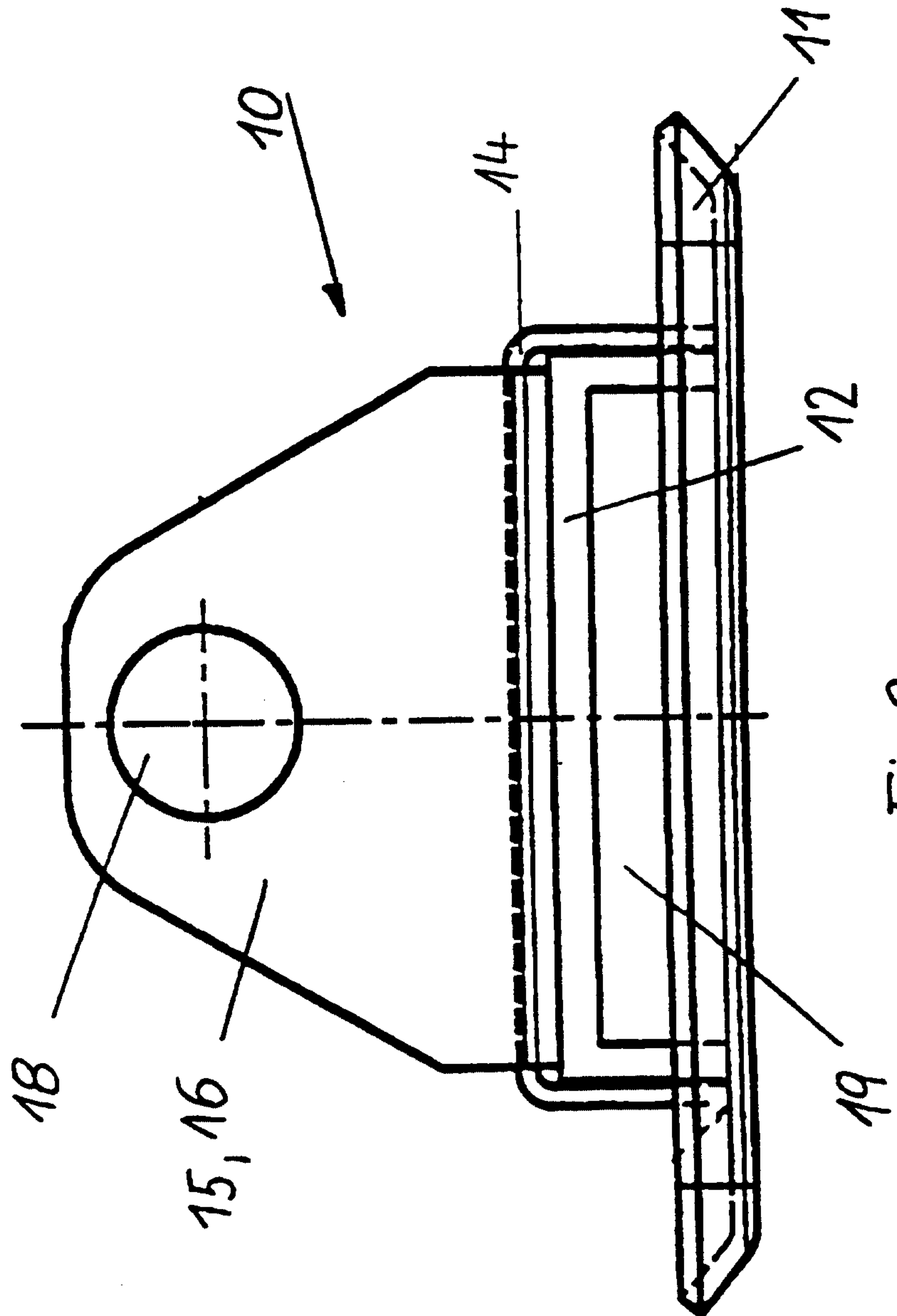
1. Support foot for support devices for semi-trailers with a foot plate, a damping element arranged on the foot plate and with a fixing element with two holes receiving at least one bearing element for pivotable fastening to a foot receiving device of the support device, wherein

the fixing element either rests upon the damping element or is attached thereto, so that the fixing element is held by a bracket fastened to the footplate and overlapping the fixing element.

2. Support foot, as per claim 1, wherein the fixing element is a U-shaped component with two vertical upward pointing legs and both legs match both holes for receiving the bearing element.

3. Support foot, as per claim 1 or 2, wherein two stops are fastened to the footplate under the fixing element so as to limit movement of the fixing element.

Fig. 1

Fig 2

