



US 20030193169A1

(19) **United States**

(12) **Patent Application Publication**
Holzinger et al.

(10) **Pub. No.: US 2003/0193169 A1**

(43) **Pub. Date: Oct. 16, 2003**

(54) **BASEPLATE AND FIXTURE FOR SKI OR SNOWBOARD BINDING**

Publication Classification

(76) Inventors: **Hans Holzinger**, Murnau (DE);
Michael Mangold, Farchant (DE)

(51) **Int. Cl.⁷ A63C 5/00**

(52) **U.S. Cl. 280/607**

Correspondence Address:

D. PETER HOCHBERG CO. L.P.A.
1940 EAST 6TH STREET
CLEVELAND, OH 44114 (US)

(57)

ABSTRACT

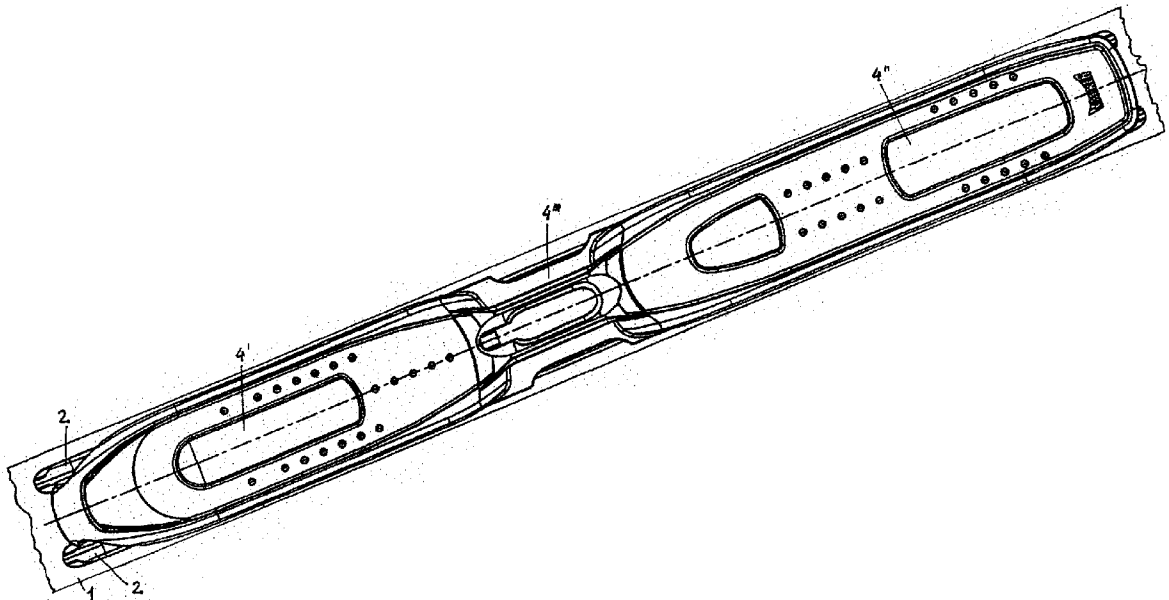
(21) Appl. No.: **10/412,090**

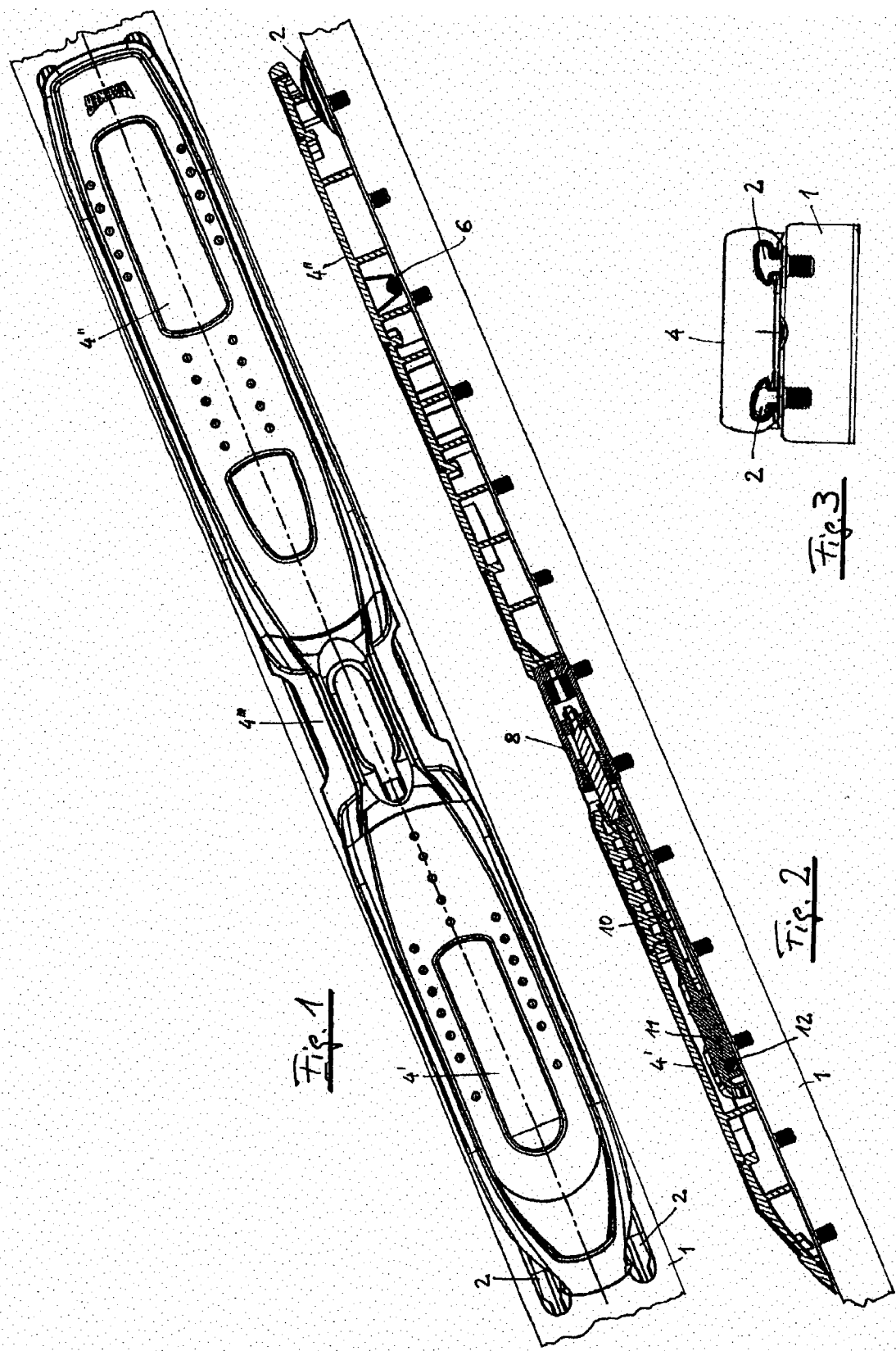
(22) Filed: **Apr. 11, 2003**

(30) **Foreign Application Priority Data**

Apr. 11, 2002 (DE)..... 102 16 056.2

In a baseplate of a ski- or snowboard binding that may be inserted into a guiderail arrangement of a ski or snowboard, a shock absorber is provided, one shock absorbing element of which may be attached immovably to a baseplate part that may be secured relative to the ski or snowboard, and the other part of which may be coupled to an abutment member that is attachable in or on the guiderail arrangement.





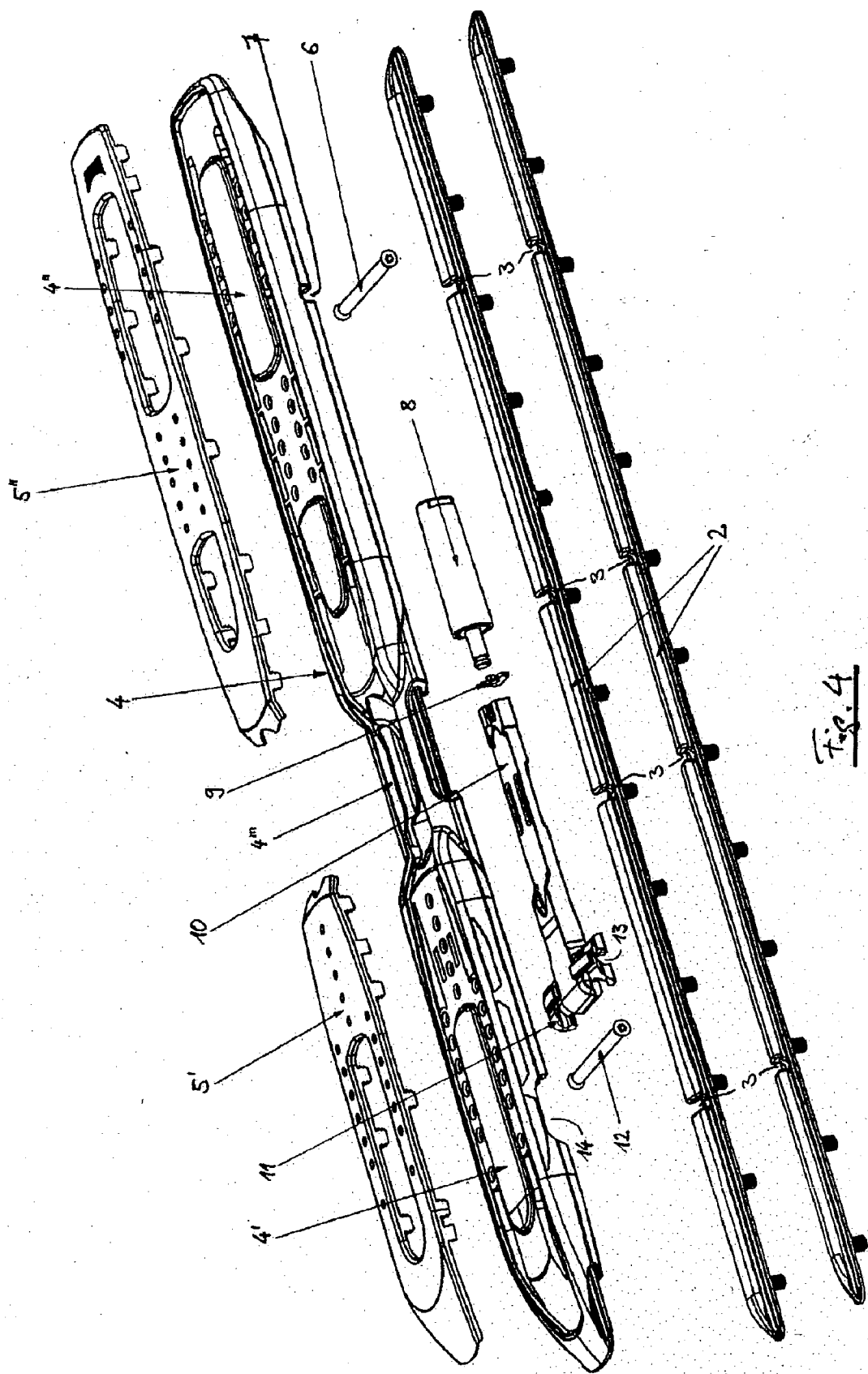


Fig. 4

BASEPLATE AND FIXTURE FOR SKI OR SNOWBOARD BINDING

[0001] The present invention relates to a baseplate and fixture for a ski or snowboard binding that may be introduced or inserted into a guiderail arrangement of a ski or snowboard.

[0002] Currently, bindings are usually affixed to the respective ski or snowboard with screws, which are screwed into previously drilled holes in the ski or snowboard.

[0003] Since the skiing technique that is commonly used today means that it is often desired to secure with ski boot with a certain vertical separation above the upper surface of the ski, base components or baseplates are arranged between the bindings and the ski.

[0004] Moreover, skis are now commercially available that are furnished with a guiderail arrangement on the ski side, and into which the bindings may be inserted or introduced, so that the ski bindings may then be secured in different positions of the guiderail arrangement depending on the respective size of the ski boot.

[0005] Even with such skis, it is not uncommon to wish to secure the ski boot at a defined vertical distance above the upper surface of the ski. For this purpose, it is known to insert a baseplate into the guiderail arrangement, on which the ski bindings can be mounted afterwards.

[0006] In conjunction with the bindings described in the introduction which are screwed to the ski, baseplate arrangements with shock absorbing elements are known that enable the dynamic vibration behaviour of the ski to be influenced.

[0007] The object of the present invention is now to provide a baseplate and fixture that is suitable for influencing flexing movements of the ski for skis or snowboards that are equipped with a guiderail arrangement.

[0008] This object is solved according to the invention in that for a baseplate and fixture of the type described in the introduction, an optionally attachable or detachable shock absorbing mechanism is provided that is equipped with two shock absorbing elements—particularly a piston and a cylinder that are longitudinally displaceable towards one another against the damping resistance, wherein one shock absorbing element—e.g. the cylinder—may be seated in a locating point on one part of the baseplate and fixture and the other shock absorbing element—e.g. the piston—may be secured by fastening to a lockable abutment in the guiderail arrangement that is separate from the baseplate and fixture part indicated previously.

[0009] The invention is based on the general notion of conforming a part of the baseplate and fixture that may be secured in the guiderail arrangement as a locating point, and thus also as an abutment of one element of the shock absorbing mechanism, and assigning to the other element of the shock absorbing mechanism a separate abutment that may be inserted into the guiderail arrangement and affixed thereto.

[0010] In this way, a simple method is provided for mounting the shock absorbing mechanism on the ski or snowboard. However, it also means that the shock absorbing mechanism may be omitted or dismounted, or mounted subsequently, so that the baseplate and fixture may be used

with or without the shock absorbing mechanism with no design alterations, and the shock absorbing mechanism may be installed in the manner of an accessory on the baseplate and fixture.

[0011] In a particularly preferred configuration of the invention, one shock absorbing element, particularly the cylinder, is installed on the underside of the baseplate and fixture in the assigned locating position, so that this shock absorbing element and thus also the entire shock absorber is enclosed in the manner of a cage when the baseplate and fixture is inserted in the guiderail arrangement, and is accordingly secured against falling out and being lost.

[0012] Similarly, it is preferably provided that a recess is arranged in the area of the abutment assigned to the other shock absorbing element on the underside of the baseplate and fixture, into which the abutment may be introduced in such manner that the baseplate and fixture may be inserted or introduced into the guiderail arrangement together with the abutment.

[0013] To the extent that the part of the baseplate and fixture covering the abutment is securely attached to the part of the baseplate and fixture that seats the one shock absorbing element and is thus displaced in the guiderail arrangement correspondingly with the flexing movements of the ski or snowboard, the recess previously indicated must allow sufficient room for movement in the longitudinal direction of the guiderail arrangement so that the baseplate and fixture may move in the area of the abutment that is securely attached to the ski in the mounted position without coming into contact with the abutment.

[0014] In the rest of the text, the description refers to preferred features of the invention as characterised in the claims and the following explanation of the drawing, on the basis of which a particularly preferred embodiment of the invention will be described in detail.

[0015] In the drawing

[0016] **FIG. 1** is a top view of a baseplate according to the invention,

[0017] **FIG. 2** is a vertical longitudinal section of this plate,

[0018] **FIG. 3** is a frontal end view of the baseplate and

[0019] **FIG. 4** is a perspective exploded representation of the baseplate and rails of the guiderail arrangement on the ski side.

[0020] A guiderail arrangement having for example two parallel rails **2** is disposed on the longitudinally central area of a ski **1**. Rails **2** are attached to the ski in entirely known manner, both by positive and non-positive means with pins engaging with corresponding holes in the upper surface of the ski, and by material means through adhesion to the ski. Rails **2** have for example an asymmetrical T shape—as shown in **FIG. 3**—with comparatively thick lateral protrusions towards the outer sides of the ski. In addition, a plurality of recesses **3** are conformed as transverse grooves in rails **2**, and these may serve not only to secure the ski bindings and such inserted into rails **2** but also to increase the flexibility of ski **1**.

[0021] In the example of **FIGS. 1 to 3**, a baseplate **4** having a forward part **4'** for locating a frontal ski binding member—

not shown—and an after part 4" for locating a rear ski binding member—not shown—and a shear- and a torsion-resistant yet flexible central part 4'" connecting these parts 4' and 4" is inserted into guiderails 2. Cover plates 5' and 5" may be disposed on parts 4' and 4" of baseplate 4. This enables any desired design to be provided for baseplate 4. In addition, the possibility is presented of disposing the ski binding members at greater vertical distance above the upper surface of ski 1 by varying the thickness correspondingly of cover plates 5' and 5".

[0022] Baseplate 4 is secured in the longitudinal direction of the ski by a lateral pin 6, which is inserted for this purpose in recesses 3 of rails 2 shown on the right in FIG. 4, and in similar recesses 7 on part 4' of baseplate 4, and is secured in the inserted position.

[0023] When ski 1 performs a flexing movement, part 4' of baseplate 4 located at a distance from lateral pin 6 is displaced significantly relative to ski 1. This is due to the fact that the distance of baseplate 4 from the respective centre of curvature for the flexing movement of ski 1 is different from that of the ski itself. When ski 1 performs a flexing movement, i.e. when the ski tips move upwards relative to the waist area of the ski, part 4' of baseplate 4 moves towards the front of the ski. When the ski performs a counterflexing movement, part 4' of baseplate 4 moves towards the back tip of the ski relative to ski 1.

[0024] In the baseplate 4 according to the invention, the described flexing and/or counterflexing movements of ski 1 may be damped.

[0025] For this purpose, the cylinder of a hydraulic shock absorber 8 may be inserted in a recess in middle part 4'" of baseplate 4 that is accessible from below, such that the cylinder of shock absorber 8 is secured immovably relative to middle part 4'" of baseplate 4. The piston rod of shock absorber 8 is connected via a spring washer 9 in shear- and torsion-resistant manner to a linkage rod 10, which itself is securely connected in shear- and pressure-resistant manner to an abutment 11 that may be inserted into guiderails 2. This abutment 11 is secured to rails 2 by a lateral pin 12. For this purpose, lateral pin 12 passes through recesses 3—on the left in FIG. 4—in rails 2 and recesses 13 on abutment 11.

[0026] In order to enable baseplate 4 to be inserted into guiderails 2 together with abutment 11 and linkage rod 10, a corresponding space is provided for linkage rod 10 underneath part 4' of baseplate 4. In addition, a recess 14 is provided on the underside of part 4' of baseplate 4 for seating abutment 11. This extends considerably farther in the longitudinal direction of rails 2 than does abutment 11, so that part 4' may move freely along rails 2 relative to abutment 11 for flexing movements of ski 1, without coming into contact with the ends of recess 14 on abutment 11.

[0027] When ski 1 performs flexing movements, the piston rod of shock absorber 8 is forced to execute a stroke relative to the cylinder of shock absorber 8, the length of which is determined on the one hand by the extent of the flexion of ski 1 and on the other hand by the distance between lateral pins 6 and 12 along the length of rails 2. Depending on the configuration of shock absorber 8, a damping resistance may be generated in the draft and/or compression stage, i.e. shock absorber 8 has a damping effect for flexing and/or counterflexing movements of the ski.

[0028] The baseplate 4 shown provides the advantage that shock absorber 8 may be installed or removed optionally with linkage rod 10 and abutment 11.

[0029] It is also possible to render shock absorber 8 ineffective or effective respectively by removing or inserting lateral pin 12.

[0030] If required, adjustable fixing members may also be attached to abutment 11 such that they cannot be lost, which can assume both a locking position, wherein they engage with recesses 3 of rails 2 and thus also secure abutment 11, and also an unlocking position wherein they are disengaged from recesses 3 of rails 2.

[0031] In contrast to the embodiment shown in the drawing, parts 4' and 4" of baseplate 4 may also constitute independent, separate elements (not connected by a middle part 4'"'). In this case, the locating space for the cylinder of shock absorber 8 is arranged on after part 4" of baseplate 4, and forward part 4' of baseplate 4 also forms abutment 11 or when inserted into rails 2 is immovable relative to abutment 11.

[0032] The one-piece embodiment of baseplate 4 shown is advantageous to the extent that the longitudinal distance between the ski binding members arranged on baseplate 4 changes comparatively little for flexing movements of the ski and accordingly a relatively short-traverse compression spring is adequate to prevent excessive tension between the ski boot sole and the ski binding members, and with which one of the ski binding members, usually the rear binding member, is forced towards the other ski binding member.

[0033] In all cases any shock absorption method may be used instead of hydraulic shock absorber 8. In particular, elastomer elements may be used as shock absorbers, wherein the elastomer element is attached on the one side to linkage rod 10 or abutment 11 and is attached or may be affixed on the other side to a part that is connected to baseplate 4 or a part thereof, perhaps middle part 4'", or is supported thereby.

1. Baseplate (4) and fixture of a ski- or snowboard binding that may be introduced or inserted into a guiderail arrangement (2) of a ski (1) or snowboard, having an optionally mountable or dismountable shock absorbing unit (8) that includes two shock absorbing elements which are longitudinally displaceable relative to one another, wherein the one damping element is installable in a locating position on the one part (4'"') of the baseplate and fixture and the other damping element may be secured by fastening to a lockable abutment (11) in the guiderail arrangement that is separate from the previously indicated middle part (4'"') of the baseplate and fixture.

2. Baseplate and fixture according to claim 1, characterised in that

the one shock absorber element is insertable into the locating position from underneath the baseplate (4) and fixture or with a part (4'"') and is enclosed in the manner of a cage when the baseplate and fixture is inserted or introduced into the guiderail arrangement (2).

3. Baseplate and fixture according to claim 1 or 2, characterised in that

the one shock absorber element is lockable with the baseplate (4) and fixture or with a part (4'"') thereof.

4. Baseplate and fixture according any of claims 1 to 3, characterised in that

the abutment (11) may be secured to the guiderail arrangement (2) separately from the baseplate (4) and fixture.

5. Baseplate and fixture according any of claims 1 to 4, characterised in that

the baseplate and fixture or a part (4') thereof is longitudinally movable relative to the abutment (11) in the guiderail arrangement (2).

6. Baseplate and fixture according any of claims 12 to 4, characterised in that

two separate base parts (4',4'') are provided that independently attachable in or on the guiderail arrangement (2).

7. Baseplate and fixture according claim 6, characterised in that

the one part (4') of the baseplate and fixture is attachable together with abutment (11) on or in the guiderail arrangement (2).

8. Baseplate and fixture according any of claims 1 to 7, characterised in that

the shock absorber (8) essentially performs as a damper only for counterflexing movements of the ski (1) or the snowboard.

* * * * *