The invention describes a device (1) for connecting a sports shoe (2) with a sports device (3), in particular a shoe with a snowboard or a ski, or for braking a sports device (3), consisting of at least one of the device parts (4), such as a toe piece (7), a heel piece (6), a binding plate (8), a brake device (5) and a locking mechanism (9) allocated to at least one of said device parts (4), which is arranged in one of said device parts (4) and comprises a locking bar (14), which can be displaced relative to a base part (11) of the device parts (4) and can be secured and locked at least in one of its end positions by a locking device (10). The locking bar (14) can be displaced from a position of rest (15) lying outside the user-defined movement space between the base part (11) and an adjusting element (46) of the device parts (4) or between at least one of the latter and the shoe, into a locked position (16) projecting in this movement space over at least one of the device parts (4) or its base or adjusting element (11, 46) and can be secured at least in the locked position by the locking device (10).
DEVICE FOR CONNECTING A SPORTS SHOE TO A SPORTS DEVICE, COMPRISING A LOCKING DEVICE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The invention relates to a device, as described in the preamble of claim 1.


[0004] A ski binding with a lock and a locking mechanism for securing a winter sports device is already known—WO 01/95985 A1—in which the locking mechanism is fixed onto a winter sports device in the form of a ski, ski binding, ski stick, snowboard or the like, and the locking mechanism is accommodated on or in a cavity of a component belonging to a winter sports device and operates independently of fixed structures (ski-holders, guard rails or the like). The disadvantage of this embodiment is that the locking mechanism is arranged in a cavity of the binding parts of a ski binding, and therefore neither the locking mechanism nor the locking bar are accessible from the outside. If after use or whilst the ski is locked liquid collects or freezes in the locking mechanism or between the locking bar and the individual binding parts it is very difficult even for a legitimate user to use the winter sports device again.

[0005] Further embodiments known from the prior art which comprise a locking mechanism for securing a winter sports device are found for example in DE 101 28 556 A1 or DE 103 30 429 A1 or DE 103 39 152 A1.

OBJECTIVES AND ADVANTAGES OF THE INVENTION

[0006] The objective of the invention is to install a securing device in a device for connecting a sports shoe to a sports device, in particular a shoe to a snowboard or a ski to avoid theft, which permits reliable operation in all operating conditions.

[0007] This objective of the invention is achieved by means of the features described in the characterising part of claim 1. It is an advantage in this case that the lock element is displaced in its locked position in a position projecting beyond the device part, so that a visual control of the lock is possible in a simple manner, in particular it is not possible to climb in or out of the binding, and also by securing the locking bar its mobility can be restored again by a rapid accessibility.

[0008] According to a development in claim 2 it is an advantage that the lock element is pivoted in a free space between the moveable locking part and the fixed base part and is thereby accessible to the user via this free space. If after locking the locking device freezing occurs between the locking bar and the adjacent device part or the sports device, the latter is easily accessible and the frozen parts can be quickly eliminated by mechanical means or by the direct application of heat or suitable de-icing fluids.

[0009] The embodiment variant according to claim 3 also ensures that the locking part secures the adjusting part of the device parts in one of its end positions and thereby makes it impossible to climb into the usable movement area. Because the locking bar lies or bears in its end position on the base part there is no possibility of entering the usable movement area by force. Furthermore, due to the lifted brake element there is sufficient free space, which is easily accessible from all sides and thus can be easily released if stuck. In this instance it is possible to proceed using mechanical as well as releasing means.

[0010] The additional embodiment according to claim 4 has the advantage that the sports device is held by its device and its brake device in a brake position, whereby it is impossible to move away with the sports device, as in order to use the sports device the brake device would need to be in drive position.

[0011] Furthermore, the arrangement in the region of the brake has the advantage of being a simple additional arrangement, in that the housing of the complex structured device parts, such as the toe piece and the heel piece, is not needed for installation and its complicated structure is not made even more complex.

[0012] The external locking device also has the advantage that in the case of damage or vandalism it can be very easily replaced. The internal arrangement of the locking device has the advantage that suitable lubrication means and the like can be provided, which prevent the freezing and sticking of the locking device even at extreme temperatures.

[0013] The additional design according to claim 5 has the advantage that the locking bar in its locked position projects over the binding plate into the one for inserting the ski shoe or the usable movement area between the toe and heel piece, and thus makes it impossible to climb into the required movement area. The locking bar can in this case be arranged on the entire device, which does not permit the insertion of the shoe. This is also achieved by means of the features according to claim 6.

[0014] The design according to claim 7 has the advantage that the locking mechanism with its locking device is designed to be adjustable between a position of rest and a locked position, i.e. by swirling the locking bar into a locked position it is not possible to enter in the locked state, but in the position of rest it is possible to climb into and use the device without any difficulty.

[0015] The design according to claim 8 is also advantageous. In this case locking elements are allocated to the locking bar with its locking device which permit additional securing at least in its locked position. In this way the locking mechanism becomes even more secure.

[0016] In the design according to claim 9 it is an advantage that the locking bar is overlapped by locking elements and in this way additional security is provided when locking and against unwanted removal.

[0017] In an embodiment according to claim 10, it is an advantage that the installation of the locking device into the device parts can be performed easily, the latter being highly secure in a locked state against attempted removal or attempted theft.

[0018] The embodiment according to claim 11 has the advantage that the lock element can be kept very small if the locking elements stick out or protrude.

[0019] A further embodiment according to claim 12 provides a heating element which can be activated in case of
emergency and can easily be activated if the binding has become frozen or stuck and the locking mechanism can be released despite the ice.

[0020] An additional advantageous embodiment is achieved by the features in claim 13 as here a heating element is allocated to the locking bar which permits the correct use of the winter sports device.

[0021] In the embodiment according to claim 14 the simple operation of the heating element by means of a push button or a screw is advantageous.

[0022] In a development according to claim 15 it is advantageous that by means of the material used any sticking of the locking device or freezing of the parts of the device is prevented. Furthermore, by means of special lubricants which are brought into contact with said parts the adhesion of snow and ice is reduced and thereby freezing is prevented at very low temperatures.

[0023] The development according to claim 16 and claim 17 has the advantage that the arrangement of the locking device in the brake pedal has sufficient space and is easily accessible from all sides, and therefore the installation can be made easier without great effort and greater accessibility can also be achieved.

[0024] The embodiment according to claim 18 is advantageous, since as the locking bar of the locking mechanism sits on the base part of the brake device in a locked state, the brake device cannot be moved into the desired drive position. As the brake device is held in a locked state in brake position, operation as well as entry into this device is made impossible. Of course, the lock element can also be arranged on the base part, so that the locking bar acts on the brake pedal, whereby the same effect is achieved.

[0025] The embodiments according to claim 19 and 20 have the advantage that here a freely accessible locking mechanism is created, which is accessible through several free spaces and therefore operability can be restored at any time in cases of freezing or sticking and in case of damage it can be easily removed and replaced by a new locking mechanism.

[0026] The embodiment according to claim 21 is advantageous, as by providing several locking bars security against forced opening is considerably increased.

[0027] The embodiment according to claim 22 has the advantage that the locking bar is arranged in its groove-shaped depression with a relatively large spacing on all sides. The free space obtained in this way means that the locking mechanism is easily accessible and in the case of sticking can easily be released both mechanically and by de-icing means. Furthermore, this embodiment can be very small and space-saving in all areas of the device.

[0028] By means of the embodiment according to claim 23 the design of the locking mechanism can be made secure and stable, so that it can also not detached even by the effect of extreme force.

[0029] It is advantageous according to claim 24 that the locking mechanism or the external lock element is only used for locking into the device, whereby during the use of the sports device the device is reduced by the weight of the lock part.

[0030] As the external lock element is carried on the body or in a trouser pocket, the latter is exposed to the body temperature of a person, which can be useful in itself for releasing the locking device to start with. Also when the locking mechanism is in a locked position the key can be heated by means of a lighter or the like to release the lock.

[0031] The embodiment variants according to claims 25 and 26 make it possible for the lock element to be arranged in the whole binding area. The position of locking mechanism can be selected as desired by the inventor. It is important that it is easy to operate and if necessary is easily accessible.

[0032] The embodiment according to claim 27 permits a further advantageous design of the locking mechanism, as due to the possible mounting the mechanism parts do not have a more complex structure and this is avoided.

[0033] An embodiment according to claim 28 is advantageous. Here entry into the device or setting and/or adjusting the holding elements is prevented. In this way the latter in the locked state cannot be fitted onto the foot of a user or with too short a distance it is not possible to climb into the device.

[0034] In a further embodiment according to claim 29 it is an advantage that by pushing the lock element through the hole of the pivoted calf support into the bore of the binding plate after locking, the pivoting of the calf support is made impossible.

[0035] The embodiment according to claim 30 makes it possible for the holding stirrup on the toe piece in a locked position to prevent unauthorised persons from entering into the binding.

[0036] An additional advantage is achieved according to claim 31 in that the locking mechanisms are allocated covers in order to prevent the penetration of snow and ice, even melted snow from the outset.

[0037] The developments according to claim 32 or 33 are advantageous, as thereby the lock element can be kept in a frost free environment when not in use.

BRIEF DESCRIPTION OF THE FIGURES

[0038] The invention is explained in more detail in the following with reference to the exemplary embodiments illustrated in the drawings. These show:

[0039] FIG. 1 a device according to the invention on a sports device, forming a ski binding, with a locking mechanism arranged in the brake device, in side view and in a much simplified representation;

[0040] FIG. 2 a part of the ski binding according to FIG. 1, in a position of rest, in side view and in a simplified representation;

[0041] FIG. 3 a part of the ski binding according to FIGS. 1 and 2, in locked position, in side view, in a much simplified and slightly enlarged representation;

[0042] FIG. 4 the sports device with the device according to the invention in side view, in cross section along the lines IV-IV of FIG. 1;

[0043] FIG. 5 a ski binding mounted on the sports device with a different embodiment of a device according to the
invention, in a position of rest, side view and in a much simplified, schematic representation;

[0044] FIG. 6 a partial area of the sports device according to FIG. 5 in locked position, in side view and in a much simplified schematic representation;

[0045] FIG. 7 the sports device with the device according to the invention, in a position of rest, in plan view, in cross section along the lines VII-VII of FIG. 6;

[0046] FIG. 8 a further variant of a device according to the invention in the front partial area of the sports device in side view and in a much simplified schematic representation;

[0047] FIG. 9 a device according to the invention with a locking mechanism in the heel piece or in the toe piece, in side view and in partial cross section according to FIG. 1;

[0048] FIG. 10 the locking mechanism according to FIG. 9 in a much simplified schematic representation;

[0049] FIG. 11 a different variant of the device according to the invention in which the locking device is arranged in the toe piece, in side view, in partial cross section and in a much simplified schematic representation;

[0050] FIG. 12 the device in plan view, in cross section along the lines XII-XII of FIG. 11;

[0051] FIG. 13 a different kind of device according to the invention mounted on the sports device like a snowboard binding in plan view, in a much simplified schematic representation;

[0052] FIG. 14 a different variant of the device according to the invention, formed by a snowboard binding mounted on the sports device in side view with a removable lock element, in a simplified schematic representation;

[0053] FIG. 15 a different embodiment of the device according to the invention for a snowboard binding in side view and in a much simplified schematic representation;

[0054] FIG. 16 the snowboard binding according to FIG. 15, in front elevation, in cross section along the lines XVI-XVI in FIG. 15 and in a much simplified schematic representation.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0055] Firstly, it should be noted that in all of the various described embodiment the same parts are given the same reference numbers and same component names, whereby the disclosures contained throughout the description can be applied to the same parts with the same reference numbers or same component names. Also the details on position used in the description such as e.g. top, bottom, side etc. refer to the figure currently being described and shown at the time and if there is a change in position these should be changed to relate to the new position. Furthermore, individual features or combinations of features of the embodiments shown and described represent in themselves independent, inventive solutions according to the invention.

[0056] The invention relates to a device 1 shown in FIGS. 1 to 4 for connecting a sports shoe 2 with a sports device 3. Preferably, the device 1 is used for connecting a sports shoe 2 with a sports device 3 such as a snowboard or ski. Devices 1 of this kind usually comprise device parts 4 which can include a brake device 5, a heel piece 6, a toe piece 7, a binding plate 8 or the like.

[0057] Of course, this can relate also to high backs, base plates, straps or other parts of such a device 1 for connecting a sports shoe 2 with a sports device 3, such as a ski binding, cross-country binding, touring or snowboard binding. A locking mechanism 9 is allocated to at least one of these device parts 4. Said locking mechanism 9 or its locking device 10 is in the present embodiment installed into a pivotable brake pedal 12 mounted on the sports device 3.

[0058] The locking mechanism 9 is formed by a locking device 10 that can be activated by a key 13 and the like, the locking bar 14 of which can be adjusted by means of the locking device 10, for example by means of a rotating locking pin 45 activatable by key 13 and the like from a position of rest 15 represented by dashed lines into the locked position 16 shown by solid lines.

[0059] As can already easily be seen in the illustrated representation, the brake pedal 12, i.e. the moving adjusting element 46 of the brake device 5, can no longer be moved up out of the position of rest shown by dashed lines in FIGS. 1 and 2, in which the brake pedal 12 is lifted from a top side 47, for example the binding plate 8 or the sports device 3, and the locking bar 14 is in a locked position 16, into the drive position 21 in the direction of the sports device 3. In this way it is not possible to pivot the brake arms 17 out of the shown brake position 18—in FIG. 3 in solid lines—into the drive position 21 indicated by dashed lines—in FIG. 2. This is prevented by the locking bar 14 in its locked position 16 shown in FIGS. 3 and 4.

[0060] In this way the sports device 3, for example board, snowboard or ski, can no longer be used and therefore removal is only possible manually. This can attract great attention in ski areas and can be easily monitored by lift personnel or suitable control means, and in this way there is a high degree of security against theft.

[0061] Usually, a locking mechanism 9 of this kind with which the locking bar 14 is secured and locked in its locked position 16 is sufficient to prevent the theft of the sports device 3.

[0062] Of course, it is also possible however to provide similar or other locking mechanisms 9 on other device parts 4 in addition to or instead of the arrangement with the brake device 5. As can be shown in detail in FIG. 4, the locking device 10 is installed in the brake pedal 12.

[0063] Here the lock element 22 is inserted into a recess 32, for example screwed into an internal thread of the brake pedal 12. The lock element 22 that can be locked by key 13 has a locking element 23, which in the present embodiment can be pivoted about a pivot axis 33 on which the locking bar 14 is fixed via the end section 24 projecting over the lock element 22.

[0064] Of course, it is also possible however for the locking device 10 to use conventional locking cylinders and to install the latter into recesses 32 of the brake device 5 or other device parts 4. The locking cylinder can here be used at the same time as a locking bar 14 but it is also possible to assign a separately activatable locking bar 14 to this locking cam.
Of course, it is also possible to use other conventional locking devices which can be secured by adhesion, screws, pressing or the like into the device parts 4 or the brake device 5.

It is however also possible to use conventional padlocks, for example with number codes, which by use in different positions of the locking bar 14 permit or prevent the use of the device 1 or can be used to secure device parts 4 in the locked position 16.

For this the adjustable device part is locked for example by a padlock in the locked position 16.

As indicated schematically, the locking device 10 or the lock element 22 is allocated a heating device formed by a heating element 25, in particular a heat cartridge 25, which is pushed for example into a bore 41 of the brake pedal 12 and can be activated by a power storage element 26, if necessary by screwing in a holding screw 27 or pushing in a pushbutton.

By means of this heating element 25 the locking device 10 can be heated briefly in order to permit the release of the brake pedal 12 even at extremely low outside temperatures by thawing and/or prevent the icing up of the locking device 10.

Preferably, it is also possible to arrange the heating element 25 so that any ice formed between the locking bar 14 and the base part 11 can be removed.

It is of course also advantageous, if in particular the locking bar 14 is made from a material with low adhesive strength for ice, for example Telfon. This also applies to the surface parts of the base part 111 facing the locking bar 14. As also seen in FIG. 4, said base part 111 can be displaced in longitudinal direction in a C-shaped guide track 28 fixed to the sports device 3 and guided according to the height and side, and if necessary a connecting element 29 is provided for mounting the toe piece and/or heel piece 6, 7.

Because the locking bar 14 with the locking device 10 can be moved from the position of rest 15 shown by dashed lines in FIG. 2 into the locked position 16 shown by solid lines in FIG. 4, the movement of the brake pedal 12 in the direction of the base part 11 is prevented—as required for the correct use of the sports device 3. In this way by blocking the movement of the brake pedal 12 the unauthorised use of the sports device is prevented.

As the locking bar 14 projects into the space 53 accessible from the outside between the brake pedal 12 and the base part 11 of the brake device 5 it is also possible, in the case of icing up or sticking of the locking bar 14 on the base part 11 due to freezing, to detach the latter easily by mechanical action or by spraying on a de-icing means or the like, so that a high degree of operational reliability can be achieved even in extreme conditions of use, as is the case with sports devices 3, but in particular with winter sports equipment.

In FIGS. 5 to 7 a further embodiment variant of a device 1 for connecting the sports shoe 2 with a sports device 3 is shown. A ski binding on a ski is used as an example of the device 1, whereby the individual components and device parts 4 of this device 1 correspond to those according to FIGS. 1 to 4 and are denoted by the same reference numbers as in FIGS. 1 to 4 accordingly, even if they are not described in detail.

One of the device parts 4 of the device 1, in particular the ski binding shown can be a central holding part 30, by means of a which a distance 31 can be set and fixed between the toe piece 7 and the heel piece 6, i.e. in principle the length of the shoe sole of the shoe 2. The holding part 30 is designed, for example also as an independently acting holding device without adjusting screws, is known in various different embodiments from the prior art, and therefore it can be designed as in any of the known embodiments.

In the present embodiment the locking mechanism 9 is arranged inside said holding part 30 or on the latter. For this the locking device 10 is inserted into a recess 32 in said holding part 30. This can be achieved in that the opening 48 can be formed by a bore 41 with an internal thread, in which the locking device 10 is screwed with an external thread. However, any other type of securing is possible, for example by pressing in or securing with securing means or by suitable adhesives.

The locking mechanism 9 comprises as well as the locking device 10 a locking bar 14, which in its position of rest 15—shown in a partly dashed lines in FIG. 5—is located within the external periphery of the holding part 30. If the locking bar 14 is to be used to prevent the incorrect use of the device 1 the locking bar 14 can be pivoted up about a pivot axis 33 from the position of rest 15 shown in partly dashed lines in FIG. 5 into the locked position 16 shown partly by solid lines. In this locked position 16 the locking element 25 of the locking device 10, for example can be formed by a locking pin displaceable in longitudinal direction of the locking device 10, which can be advanced into an opening 48 in a securing tab 34, and thereby the locking bar 14 is secured in its locked position 16 from pivoting back into the position of rest 15 and is locked by the locking device 10 in this position. After removing the key 13 shown in FIG. 8, the locking bar 14 is fixed by the locking element 23 in its locked position 16 and prevents the incorrect use of the device 1.

It is also shown in FIG. 7 that the locking bar 14 is mounted in a groove-shaped depression 35 at a sufficient distance 36 from the side walls of the groove shaped depression 35, so that it is easily accessible from the outside at any time and any ice which would prevent the activation of the locking bar 14 can easily be removed.

For this purpose the groove shaped depression 35 is also deeper than the corresponding depth of the locking bar 14, in order to prevent undesired sticking of the locking bar 14 in the depression 35 caused by freezing or hard pressed snow.

Here too, the selection of an ice-repelling material can be very advantageous.

As shown schematically in FIG. 8, instead of the embodiment of the locking mechanism 9 shown in FIGS. 5 to 7, in which the latter is arranged, the holding part 30 can be arranged in the region of a standing plate 37 in the area of the toe piece 7. The arrangement of the locking mechanism 9 in a depression 35 formed in the standing plate 37 is achieved according to the above embodiments with corresponding play with the locking bar 14 in order to permit the action according to the invention.
The locking bar 14 is shown lying in its position of rest 15 indicated by solid lines and in its locked position 16 by dashed lines.

In FIGS. 8, 9, and 10 a further embodiment of the locking mechanism 9 according to the invention is shown by way of a single device 1 for connecting a sports shoe 2 with a sports device 3, for example a ski binding. For this both in the toe piece 7 and in the heel piece 6 a locking mechanism 9 is arranged, whereby it is of course possible to provide both such locking mechanisms 9 on a single device 1 or to select one of the two.

The locking bar 22 shown in FIG. 10 and on an enlarged scale partly in cross section in FIG. 9 comprises at least one locking element 23, and the lock element 22 is inserted into the locking mechanism 9 and is removable and by means of a key 13 can be locked in its position inserted into the device element 4. The locking bar 14 is mounted displaceably in a guide track 28 formed by a guiding slot 38 in the longitudinal direction of the device 1 or the sports device 3 on a housing part 39 of the toe piece 7. In the housing part 39 an external, optionally used locking device 10 of the locking mechanism 9 is installed, the locking element 23 of which serves for example a pivotable or retractable pin or locking arm, in the locked position shown in the present FIG. 9 against movement in the position of rest 15—shown by dashed lines. For this the housing of the locking device 10 can lock the front side of the locking bar 14 facing the latter, if it is inserted into a recess 32 and is locked or secured by activating the key 13 in the latter.

After locking the locking element 23 by means of the locking device 10 by the key 13 and after removing the latter, the device 1 is protected from unauthorised use.

Here too the parts of the locking bar 14 lie on the top of the toe piece 7 and in this way simple operation can be achieved.

A different embodiment of the device 1 is shown in the region of the heel piece 6 in FIG. 9. In this case the locking mechanism 9 consists of a cylindrical, external and if necessary removable locking device 10 in which a locking element 23 that is rotatable relative to its housing 40 is arranged. After pushing the cylindrical housing 40 into a bore 41 of the base part 11 by means of the key 13 the locking element 23 can be pivoted into a recess 32 inside the base part 11 and locked there. After removing the key 13 the locking device 10 is arranged so that the housing 40 thereof projects into the area which is normally required for mounting the ski shoe in the heel piece 6. In this way the device 1 cannot be used and because the locking device 10 is used firstly immediately prior to use in the heel piece 6 it is possible to keep the latter warm in the intervening time, e.g. it can be carried in ski clothing so that the insertion and locking is possible without any problems caused by ice or the like.

In FIGS. 11 and 12 a different embodiment of the device 1 for connecting a sports shoe 2 with a sports device 3, for example a snowboard binding, is shown in a schematically shown toe piece 7.

The device 1 is allocated a locking mechanism 9 by means of which the use of the device 1 can be prevented.

For this a locking bar 14 pivotable about a pivot axis 43 is arranged on the toe piece 7. The locking bar 14 is formed by a pivot arm which is divided by the pivot axis 33 into a longer and shorter lever part. The longer lever part is provided for pivoting into the free space required for inserting the shoe 2 into the device 1—as shown by solid lines in the locked position 16—against which the shorter part of the locking mechanism 9 or the locking device 10 is allocated. Said locking device 10 comprises a cylindrical rotatable locking pin, which on one of its longitudinal sides is provided with a flattened part 44 in partially an eccentric. By pivoting the locking element 23 into the position shown by solid lines in the locked position 16 the locking bar 14 is prevented from pivoting back from the locked position 16 shown by solid lines into the position of rest 15 shown by dashed lines.

For adjustment the locking element 23 needs to be pivoted so that the flattened part 44 faces the locking bar 14, after which the latter can be pivoted into its position of rest 15—shown by dashed lines. After pivoting back the locking bar 23 into the original position the locking bar 14 is prevented from pivoting into the free space for mounting the shoe in the device 1.

Because the locking bar 14 lies as a whole outside the housing of the toe or heel piece 7, 6 a perfect actuation and also an operationally reliable operation is achieved in difficult environmental conditions such as very low temperatures with the risk of ice.

In FIG. 13 a different embodiment of a locking mechanism 9 is shown in the region of the rear holding element 50 of a device 1 designed as a snowboard binding. Said device 1 is composed of the base plate 55, the housing elements 49, 50 for a sports shoe 2, the calf support, the locking coupling 56 and other device parts 4.

The locking mechanism 9 can be arranged on one of the holding elements 49, 50 in the locking device to fix a sports shoe 2, or in a different area of the holding elements 49, 50.

These holding elements 49, 50 designed as holding bands are composed of two mutually telescopic adjustable bands, whereby a coupling device or the like is allocated to one of the holding bands 49, 50 and a counter coupling device is allocated to the opposite band. The locking device shown here is known like many similar ones from the prior art.

The holding bands 49, 50 comprise detent couplings 56, which engage in locking teeth, which is arranged on the opposite holding band. The holding band with the locking teeth is guided by the detent coupling 56 of the other holding band and by means of the latter the sports shoe 2 is fixed into the device 1. By means of this detent arrangement a fine adjustment can be achieved for each size of sports shoe 2. The locking mechanism 9 is provided in one of the detent couplings 56 on the front or rear holding elements 49, 50.

By arresting the holding bands 49, 50 via the detent coupling 56 and the subsequent locking of the locking mechanism 9 the latter can no longer be separated from one another. In this way it is impossible to climb into the device 1 as it can no longer be fitted to the foot of a user. The unnoticeable theft of the device 1 is therefore made more difficult.
Here too external lock parts 22, such as attachable locking mechanisms 9 can be provided, e.g. a padlock, the lock stirrup of which is guided through bores in the overlying holding elements 49, 50.

Fig. 14 shows a different embodiment of a device 1, in particular a soft binding for a snowboard, consisting of a base plate 55, the holding elements 49, 50, the calf support 51 and additional device parts 4.

Here the pivotable calf support is used and provided with a locking mechanism 9. An external lock element 22 can be inserted into a bore in the calf support. The lock element passes through the calf support 51 in the pivoted away position of the highback and is secured into a bore 41 of the base plate 55. If the locking mechanism 9 is locked the calf support is prevented from pivoting and covers the area of use for a sports shoe 2 of the device 1, so that the latter cannot be used, as shown by solid lines.

Figs. 15 and 16 show a further embodiment of a device 1, in particular a step-in binding or a so-called hard boot binding for snowboards, as already known from the prior art. With the latter the front holding stirrup 52 can be adjusted by the pivot axis 33 into a lowered position and locked by means of a locking mechanism 9, from which a retractable pin projects in the locked state—as shown by solid lines. Thus it is not possible to pivot the holding stirrup 52 out of its lowered position. Because of the relatively short distance 26 in the installation of this locking mechanism 9 and due to the easy accessibility from both sides this locking device 10 can also be easily released if one of the parts becomes stuck.

As the installation of this locking mechanism 9 mostly does not occur in a plastic housing, but in a metal housing, made in particular of titanium or alloy metals, it is possible, in the case of freezing or sticking, to heat the latter slightly with a lighter and the like and thus melt the ice.

In the individual embodiments according to Figs. 1 to 16 the locking mechanism 9 can also be welded into, welded onto, adhered onto, adhered into, screwed or pressed etc. into the device 1.

Lastly, for form's sake it should be noted that for a better understanding of the structure of the device 1, the latter and its components have been shown partially untrue to scale and/or enlarged and/or reduced in size.

The embodiments show possible embodiment variants of a device 1, whereby at this point it should be noted than the invention is not restricted to the specifically shown embodiments, but rather diverse combinations of the individual embodiments are possible and this possibility of variation lies within the ability of a person skilled in this technical field on the basis of the teaching on technical procedure. Thus, all conceivable embodiments which are possible by combining individual details of the shown and described embodiments are covered by the scope of protection.

Most of all, the individual embodiments shown in Figs. 1 to 16 can form the subject matter of independent solutions according to the invention. The objectives and solutions according to the invention can be taken from the detailed descriptions of the figures.

1. Device (1) for connecting a sports shoe (2) with a sports device (3), in particular a shoe with a snowboard or a ski, or for braking a sports device (3), consisting of at least one of the device parts (4), such as a toe piece (7), a heel piece (6), a binding plate (3), a brake device (5) and a locking mechanism (9) allocated to at least one of said device parts (4), which is arranged in one of said device parts (4) and comprises a locking bar (14), which can be displaced relative to a base part (11) of the device parts (4) and can be secured and locked at least in one of its end positions by a locking device (10), wherein the locking bar (14) can be displaced from a position of rest (15) lying outside the user-defined movement space between the base part (11) and an adjusting element (54) of the device parts (4) or between
at least one of the latter and the shoe, into a locked position (16) in this movement space projecting over at least one of the device parts (4) or its base or adjusting element (11, 54) and can be secured at least in the locked position by the locking device (10).

2. Device (1) according to claim 1, wherein the locking bar (14) in the locked position (16) is arranged in a free space (53) accessible from the outside between the device parts (4) or the parts of the device parts (4) that are adjustable relative to one another, such as the base part (11), the adjusting part (54) or the like.

3. Device (1) according to claim 1, wherein the locking bar (14) secures the adjusting element (54) of the device parts (4) in one of its end positions.

4. Device (1) according to claim 1, wherein the locking bar (14) of the locking mechanism (9) in its locked position (16) secures the adjusting element (54) of the brake device (5) in its brake position (13).

5. Device (1) according to claim 1, wherein the locking bar (14) of the locking mechanism (9) in its locked position (16) projects via the binding plate (3) into the movement area required for inserting a ski shoe (2) between the toe and heel pieces (7, 6).

6. Device (1) according to claim 1, wherein the locking bar (14) of the locking mechanism (9) in its locked position (16) projects over the device parts (4) into the movement area required for inserting the shoe and is secured.

7. Device (1) according to claim 1, wherein the locking bar (14) with the locking device (10) can be designed to be adjustable between its position of rest and locked position (15, 16).

8. Device (1) according to claim 1, wherein the locking bar (14) is secured at least in its locked position (16) to a locking element (23) of the locking device (10).

9. Device (1) according to claim 1, wherein the locking element (23) partly overlaps the locking bar (14).

10. Device (1) according to claim 1, wherein the locking mechanism (9) consists of a lock element (22), the locking elements (23) with a locking device (10) and is arranged in one of the device parts (4).

11. Device (1) according to claim 1, wherein the lock element (22) of the locking device (10) is arranged in one of the device parts (4), and its locking element (23) projects over the latter up to the locking bar (14).

12. Device (1) according to claim 1, wherein the locking mechanism (9) and/or the locking device (10) or at least its lock element (22) or locking elements (23) is allocated a heating element (25).

13. Device (1) according to claim 1, wherein a heating element (25) is allocated to the locking bar (14).

14. Device (1) according to claim 1, wherein a switch in the form of a push button or a screw is allocated to the heating element (25).

15. Device (1) according to claim 1, wherein at least the locking element (23) or the locking bar (14) is made from a material with low adhesive strength for snow and/or ice.

16. Device (1) according to claim 1, wherein the locking bar (14) is arranged between the brake pedal (12) and the base part (11) of the brake device (5).

17. Device (1) according to claim 1, wherein the locking device (10) for the locking bar (14) is incorporated into the brake pedal (12).

18. Device (1) according to claim 1, wherein the locking device (10) is arranged for arresting and locking the locking bar (14), at least in the base part (11) of the brake device (5).

19. Device (1) according to claim 1, wherein the locking mechanism (9) with its locking device (10) is arranged in the holding part (30).

20. Device (1) according to claim 1, wherein the locking mechanism (9) with its locking device (10) in the holding part (30) is provided with a recess (32) that is freely accessible from the outside.

21. Device (1) according to claim 1, wherein the locking mechanism (9) comprises several locking bars (14).

22. Device (1) according to claim 1, wherein the locking bar (14) is arranged in a groove-shaped depression (35).

23. Device (1) according to claim 1, wherein the locking mechanism (9) with its locking device (10) consists of an external lock element (22) with its locking elements (23) and its key (13).

24. Device (1) according to claim 1, wherein a position in a locking mechanism (9) is determined for the external lock element (22) by a bore (41) and said lock element (22) is inserted into the latter for locking.

25. Device (1) according to claim 1, wherein the locking mechanism (9) with its locking device (10) and its lock element (22) is arranged in either the heel piece (6) and/or the toe piece (7).

26. Device (1) according to claim 1, wherein the locking mechanism (9) with its locking device (10) and its lock element (22) is arranged in one of the sections between the heel piece (6) and the toe piece (7).

27. Device (1) according to claim 1, wherein the locking device (10) can be mounted onto one of the device parts (4).

28. Device (1) according to claim 1, wherein the locking mechanism (9) can be pivoted, adjusted, fixed and locked by the device (1) onto one of the holding elements (49, 50) for a sports shoe (2) on a base plate (55).

29. Device (1) according to claim 1, wherein the lock element (22) of the locking mechanism (9) in its locked position projects through a calf support (51) hinged pivotably on a base plate (55) of the device (1) and turned towards the latter into a bore (41) in the binding plate.

30. Device (1) according to claim 1, wherein the base plate (55) in the front region of the device (1) for a sports shoe (2) is allocated a holding stirrup (52), which is pivotally mounted about a pivot axis (33), and the latter is prevented from opening by means of a locking mechanism (9) in the front lateral web of the device (1).

31. Device (1) according to claim 1, wherein preferably an adjustable cover is allocated to the locking mechanisms (9).

32. Device (1) according to claim 1, wherein the external lock element (22), that can be inserted if necessary into one of the device parts (4), is locked when the locking bar (14) in the device part (4) is in the locked position (16).

33. Device (1) according to claim 1, wherein the lock element (22) with the locking bar (14) in the position of rest (15) can be removed from the device part (4).