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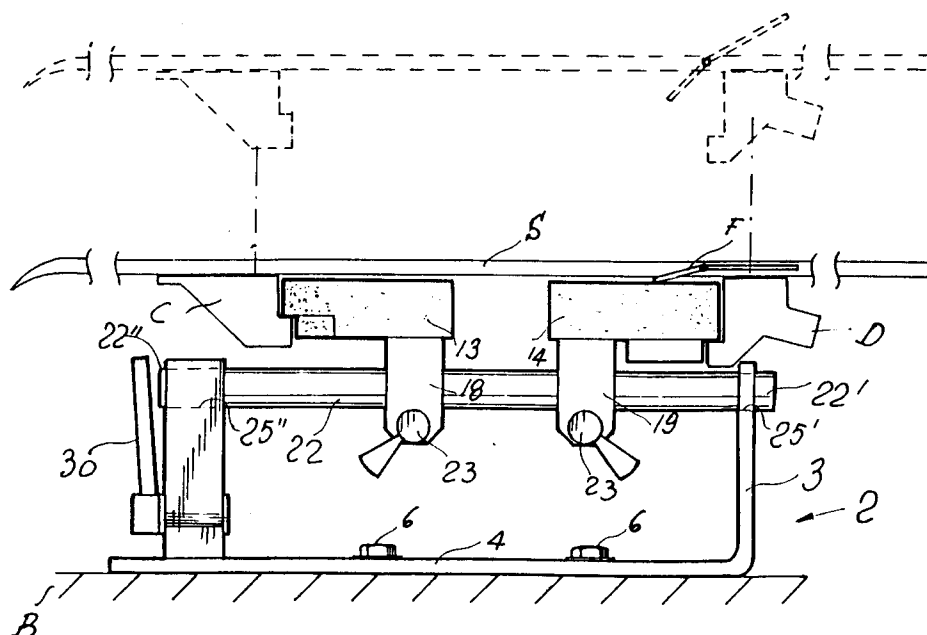
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I- 20121 Milano (IT)(54) **Device for holding a workpiece, particularly a ski.**

(57) A device for holding a ski includes an anchoring element (10) which is substantially shaped like a sole and is adapted to engage with the binding (C, D) of a ski (S) or of a similar sports implement, in order to lock it on a workbench or on an equivalent supporting surface (B). The sole-shaped anchoring

element (10) can be adjusted in length so as to adapt to the relative distance of the binding members (C, D), and includes longitudinal end portions (15, 16) which are shaped like the tip and the heel of a boot. The device ensures extremely stable and safe locking of workpieces of any size.

*Fig. 2***EP 0 540 929 A1**

The present invention relates to a device for holding a workpiece particularly a ski, for repair or maintenance workings.

It is known that in order to efficiency, skis require regular maintenance, for example, to restore worn blades, perform local repairs of the outer layers, wax the surfaces in contact with the snow, etc. In order to work on the ski, it is necessary to rigidly anchor it to a workbench or to any supporting surface by means of adapted holding devices.

Ordinary bench vises with movable jaws are generally used for this purpose but they have some acknowledged problems: among which, most important of all is the poor stability and reliability of the locking action due to the limited engagement surfaces,

Furthermore, because of their considerable width, vises do not allow to easily work on the edges of the ski.

It is also noted that usually the snow skis have braking devices, generally constituted by forks hinged to the ski body and protruding from its lower surface. These braking devices prevent the working of the ski and must therefore be retained along the edges of the ski with makeshift means such as rubber bands or tapes. In any case, these means prevent the working of the ski in the adjacent regions and are also a nuisance.

Finally, conventional vises are rather bulky and heavy and are therefore difficult to transport.

The aim of the present invention is to eliminate the problems described above by providing a holding device, for skis in particular, such as to ensure extremely safe and comfortable securing conditions.

A further object of the present invention is to provide a device which can be adapted to any type of sports implement and can be orientated so as to facilitate the necessary treatments.

A further object is to provide a device which allows to automatically eliminate the hindrance constituted by any braking elements present on the ski being treated, so as to make all the parts fully accessible for working.

Still a further object of the present invention is to provide a holding device having a simple, compact and light structure, such as to facilitate its transport and installation in any place.

This aim, these objects and others which will become apparent hereinafter are achieved by a device for holding a workpiece, particularly a ski, as claimed in the accompanying claims.

According to further aspects of the invention, the sole-shaped anchoring element can be adjusted in length in order to adapt to the relative distance of the bindings on the ski or implement being treated.

The sole-shaped anchoring element can furthermore be selectively orientated in preset angular positions about a longitudinal axis in order to facilitate working on all sides.

Finally, the sole-shaped anchoring element has a contact surface which is adapted to interact with any braking devices present on the ski so as to keep the brakes out of the line of action of the working.

By means of a device according to the invention it is possible to ensure maximum safety and reliability in holding the workpiece, combined with a simplified working and greater flexibility of the device.

Further characteristics and advantages of the invention will become apparent from the following detailed description of an example of a preferred but not exclusive embodiment of a device according to the invention, illustrated with the aid of the accompanying drawings, wherein:

Fig. 1 is a general perspective view of the device according to the invention;

Fig. 2 is a schematic side view of the device of Figure 1, in use;

Fig. 3 is a partially sectional side view of the device of the preceding figures, taken along an axial vertical plane;

Fig. 4 is a top view of the device according to the invention;

Fig. 5 is a cross sectional view of the device taken along the vertical plane V-V of Fig. 3.

The figures illustrate a device, generally designated by the reference numeral 1, for holding a workpiece S during its repair and/or maintenance.

The term "workpiece" defines a ski for downhill skiing, cross-country skiing, grass skiing, a roller-ski or the like, generally constituted by a longitudinal body having binding members C, D for locking a boot or shoe of the user.

The holding device 1 comprises an anchoring bracket 2 which is generally U-shaped and is for example formed by a strong metallic plate which is bent at one end so as to define a vertical portion 3 and a horizontal portion 4, at the opposite end of which a post 5 is rigidly fixed.

The bracket 2 can be anchored to a workbench B or to any supporting surface, for example by means of bolts or equivalent elements 6, which pass through its horizontal portion 4.

According to the invention, the device has a member for anchoring to the sports implement S which is substantially shaped like a sole and is generally designated by the reference numeral 10. In particular, the anchoring member 10 is adapted to engage the binding of the ski S for holding the ski to the bracket 2 in the selected working positions.

Conveniently, the sole-shaped element 10 is constituted by two separate parts 11 and 12 comprising respective plates 13 and 14 having opposite end portions 15 and 16. End portions 15, 16 are shaped like the tip and the heel of a ski boot and are made of antifriction material, such as, for example, PVC, Teflon (trade marks), synthetic or natural rubber.

Because of their shape, these end portions 15 and 16 can be inserted in the binding C, D and be retained therein with a force equal to the selected release force of the binding.

Advantageously, distance between the end portions 15, 16 can be adjusted in order to adapt to the distance of the binding members C, D of the ski, which corresponds to the size of the boot worn by the user.

In particular, the plates 13 and 14 are fixed by means of screws 17 on blocks 18 and 19 which are provided, at their free ends, with split holes 20 and 21 in which a rigid supporting bar 22 is inserted. Bar 22 is supported by the bracket 2 as specified hereinafter.

A first locking means comprises locking screws 23 inserted in the open ends of the holes 20 and 21 at right angles thereto. Thus, by acting on the screws 23, the ends of the split holes 20 and 21 may be moved closer, causing the blocks 19 and 20 to lock on the bar 22 in the positions which correspond to the distance of the bindings.

The bar 22 has, on its outer cylindrical surface, a longitudinal groove 24 in which the ends of the screws 17 engage. The screws protrude slightly within the holes 20 and 21, as clearly shown in Figure 3, so as to prevent the relative rotation of the blocks 18 and 19 with respect to the bar 22. The end 22' of the bar 22 is inserted in a hole 25' defined in the vertical portion 3 of the bracket 2 and can freely rotate therein, while the opposite end 22" is accommodated in a hole 25" which is defined in the upper portion of the post 5 and is coaxial to the hole 25'.

The end 22' of the bar 22 also has, on its outer surface, a plurality of circular seats 26, four in the illustrated case, which are angularly offset by 90° with respect to one another.

A second adjustment and locking means comprises a vertical actuation rod 27 which is arranged in a corresponding axial cavity 28 defined in the post 5. The lower end 27' of the rod 27 is placed in contact against an eccentric element 29 of a locking lever 30 whose axis 31 is pivoted in a through hole 32 defined at the base of the post 5. The upper end 27" of the actuation rod 27 can selectively engage each one of the recesses 26 defined in the end 22" of the bar 22 so as to selectively lock its angular position.

Advantageously, the axis 31 of the lever 30 is mounted with slight friction in the corresponding hole 32 so as to keep its locking position during treatment.

According to the invention, the plate 14 is shaped so that its outer surface interferes, upon locking, with the bracket of the brake F of the ski, as shown schematically in Figure 2, so as to move this element out of working region.

The materials employed for the various parts, unless otherwise specified, may be steel, aluminum, high-strength plastic materials and others suitable to give strength and light weight to the device.

Operation of the device is as follows. The ski S is arranged on the device in order to adjust the relative distance between the parts 11 and 12 of the sole-like element 10 by means of the locking screws 23. Once the binding of the ski has been locked on the parts 11 and 12 of the device, the brake F is folded and aligned with respect to the ski. By turning the lever 30, the bar 22 can be rotated and stopped in the required angular position. Thus, the ski can either be locked on, for replacing one side, for replacing or working the edges, or upside down, for waxing the lower surface. Furthermore, once the ski S has been removed at the end of the working, the sole-shaped element 10 can be rotated downward, as illustrated by broken lines in Fig. 3. In this manner, the device has a more compact size when not in use.

In practice it has been observed that the device according to the invention achieves the intended aim and objects, and in particular the reliability and stability of the locking, combined with great flexibility and constructive simplicity, are stressed.

The holding device thus described is susceptible to numerous modifications and variations, all of which are within the scope of the inventive concept expressed in the accompanying claims. In particular, the anchoring bracket, the sole-shaped anchoring element, the locking elements and all the other constructive details may assume shapes and configurations which differ from those described. The materials and the dimensions employed may be any according to the requirements, so long as they achieve the same final effects.

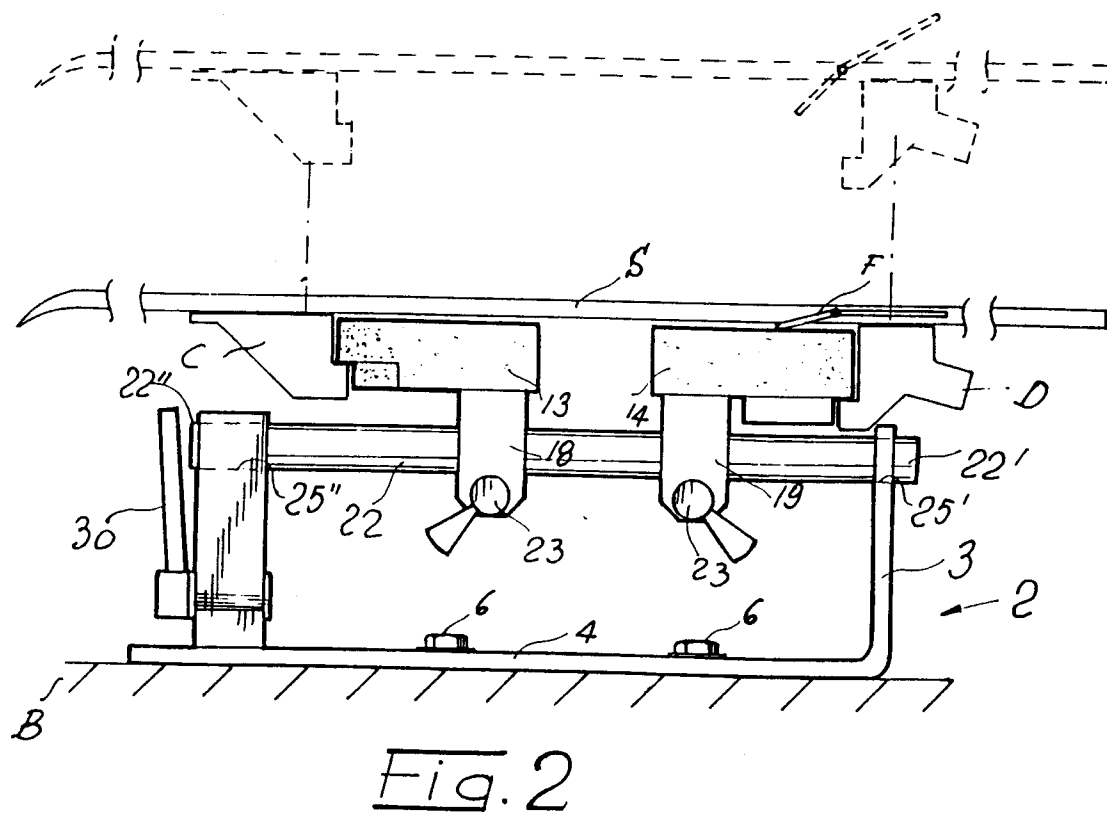
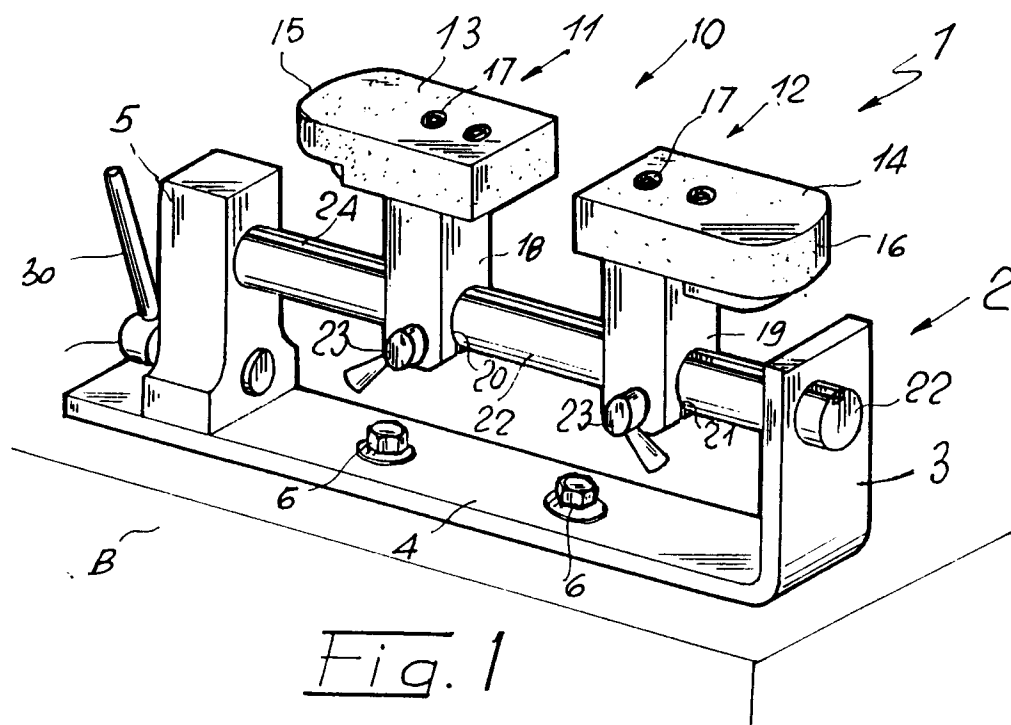
Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Device for holding a workpiece, particularly a ski characterized in that it comprises an anchoring element (10) shaped substantially like a sole and adapted to engage with a binding constituted by binding members (C, D) of said workpiece (S) in order to stably lock it in a position for working. 5
2. Device according to claim 1, characterized in that the length of said sole-shaped anchoring element (10) can be adjusted to adapt to the relative distance of the binding members (C, D). 10
3. Device according to claim 2, characterized in that said sole-shaped anchoring element (10) comprises longitudinal end portions (15, 16) which are substantially shaped like the tip and, respectively, the heel of a ski boot. 15
4. Device according to claims 1 to 3, characterized in that the sole-shaped anchoring element (10) comprises first locking means (18, 19, 23) for adjusting the relative position of its longitudinal end portions. 20
5. Device according to claims 1 and 2, characterized in that said sole-shaped anchoring element (10) is mounted so as to be able to rotate on a supporting bracket (2) for rotation about a longitudinal axis (22). 25
6. Device according to claim 5, characterized in that it comprises a second locking means (27, 30) for securing the sole-shaped anchoring element (10) in preset angular positions about the longitudinal axis (22). 30
7. Device according to one or more of the preceding claims, characterized in that said sole-shaped anchoring element (10) has a contact surface (13) adapted to interact with a brake (F) of said workpiece, so as to move it out of the line of action of the working. 35
8. Device according to one or more of the preceding claims, characterized in that the sole-shaped anchoring element (10) comprises a pair of shaped plates (13, 14) made of an antifriction material, said plates constituting longitudinal end portions (15, 16) of said anchoring element. 40
9. Device according to one or more of the preceding claims, characterized in that said shaped plates (13, 14) made of antifriction 45

material are rigidly anchored to fixing blocks (18, 19), said blocks being provided with respective split holes (20, 21) for the axial sliding of said sole-shaped element (10) on a rigid supporting bar (22) without the possibility of relative rotation.

10. Device according to one or more of the preceding claims, characterized in that said first locking means comprises actuation screws (23) for reducing the size of the split holes (20, 21) of the fixing blocks (18, 19). 50
11. Device according to one or more of the preceding claims, characterized in that a second locking means comprises a locking lever (30), said lever being provided with an eccentric element (29) which acts on an actuation rod (27) to selectively lock an end (22") of the supporting bar (22). 55
12. Device according to one or more of the preceding claims, characterized in that said rigid supporting bar (22) is supported so as to be able to rotate by a bracket (2) which can be anchored to a workbench or to a working surface (B). 60



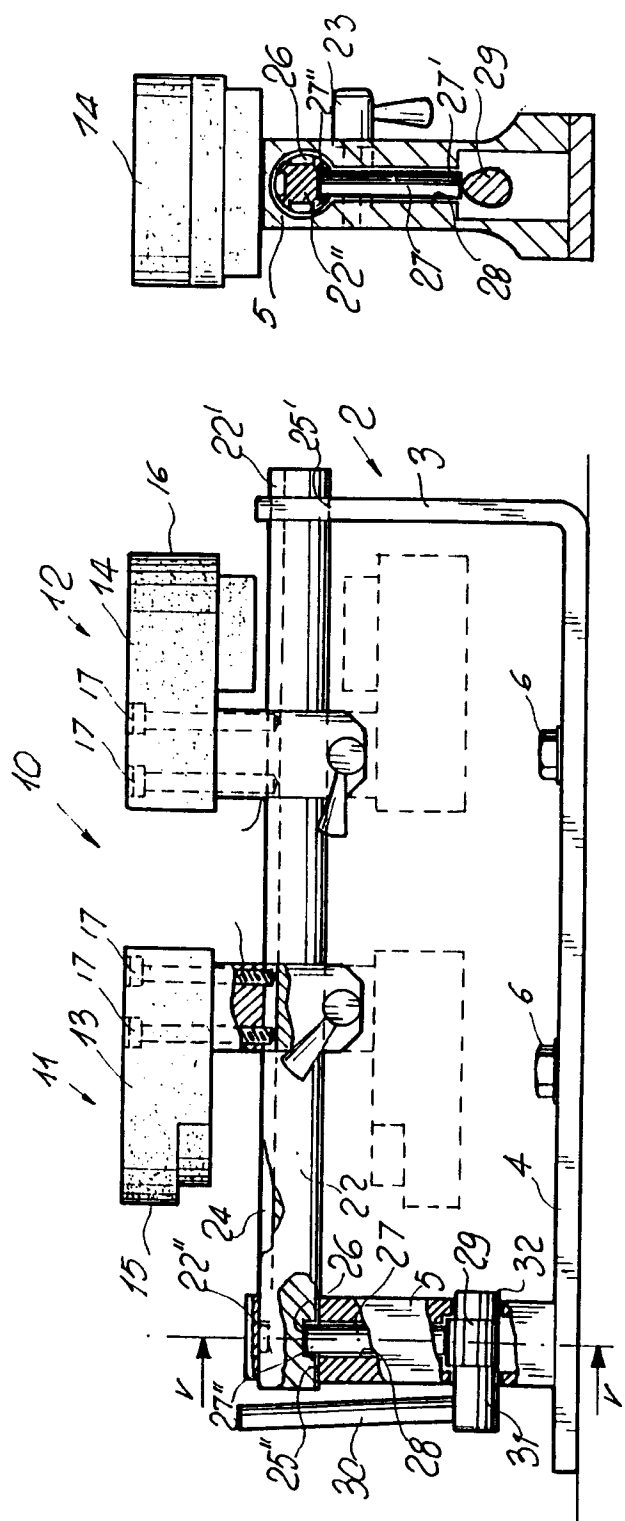


Fig. 5

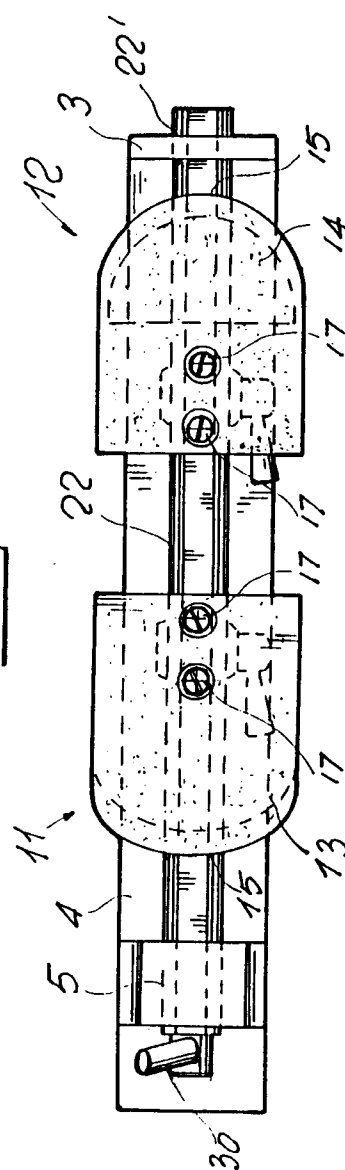


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number

EP 92 11 7843

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-3 243 559 (STETTER)	1-4,6,8-12	A63C11/14
A	* page 4, line 3 - line 7; claims 1,2; figures 1,2 *	5,7	

X,P	EP-A-0 487 225 (WEISSENBORN ET AL.)	1-6,8,9,12	
A	* abstract; claims 1-3; figures 1-4 *	7,10,11	

X	DE-A-3 910 316 (KASUBKE & TREFZ GMBH)	1-4,8	
A	* column 2, line 25 - line 40; claims 1-3; figures 1-3 *	6,7,9-12	

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A63C B24B
Place of search BERLIN		Date of completion of the search 21 JANUARY 1993	Examiner MICHELS N.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	