Jan. 24, 1967 P. UNGER 3,300,227

SKI SOLE PLATE AND BINDING MEANS FOR MOUNTING ON THE SURFACE OF A SKI

Filed Dec. 23, 1963 2 Sheets-Sheet 1

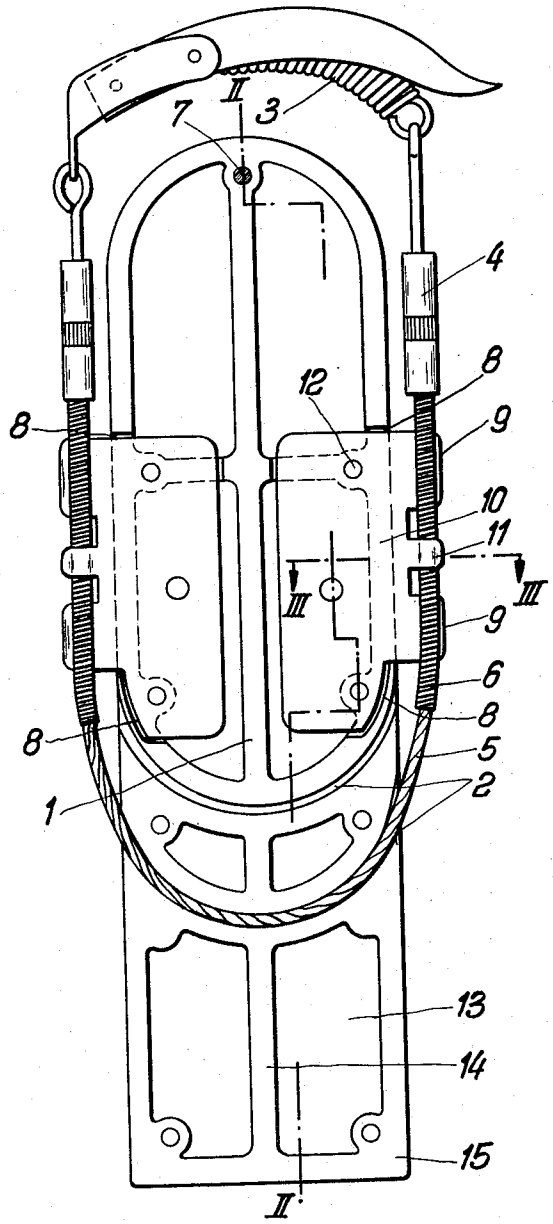


Fig. 1

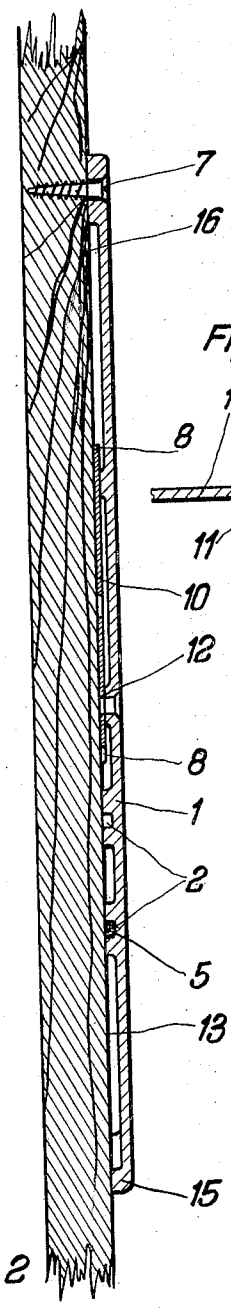
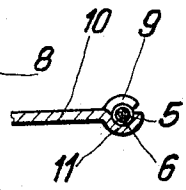


Fig. 2

Fig. 3



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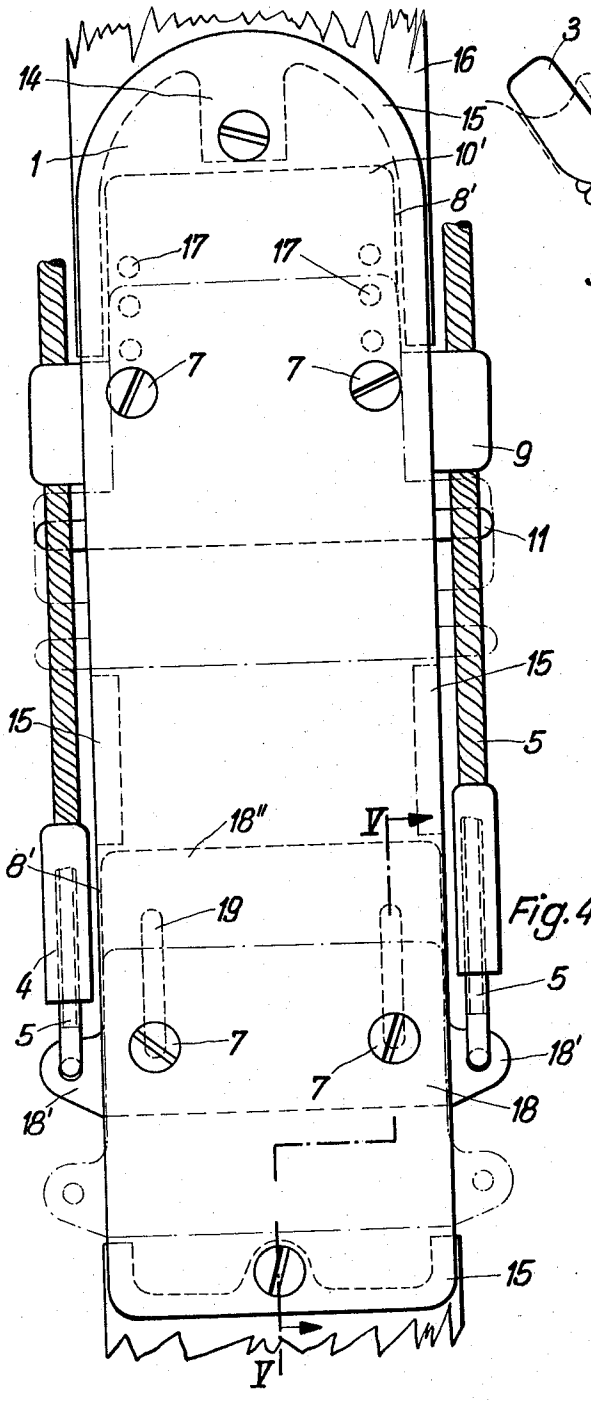

Fig. 4

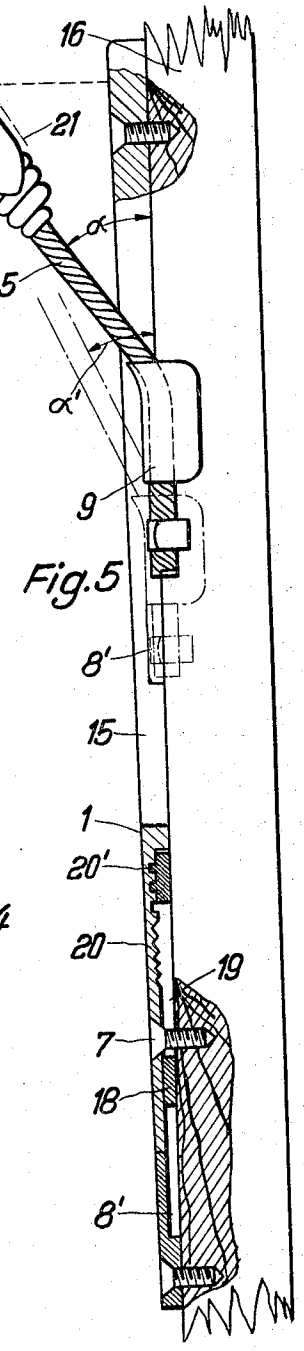

Fig. 5

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United States Patent Office 3,300,227 Patented Jan. 24, 1967

3,300,227

SKI SOLE PLATE AND BINDING MEANS FOR MOUNTING ON THE SURFACE OF A SKI

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Filed Dec. 23, 1963, Ser. No. 332,451
Claims priority, application Germany, Dec. 24, 1962, U 9,478; Dec. 4, 1963, U 10,319
8 Claims. (Cl. 280—11.35)

The invention relates to ski accessories and is particularly concerned with a sole plate which can be fastened to the upper surface of a ski and to the binding and binding components associated therewith.

It is a primary object of the invention to provide a ski sole plate which not only constitutes the engagement surface for the ski boot, but which serves simultaneously as a retaining means and also for fastening the binding means on the ski.

In accordance with the invention the bottom side of the plate is provided with recesses, cut outs, grooves or the like, into which the binding and/or parts holding the binding are placed and are securely held between the bottom side of the plate and the upper surface of the ski by fastening the sole plate to the ski. Thus the plate constitutes not only the support for the foot, but it insures at the same time the secure retention of the binding. For this purpose it is sufficient to provide in the ski merely the bores for the mounting screws for the sole plate, because the tightening of the screws results also in the secure retention of the binding components. As a result considerable economies are made in the time for mounting or assembling the sole plate and binding means and in costs, because afterwards no additional bores are needed for fastening the binding or the binding components. Heretofore these bores had to be provided at the front cheeks in the ski surface or in the side surfaces of the ski, which is particularly difficult with the metal and plastic skis which have come into use recently. Thus the advantages of the invention are particularly useful here. In addition, the side edges of the skis are always in contact with the snow and thus hamper the skiing. Also this shortcoming is avoided in accordance with the invention.

It is furthermore essential that bindings of different construction can be secured to the ski with the same sole plate, one after the other, without additional bores being required for each new binding. The plate can be extruded in one piece out of plastic material together with the recesses, etc., as well as the bores for passing through the fastening screws. Consequently the manufacture or production is simple and cheap. The binding, or the parts which retain it, are in this manner securely clamped without the danger of being lost, and thus they cannot slide. A further advantage is afforded by the fact that this manner of mounting cannot be adversely affected by the penetration of snow or ice.

The invention provides furthermore for equally simple adaptation to any particular size or type of shoe. For this purpose the binding, or the parts which hold the binding, are adjustable in the manner of a cord anchor plate or a plate having an inverted guide hook, and can be fixed in the particular position. Also for this adjusting or setting it is not necessary to provide new bores in the ski. This is a further advantage, because after repeated adaptation to different shoe sizes and types, or different bindings, there would soon be an inadmissible number of bore holes in the ski.

The exchanging of the bindings, as well as the aforementioned adaptation, can be carried out easily and rapidly, so that it can be undertaken by inexperienced persons.

Further advantages and features of the invention and the manner of adapting the same to practice will become apparent from the following specification with reference to the embodiments illustrated in the drawings, in which:

FIG. 1 is an embodiment of the sole plate with binding components embedded, as seen from the bottom,

FIG. 2 is a section taken along line II—II in FIG. 1,

FIG. 3 is a section of a detail of the plate having an inverted guide hook plate taken along line III—III of FIG. 1,

FIG. 4 shows in top view as a further embodiment that part of a ski having the sole plate and parts of the binding, and

FIG. 5 is the appertaining side view, partly in section, taken along line V—V in FIG. 4.

The sole plate **1** is preferably injection molded in one piece out of relatively hard plastic material. The bottom side is formed in a manner that the parts of the binding to be described more in detail hereinafter can be inlaid, as the plate is fastened to the ski, i.e., as the screws **7** are tightened, are held securely between the bottom of the plate and the upper surface of the ski.

In the embodiment in accordance with FIGS. 1–3 arcuately shaped grooves are provided into which the cable **5** can be laid. The spring lock is indicated at **3**, turnbuckles are provided at **4** and a spiral spring **6** is disposed around the cable **5**.

The groove **2** is located at the forward half of the sole plate, approximately at the location where during skiing the ball of the foot comes to rest. This is considerably more advantageous than providing the circumferential binding ahead of the so-called forward cheeks.

Inverted guide hooks **9** or plates **10** provided with such hooks can be inserted in suitable recesses, such as recesses **8** that open outwardly of the bottom of the sole plate, and in lieu of the two plates shown a single continuous plate may be provided. The support plates **10** are furthermore provided with claws **11** which retain the cable, or cord **5** or spiral spring **6** underneath. Preferably the inverted hook plates with the hooks are stamped or pressed out of a piece of sheet metal or steel. This applies also to the cord anchor plate to be described below. FIG. 2 indicates more particularly the manner in which the inverted guide hook plates are pressed or clamped against the surface of the ski **16** as the screws are tightened. For the sake of clarity the binding is not shown in this figure. Preferably the screws **7** pass through bores **12** in the plates **10**, which are in alignment with corresponding bores in the sole plate. In this manner a particularly rigid connection is obtained.

It would also be possible to provide the bottom side of the sole plate with strap holders which could be retained in the same manner.

In order to adapt the binding for different shoe sizes it is possible to provide in the sole plate shown in FIG. 1 several grooves **2** which are disposed at a distance from one another longitudinally of the sole plate. By loosening the screws **7** and raising the sole plate the cable **5** can be moved backward or forward for insertion into a different groove.

The inverted hook plate **10'** in accordance with the embodiment of FIGS. 4 and 5 has holes **17** which are displaced longitudinally of the plate and through which the shafts of the screws **7** are passed. With the position of the sole plate **1** on the ski **16** remaining the same the inverted guide hook plate is thus adjustable longitudinally of the ski and can be securely fixed in the desired position by tightening the screws **7**. It is also possible to provide other apertures in lieu of the bores **17**, such as slots through which the screws **7** can be passed.

A cable or cord anchor plate **18** is provided to the lateral lugs **18'** of which the ends of the cable or cord

5 may be secured. It would also be possible to provide two separate plates for this purpose. The cord anchor plate is also adjustable longitudinally of the ski by means of apertures, for example longitudinal slots 19, in a manner similar to the inverted guide hook plate, and can be secured in fixed position by means of screws 7.

It is furthermore possible to provide in lieu of the aforementioned securing means, or in addition thereto, interengaging projections 20' on top of the anchoring plate and below the sole plate or serrations 20, on the bottom side of the sole plate 1 and on top of the plate 10', 18 which are retained by the sole plate. These serrations also fix the position of the insert plates relative to the ski after tightening of the screws 7. They are especially recommended in the embodiments where the plates 10', 18 are provided with the slots 19, because on the one hand they make possible secure setting, and on the other hand, fine adjustment.

By adjusting the plate 18 it is possible to select the desired position for the binding with respect to the sole holder that engages the point of the boot relative to a safety head which is provided there. An adjustment of this type, which need not necessarily be the same as that provided by setting the plate 10' is indicated in FIG. 4 by means of dot and dash lines. In addition the plate 18 can also be pivoted by 180° about the axis defined by the lugs 18' so that then its rearward end 18'' is disposed forwardly, i.e., toward the point of the ski. Thus, the possibilities for adjustment are considerably increased.

The location of the inverted hook plate 10' at any time results in an angle α formed by the binding cord which extends at an angle outwardly relative to the surface of the ski. If, as indicated in dot and dash lines the plate 10' is moved forwardly, then the angle α decreases to the value α'. Accordingly it is possible to choose always that angle which corresponds to the position of the groove of the heel of the boot 21 indicated in dashed lines so that the parts 3, 5 are satisfactorily disposed in this groove.

Preferably the adjustability of the plate 10' as well as also the plate 18 can be provided for because in that event an optimum adaption on the particular shoe size is obtained. However, the invention is not limited to this but advantages are already provided by the adjustability of the cord anchor plate alone or solely by adjustability of the inverted hook plate.

The bottom side of the sole plate is formed in such a manner that it can safely accommodate the plates 10' and 11 through their entire range of adjustability and press them against the surface of the ski. In addition, however, the recesses 8 (FIG. 1, 2) and 8' (FIGS. 4, 5) of the sole plate are suitably provided in such a manner that they impart to the insert plates and parts of the binding the correct position relative to plate 1 and prevent, for example, that the plates 10, 10' and 18 are unintentionally displaced toward the side. In order to economize in material the bottom side of the sole plate may have recesses 13 which are reinforced by bridges or straps 14 and surrounded by a border 15. In accordance with FIG. 5 the sole plate can taper toward the point of the ski in a wedge-like manner.

Having now described my invention with reference to the embodiments illustrated in the drawings, I do not wish to be limited thereto, but what I desire to protect by Letters Patent of the United States of America is set forth in the appended claims.

I claim:

1. Sole plate and ski binding mounting means, said sole plate being adapted to be fixedly mounted to the upper surface of a ski and having a top side presenting an unobstructed plane surface and a bottom side provided with a plurality of recessed configurations, and said mounting means including said plurality of configurations and a plurality of binding components received therein, said sole plate constituting a clamping plate secured to a ski and clamping said plurality of binding components between said configurations and the upper ski surface.

2. Sole plate and ski binding mounting means, said sole plate being adapted to be fixedly mounted to the upper surface of a ski and having a top side presenting an unobstructed plane surface and a bottom side provided with recessed configurations, and said mounting means including said configurations and binding components received therein, said sole plate constituting a clamping plate secured to a ski and clamping said binding components between said configurations and the upper ski surface, said binding components including hook plate means held in one of said recessed configurations between the bottom side of said sole plate and the upper ski surface, said hook plate means presenting laterally extending guide hook means for a binding cable, and fastening means are provided for securing said sole plate and hook plate means to the upper ski surface and preventing movement of said hook plate means in a horizontal plane.

3. Sole plate and ski binding mounting means in accordance with claim 2, where side portions of said hook plate means are disposed adjacent downwardly extending portions of the recessed configuration in which said hook plate is disposed.

4. Sole plate and ski binding mounting means in accordance with claim 3, where said hook plate means comprise a unitary stamping having hooks extending on both sides beyond said sole plate and said fastening means include registering bores in said hook plate means and in said sole plate and screws extending through said bores.

5. Sole plate and ski binding mounting means, said sole plate being adapted to be fixedly mounted to the upper surface of a ski and having a top side presenting an unobstructed plane surface and a bottom side provided with recessed configurations, and said mounting means including said configurations and binding components received therein, said sole plate constituting a clamping plate secured to a ski and clamping said binding components between said configurations and the upper ski surface, said binding components including anchoring plate means received in one of said recessed configurations and having laterally extending lugs for anchoring the ends of a binding cable thereto, hook plate means held in another of said recessed configurations and presenting laterally extending guide hook means for portions of the binding cable, and interengaging configurations such as serrated projections on the lower side of said sole plate and on the upper surface of said anchoring plate means permitting adjustment of the position of said anchoring plate means relative to said sole plate.

6. Sole plate and ski binding mounting means in accordance with claim 5, where fastening means are provided including elongated slots in said anchoring plate means and bores in said sole plate, and screws extending through said slots and said bores permitting relative sliding movement prior to tightening of said screws to clamp sole plate and anchoring plate in position on the ski.

7. Sole plate and ski binding mounting means, said sole plate being adapted to be fixedly mounted to the upper surface of a ski and having a top side presenting an unobstructed plane surface and a bottom side provided with recessed configurations, and said mounting means including said configurations and binding components received therein, said sole plate constituting a clamping plate secured to a ski and clamping said binding components between said configurations and the upper ski surface, said binding components including anchoring plate means received in one of said recessed configurations and having laterally extending lugs for anchoring the ends of a binding cable thereto, hook plate means held in another of said recessed configurations and presenting laterally extending guide hook means for portions of the binding cable, and fastening means permitting adjustment of said hook plate relative to said sole plate

including an aperture in one said plate, a plurality of aligned apertures in the other said plate each movable into registering position with said aperture in said one plate and a screw extending through registering apertures adapted to anchor said hook plate against the surface of a ski.

8. Sole plate and ski binding mounting means, said sole plate being adapted to be fixedly mounted to the upper surface of a ski and having a top side presenting an unobstructed plane surface and a bottom side provided with recessed configurations, and said mounting means including said configurations and binding components received therein, said sole plate constituting a clamping plate secured to a ski and clamping said binding components between said configurations and the upper ski surface, said binding components including anchoring plate means received in one of said recessed configurations and having laterally extending lugs for anchoring the ends of a binding cable thereto, said anchoring plate means being in the form of a unitary stamping having apertures and said sole plate being provided with apertures registering with the apertures in said stamping, and screws extending through said registering apertures and securing said sole plate and said stamping to the upper surface of a ski.

References Cited by the Examiner

UNITED STATES PATENTS

2,106,110	1/1938	Attenhofer	280—11.35
2,153,809	4/1939	Meis	280—11.35
3,199,884	8/1965	Voster	280—11.35

FOREIGN PATENTS

145,539	5/1936	Austria.
155,190	12/1938	Austria.
1,315,656	12/1962	France.
64,864	5/1942	Norway.
340,170	9/1959	Switzerland.

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