July 3, 1951 J. LEHMKUHL 2,559,020

SKI BINDING

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Fig. 1.

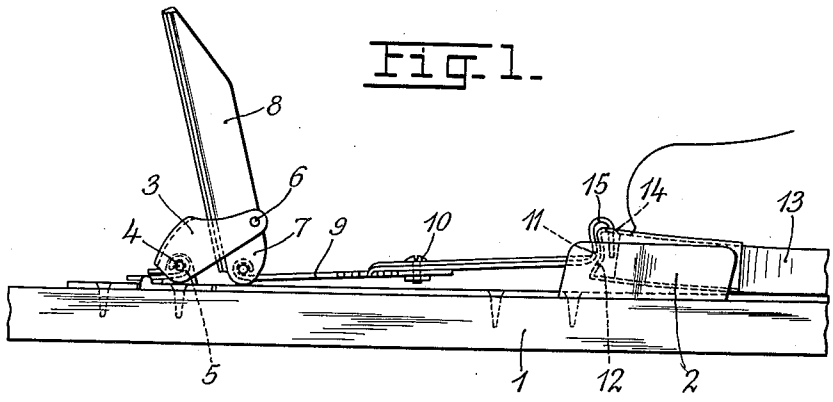


Fig. 2.

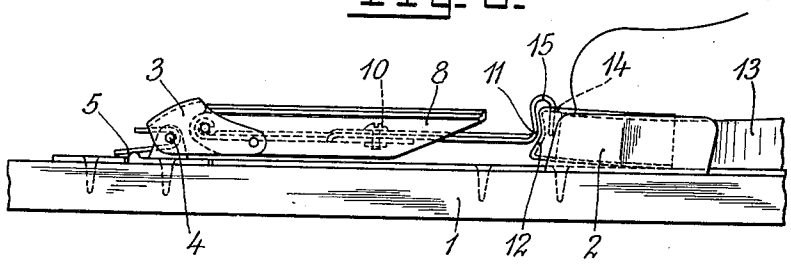
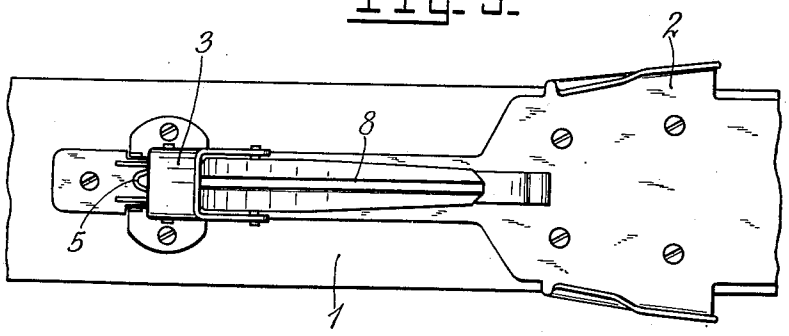


Fig. 3.



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SKI BINDING

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4 Claims. (Cl. 280—11.35)

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The present invention relates to ski-bindings of the type where in front of a toe iron there is provided a tightener having the form of a lever, which upon being tilted from off to on or locking position will secure the ski-boot between the toe irons.

In this connection it is not important what devices or arrangements are used for securing the ski-boot in the toe iron, since that part of the ski-binding does not form a part of the present invention.

An object of the invention is to provide an arrangement by means of which the boot may be easily released from the toe iron, it being known that in connection with bindings where the boot is pressed with rather great force in between the toe irons it may be difficult to remove the boot therefrom. In order to solve this problem I provide between the lever used for tightening the binding and a point adjacent to the toe iron, a rigid member, say a rod or a plate, adapted to abut against the front edge of the boot and which, when the tightener is moved from on to off position will forcibly drive the ski-boot out from the toe irons.

Another object of the invention is to combine the arrangement described above with a known hook device, adapted to be hooked into a hole provided in the front part of the boot or into a loop secured to said boot, said rigid rod or plate being adapted to be hooked to the boot, so that shifting of the tightener from off to on position will cause the boot to be pulled in position between the toe irons. Thus no special arrangement is necessary behind the boot heel for keeping the boot in position.

A further object of the invention is to provide a special embodiment of the tightening lever, which is especially advantageous for use in connection with the above described ski-binding. For this purpose the tightener consists of two levers, one of which is single-armed and adapted to be attached to the ski at one end and to the other lever at its other end, said other lever being a double-armed lever one end of which is attached to said rod or plate whereas the other arm thereof actuates the tightener and serves to move the latter from off to on position, or vice versa.

A still further object of the invention is to provide a suitable control device for the rigid rod or plate, so that the effective length thereof may be varied in relation to the ski-boot.

In order that the invention may be easily understood I will describe the same in connection

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with the drawing which illustrates an embodiment thereof by way of example.

Figure 1 is a side view of a ski-binding according to the invention, showing the same in off position, just after the boot has been pushed from the toe irons and the boot is to be removed therefrom.

Figure 2 illustrates the binding in on position, and

Figure 3 is a plan view thereof with the tightener in on position.

In the drawing 1 illustrates part of a ski to which is attached a toe iron 2 adapted to receive the front end of a ski-boot. At a suitable distance in front of the toe iron 2 is provided a tightener consisting of a tiltable single-armed lever 3 actuated by a spring which tends to press the lever 3 towards the ski. At its free end the lever 3 is at 6 attached to a double-armed lever 7, 8, the short arm 7 of which is pivoted to a rigid rod or plate 9, whereas a longer arm 8 thereof may be employed for locking or unlocking the tightener.

In the embodiment shown said rigid rod or plate 9 consists of two parts which are secured to each other by means of a screw 10, whereby the said rod or plate may be adjusted. The front end of said rigid rod or plate is formed with a bent-over portion 11 adapted to abut against the front end 12 of the boot sole 13. In the front part of the boot sole is provided a hole 14 adapted to receive a hook 15 forming an extension of the rod 9. In operation the arm 8 is shifted to the position shown in Figure 1 and the hook 15 is inserted into the hole 14 in the front part of the sole. Then arm 8 is swung down to the position shown in Figure 2, whereby the boot is drawn into and maintained between the toe irons, since the tightener is self-locking.

For releasing the ski-binding the arm 8 is tilted from the position shown in Figure 2 to that shown in Figure 1, whereby the bent-over portion 11 or rod 9 acts against the front end of the boot sole and presses the sole out from the toe irons. Spring 5 holds arm 3 in position against the ski so that the arrangement is locked in the position shown in Figures 2 and 3.

Modifications may be made in carrying out the present invention without departing from the spirit and scope thereof, and I am to be limited only by the appended claims.

I claim:

1. A ski-binding comprising a ski, a toe iron carried by said ski for receiving a boot, a tightener comprising two levers carried by said ski

in front of said toe iron, one lever being single-armed and one end of which is pivotally attached to the ski, the other lever being double-armed and being pivotally attached to the other end of said single-armed lever, one arm of said double-armed lever being free and serving as an operating arm for tightening and releasing the binding, and rigid means attached to the other arm of said double-armed lever for abutting against the front edge of the boot and for pressing the boot backwards when the levers are swung from on to off position, said rigid means being provided with an abutment portion of length exceeding the thickness of said rigid means, whereby a pressure area of considerable extent is provided for pressing said boot backwards.

2. A ski-binding comprising a ski, a toe iron carried by said ski for receiving a boot, a tightener comprising two levers carried by said ski in front of said toe iron, one lever being single-armed and one end of which is pivotally attached to the ski, the other lever being double-armed and being pivotally attached to the other end of said single-armed lever, one arm of said double-armed lever being free and serving as an operating arm for tightening and releasing the binding, rigid means attached to the other arm of said double-armed lever for abutting against the front edge of the boot and for pressing the boot backwards when the levers are swung from on to off position, said rigid means being provided with an abutment portion of length exceeding the thickness of said rigid means, whereby a pressure area of considerable extent is provided for pressing said boot backwards, and a spring for pressing the said single-armed lever downwardly against the ski.

3. A ski-binding comprising a ski, a toe iron carried by said ski for receiving a boot, a tightener comprising a lever carried by said ski in front of said toe iron, a rigid plate carried by said lever for abutting against the front edge of the boot and for pressing the boot backwards when the lever is swung from on to off position, said rigid plate comprising two interconnected parts, said interconnected part adjacent said boot being provided with a bent-over portion of

length exceeding the thickness of said rigid means carried by said lever, whereby there is provided an abutment portion of increased area to transmit pressure to said front edge of said boot to press said boot backwards when said lever is swung to said off position and means for varying the total length of said rigid plate.

4. A ski-binding comprising a ski, a toe iron carried by said ski for receiving a boot, a tightener comprising two levers carried by said ski in front of said toe iron, one lever being single-armed and one end of which is pivotally attached to the ski, the other lever being double-armed and being pivotally attached to the other end of said single-armed lever, one arm of said double-armed lever being free and serving as an operating arm for tightening and releasing the binding, rigid means attached to the other arm of said double-armed lever for abutting against the front edge of the boot and for pressing the boot backwards when the levers are swung from on to off position, said rigid means comprising two interconnected parts, and being provided with an abutment area abutting against said front edge of said boot which greatly exceeds the cross-sectional area of said rigid means at a point adjacent said abutment area, and means for varying the total length of said rigid means.

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