April 13, 1954 R. I. BLANCHARD 2,675,244

SAFETY SKI BINDING

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Fig. 1.

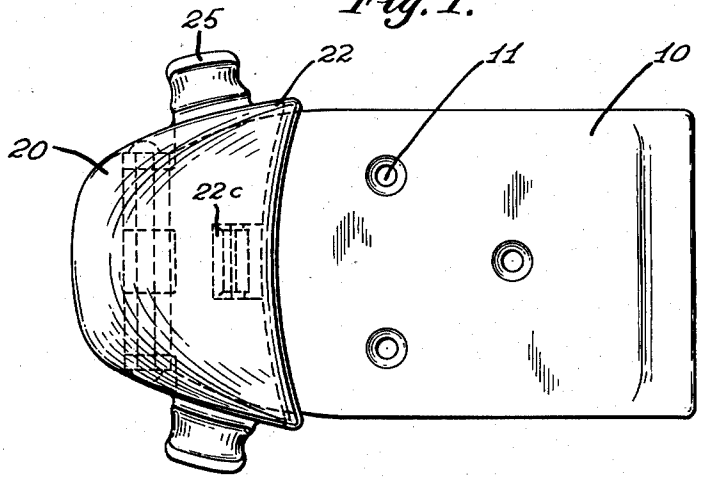


Fig. 2.

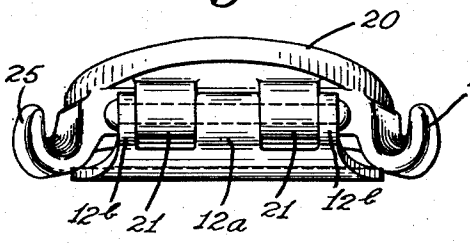


Fig. 3.

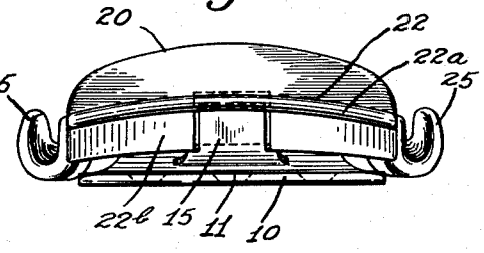
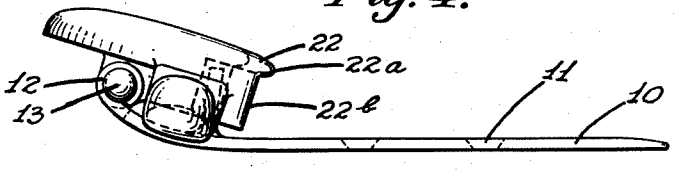


Fig. 4.



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Fig. 5.

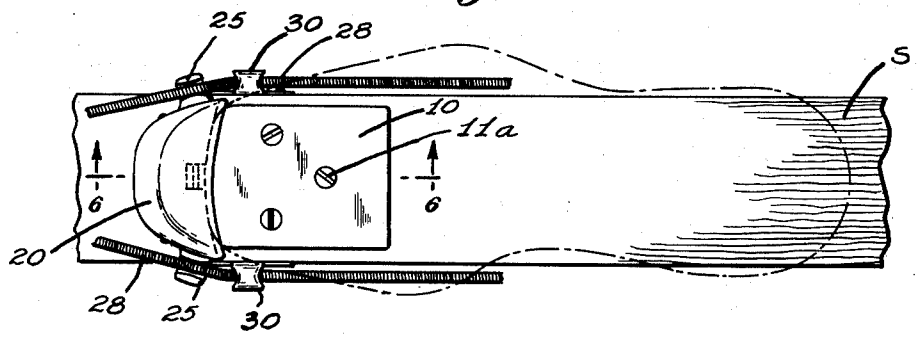


Fig. 6.

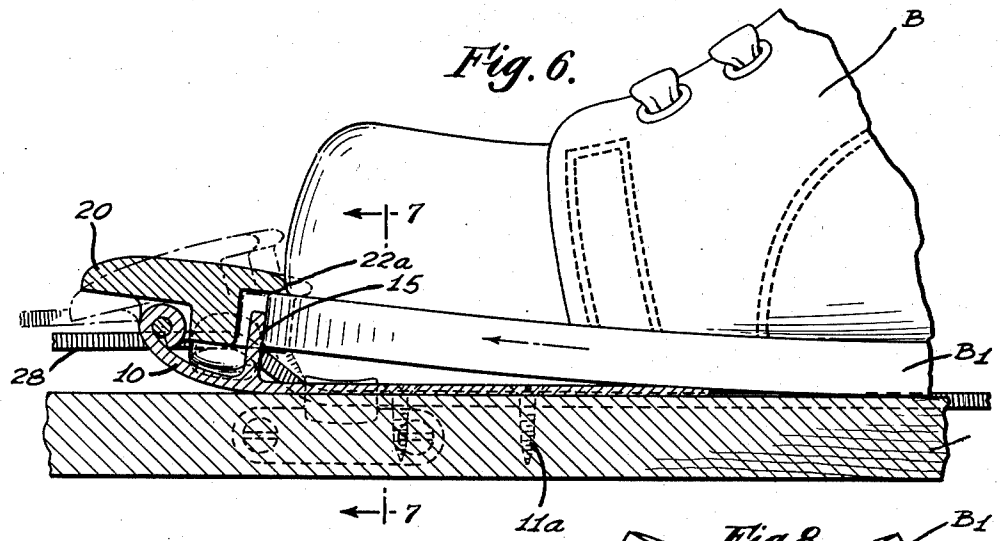


Fig. 7.

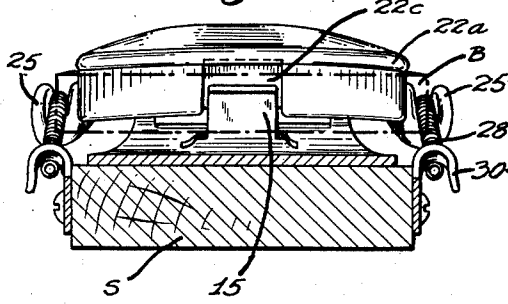
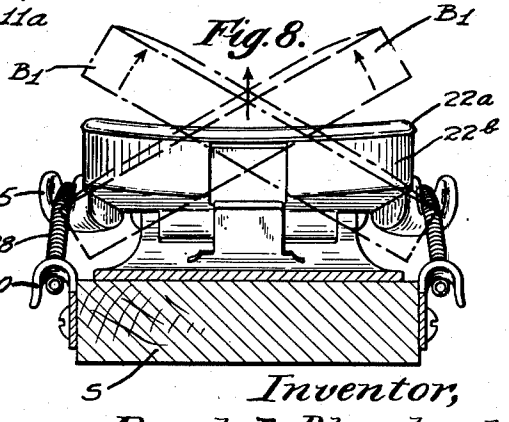


Fig. 8.



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SAFETY SKI BINDING

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Application January 26, 1951, Serial No. 207,988

3 Claims. (Cl. 280—11.35)

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This invention relates to improvements in ski bindings, and particularly to a safety ski binding.

The object of this invention is to provide a ski binding which will secure the skis firmly to the skier's boots, permit the necessary freedom of movement required for control of the skis in normal running and turning, yet which will readily release the skier's boots in the event of a spill, and thus prevent a possible bad sprain of the skier's ankle or knee, a fracture of the leg, or other injury. Safety ski bindings heretofore made and used have for one resason or another not proved entirely satisfactory in operation and in achieving the foregoing purposes. Previous safety ski bindings with which I am familiar have included toe side plates, with or without a connecting toe strap, and which are spreadable or otherwise operable to permit quick release of the boot.

My device eliminates the side toe plates, and the connecting toe strap entirely, yet the ski boot is secured firmly to the ski during all normal running and turning. At the same time in the event of excessive strain as caused by a spill, the boot can be instantly released from the binding. This excessive strain or force which will release the foot from the binding can be applied either upwardly, horizontally, or in a vertical twisting motion. No other safety ski binding with which I am familiar will permit release of the foot under all these three types of strain. At the same time my device can be used with any of the standard types of cable bindings and spring assemblies commonly and currently in use, and regardless of the position of the springs in the complete assembly (i. e. either forward of the toe, around the heel, or elsewhere). My device is further adjustable when used with any of the standard types of cable bindings to vary the force applied through the binding necessary to effect release of the foot from the ski binding in accordance with the desires and requirements of the individual skier, and will further automatically accommodate itself to ski boot soles of varying thickness, without adversely affecting the performance of the ski binding.

Briefly my invention to be used in connection with a standard spring cable binding comprises a base plate adapted to be secured to the ski, a toe plate transversely hinged to the base plate and having a horizontal flange or lip forming a clamping jaw extending over the sole of the boot at the toe thereof, to hold down and clamp the boot to the ski. The upright rear edge of the

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toe plate below the flange engages the edge of the sole and acts as an abutment or stop against forward movement of the boot. A narrow rigid stop is provided on the base plate at the transverse center thereof and extends vertically into a recess formed in the lower jaw or rear edge of the plate and flush therewith, which acts as a fixed stop against forward movement of the boot. Hooks, opening upwardly, are provided on the sides of the toe plate, to receive the spring cable of the cable binding, which provides the force or power to pull the toe plate downwardly against the boot, and thus hold the boot securely against the ski. Excessive force, as would normally exist whenever the skier's velocity is sufficient to cause a spill, overcomes the force of the spring cable holding down the toe plate against the boot, and whenever applied to the toe plate horizontally, upwardly, or with a vertical twisting motion, this force will immediately release the boot from the toe plate, and hence from the ski.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

In the drawings:

Further advantages, objects and features of the invention will be better understood from the following description and the accompanying drawings, in which:

Fig. 1 is a plan view of my device;

Fig. 2 is a front elevation thereof;

Fig. 3 is a rear elevation thereof;

Fig. 4 is a side elevation thereof;

Fig. 5 is a plan view of my device as attached to a ski;

Fig. 6 is a vertical section of my device as attached to a ski, on line 6—6 of Fig. 5, with a ski boot shown in the side elevation;

Fig. 7 is a vertical section on line 7—7, Fig. 6, and

Fig. 8 is a vertical section similar to Fig. 7, but showing the toe plate in boot releasing position.

In the drawings 10 represents a base plate of metal or other suitable material adapted to

be secured to the ski S in any suitable manner as by means of screws 11*a* (Figs. 5 and 6) inserted through holes 11 of base plate 10. Base plate 10 preferably curves upwardly slightly at its forward end to provide a cylindrical collar 12 having a central portion 12*a* and spaced end portions 12*b*, which are suitably apertured to receive a pin 13. Collar portions 12*a* and *b* with pin 13 form a hinge connection for toe plate 20, described below. A narrow fixed upwardly extending stop 15 is provided on the base plate 10 at the transverse mid-portion thereof. A toe plate 20 preferably of a non-ferrous metal is pivotally mounted on base plate 10 and on pin 13 thereof by means of integral downwardly extending collars 21 provided on the front end of toe plate 20 and which extend between the spaced collar portions 12*a* and 12*b* and again are suitably apertured to receive the pin 13 (Fig. 2). Toe plate 20, thus hingedly mounted on base plate 10 extends rearwardly, approximately one and one-half inch and has a rear edge 22 constituting a clamping jaw which is shaped transversely to conform to the shape of the sole B1 of the ski boot B, and thus may be arcuately shaped as shown in Figs. 1 and 5, or straight, as the case may be. Rear edge or clamping jaw 22 includes a horizontally and rearwardly extending flange or lip 22*a* at the top surface thereof, which extends over the sole B1 of the boot at the toe thereof (Figs. 5 and 6), to let down and clamp the boot to the ski. The upright rear edge 22*b* of the toe plate 20 beneath the flange 22*a* engages the edge of the sole B1 and acts as an abutment or stop against forward movement of the boot. As previously described the rear edge 22*b* of the toe plate 20 is provided with a recess 2*c* (Figs. 1, 7 and 8) at the mid-portion thereof to receive the upstanding abutment or stop 15 on the base plate 10, and which is flush with the upright rear edge 22*b* of the toe plate 22. Hooks or hitches 25, opening upwardly are provided on the sides of the toe plate 20 to receive the spring cable 28 (Figs. 5, 6, 7 and 8) of a standard type of cable binding, which provides the pulling force for pulling the toe plate 20 downwardly against the boot B, and thus hold the boot securely against the ski S. It will be understood that a typical cable type of binding includes a coil spring cable 28 (shown partially) which is mounted on the top of the ski, and held down on the sides by downwardly opening separate hooks or hitches 30 (Figs. 5, 6, 7 and 8) of which several pairs may be provided on the sides of the ski from toe toward the heel, and extends around the heel of the boot, in a suitable groove provided on the outer upright surface of the heel (not shown), and is made releasable and adjustable by a toggle joint fixture (not shown) mounted on the ski in front of the boot. As the standard type of cable binding is old and well known it need not be described or pictured in detail in the drawings.

In operation and use the skier inserts his ski boot B over the base plate 10, with the toe of the sole under the extending flange 22*a* of the toe plate 20 and against the upright surface 22*b* thereof. The cable binding is then placed around the heel of the boot and under the series of downwardly opening hooks 30 mounted on the sides of the ski under the boot. The cable 28 is then passed upwardly over the upwardly opening hooks 25 on the sides of the toe plate 20, and when the cable binding is tightened by the toggle joint on the front of the ski (not shown) the spring cable 28 pulls the hinged toe plate 20 downwardly against the boot B, securely holding the boot against the ski. Excessive force or strain, which occurs whenever the skier's velocity is sufficient to cause a spill, overcomes the force of the spring cable pulling the toe plate 20 down against the boot and enables the skier immediately to release his boot from under the toe plate and hence from the ski. If the skier falls backward the toe plate 20 pivots about its hinge pin 13 and lifts, thus releasing the ski boot. If the skier falls forwardly his ski is pulled out from under the clamping jaw of the toe plate, and if the skier falls sidewise in a vertical twisting motion as shown in Fig. 8, the toe plate 20 is lifted vertically from the sides, again to release the ski boot. At the same time the fixed stop 15 on the base plate 10 prevents forward movement of the ski boot against the rear edge 22*b* of the toe plate 20, to prevent lifting of the toe plate 20 and release of the ski boot under normal controlled skiing.

It will thus be seen that I have provided a safety ski binding which will secure the skis firmly to the skier's boots during normal controlled skiing, yet which will instantly release the skier's boots in the event of a spill and thus prevent possible serious injury, sprains and fractures to the skier's legs. My device, designed to be used with any of the standard spring cable bindings, thus is readily adaptable for use with the skier's existing equipment and does not require an expensive replacement. The standard cable binding and spring assembly is thus utilized in my device to perform two functions (1) in holding the ski boot, to provide a downwardly operating force to pull the clamping jaw downwardly onto the toe of the boot sole, to hold the boot down on the ski, and (2) to provide a horizontal operating force to pull the ski boot forwardly against the rigid stop 15 on the base plate 10.

I claim:

1. A safety binding for a ski for use in conjunction with a cable type binding comprising in combination a base plate adapted to be secured to the ski, a unitary toe plate positioned in front of the boot and hingedly mounted adjacent its forward end on said base plate and carrying a clamping jaw at its rear edge extending transversely across said toe plate for clamping a boot to the ski, said clamping jaw including a horizontal flange extending over the front portion of the sole of the boot and an upright abutting surface beneath said flange for engaging the front side of the sole of said boot, a rigid upright stop mounted on said base plate in alignment with the upright abutting surface of said toe plate and hooks on said toe plate for receiving the cable of the cable binding whereby the clamping jaw is held downwardly in clamping position against the boot.

2. A safety binding for a ski for use in conjunction with a cable type binding comprising in combination a base plate adapted to be secured to the ski, a unitary toe plate positioned in front of the boot and hingedly mounted adjacent its forward end on said base plate and carrying a clamping jaw at its rear edge extending transversely across said toe plate for clamping a boot to the ski, said clamping jaw including a horizontal flange extending over the front portion of the sole of the boot and an upright abutting surface beneath said flange for engaging the front side of the sole of said boot, a rigid upright

stop mounted on said base plate in alignment with the upright abutting surface of said toe plate, and hooks on said toe plate rearward of said hinge to receive the cable of the cable binding whereby the clamping jaw is held in clamping position against the boot.

3. A safety binding for a ski for use in conjunction with a cable type binding comprising in combination a base plate adapted to be secured to the ski, a toe plate transversely hinged adjacent its forward end to said base plate and carrying a clamping jaw at its rear edge for clamping a boot to the ski, said clamping jaw including a horizontal flange extending over the front portion of the sole of the boot and an upright abutting surface beneath said flange for engaging the front side of the sole of the boot, a rigid upright stop mounted on said base plate, in alignment with the upright abutting surface of the clamping jaw, a central recess provided in

said upright abutting surface of said clamping jaw for receiving said rigid stop, and hooks on the sides of said toe plate rearwardly of said hinge to receive the cable of the cable binding whereby the clamping jaw is held in clamping position against the boot.

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