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P. SCHWARZE

2,192,870

SKI FASTENING

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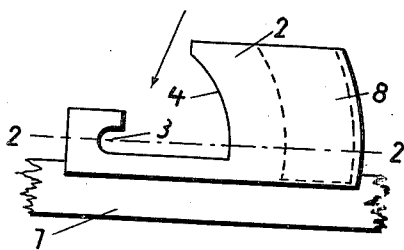


Fig 1

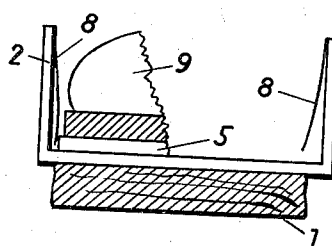


Fig 4

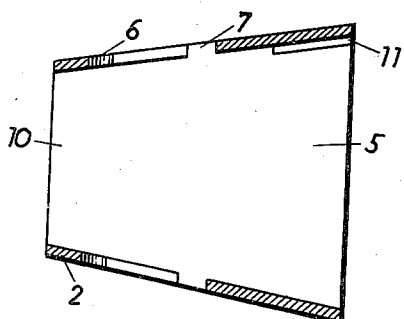


Fig 2

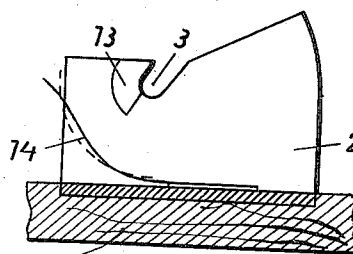


Fig 5



Fig. 7.

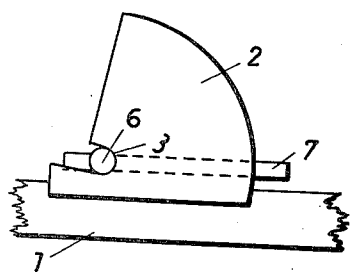


Fig 3

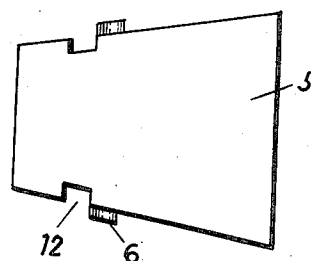


Fig 6

INVENTOR

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UNITED STATES PATENT OFFICE

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SKI FASTENING

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8 Claims. (Cl. 280—11.35)

The attachment of the ski to the boot is generally effected by forcing the front part of the boot between jaws and securing the boot in this position by a thong passed and tightened around the heel. The defects of this arrangement are the necessity of providing very thick and stiff soles for the boots, the great stresses to which the soles are exposed and the fact that the ski is inconvenient to attach and detach. Numerous attempts to provide thongless ski fastenings have so far not produced any practical results. In a known arrangement of this kind the boot is provided with a sole plate having lateral pins which are adapted to become engaged in recesses of the jaws and which are secured in the latter by a special movable and spring actuated member. This member must be withdrawn by hand when the boot is introduced or released which makes the arrangement impracticable. It is also dangerous because the boot is not automatically released at a fall.

The present invention is an improvement over and above the prior propositions. It provides a fastening wherein the thong is eliminated, whereby the thick sole for the boot is rendered unnecessary and the ski may be attached or detached in the simplest possible manner without any bending or manipulation by hand.

According to the invention a plate is fixed to the front part of the boot sole, said plate being so formed that it may be introduced from above in an inclined position between guide jaws mounted on the ski and becomes automatically coupled to the jaws when the heel of the boot is lowered. This is effected by pins mounted on the sole plate becoming engaged in recesses in the guide jaws, wherein they are rotatable, coupling being effected upon lowering of the boot heel by the co-operation of projections provided on the sole plate with the edges of the jaws, or of recesses in the sole plate with projections provided on the jaws.

In the accompanying drawing embodiments of the invention are illustrated by way of example.

Fig. 1 is a side elevation of a guide jaw,

Fig. 2 is a plan view of the sole plate, coupled to the guide jaws, the latter being shown in horizontal section on the line 2—2 of Fig. 1.

Fig. 3 is a side elevation of another embodiment of the guide jaw with sole plate coupled thereto.

Fig. 4 is a rear elevation of the guide jaw, the position of the sole plate with the boot being indicated.

Fig. 5 is a section of another embodiment of the guide jaws.

Fig. 6 is a plan view of the sole plate for the jaws shown in Fig. 5, and

Fig. 7 is a side view of another embodiment of the sole mountings.

In Fig. 1 the ski is indicated at 1, its forward part being on the left of the drawing. The guide jaws 2 secured thereto have at their front part, i. e. at the part nearer to the tip of the ski, substantially semicircular recesses 3, the arcuate front edge 4 of the jaws being struck from the same centre as the arcuate portion of the recess 3.

In Fig. 2, 5 is the sole plate which is provided with lateral pins 6 and projections 7. Upon introduction of the sole plate from above, approximately in the position indicated by the arrow in Fig. 1, the pins 6 become engaged in the recesses 3 of the guide jaws and when the boot heel is depressed the projections 7 bear against the front edge 4, so that coupling is effected. It is useful to extend the sole plate forwardly beyond the pins 6 to form a short extension 10 and to taper this extension forwardly, since this facilitates introduction between the guide jaws.

In the embodiment of the guide jaws and the sole plate shown in Fig. 3 the recess 3 is open at the front and accordingly the coupling of the projecting part 7 of the sole plate is effected with the rear edge of the jaws. This embodiment will be readily understood in view of the foregoing description.

Figs. 5 and 6 show the embodiment in which the sole plate 5 is provided with recesses 12 and the jaws on their inner sides with corresponding projections 13, the coupling parts in this case being located in front of the pivot point 3. Upon introduction of the boot from above the pins 6 enter the recesses 3 and when the heel is depressed the recesses 12 become coupled to the projections 13. 14 is a spring which, after the boot is fixed between the jaws, forces the front part of the sole plate upwards thereby causing the heel of the boot to be pressed to the rear part of the ski, whereby a good control of the ski is ensured.

In order that the boot may be well supported in the guide jaws against lateral pressure, the sole plate 5 is conveniently so constructed that its edges bear against the inner sides of the guide jaws and are guided thereby, as shown in Fig. 2. Particularly good support is necessary for sliding downwards and this is obtained, even after wear, if on the inner side of the jaws springs 8 are mounted. In this case recesses 11 may be pro-

vided for the springs in the sole plate, as shown in the upper half of Fig. 2. The springs are shown in Figs. 1 and 4, in the latter unloaded on the right hand side and loaded by the plate 5 on the left hand side, the boot being indicated at 9. The springs may be provided in a detachable manner, since it is easier to walk uphill without them.

Obviously, other embodiments are also possible. Thus, for example, the lateral pins 6 may be substituted by a shaft disposed in front of the boot and the projections 7 may engage in grooves or other recesses or stepped portions of the jaws. It is also possible to unite the pins 6 and projections 7 in Fig. 2 in such a way that there is only one extended projection on either side of the plate, the front edge of which is of semi-circular shape, as shown in Fig. 7.

As will be appreciated from the description and drawing, the ski binding according to the invention enables the ski to be attached and detached in a particularly simple manner. When the ski is on the ground the boot with the sole plate is slightly raised towards the rear and is introduced with the tip between the jaws, then slightly pushed forward together with the ski and the heel is depressed. The detachment of the ski is equally simple. Accidental detachment is impossible if the angle of introduction of the sole plate between the jaws is made so great as to be greater than the angle assumed by the boot in climbing and sliding downwards. On the other hand, at the rather dangerous forward fall the skis are released automatically.

What I claim as my invention and desire to secure by Letters Patent of the United States is:

1. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of said jaws; and additional means on said plate adapted to become automatically coupled with corresponding means on said jaws when the heel of the boot is lowered.

2. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of said jaws; and projections on said plate adapted to bear against the edges of said jaws, when the heel of the boot is lowered, thereby effecting coupling.

3. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of

said jaws; projections on the inner sides of said jaws; and recesses on said plate adapted to be engaged with the projections on said jaws, when the heel of the boot is depressed, thereby effecting coupling.

4. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins for engagement with the recesses in said jaws and adapted to be introduced in an inclined position from above between the jaws and to bear against their inner sides, when the heel of the boot is depressed, thereby being guided by said jaws; and means on said plate and jaws for their automatic coupling when the heel of the boot is lowered.

5. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of said jaws; means on said plate adapted to effect coupling with corresponding means on said jaws, when the heel of the boot is lowered; and a forwardly tapering extension to said plate in front of the pivot pins.

6. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of said jaws; means on said plate adapted to effect coupling with corresponding means on said jaws, when the heel of the boot is lowered; and detachable springs on the inner sides of said jaws.

7. Ski fastening, comprising jaws on the ski provided with recesses; a plate secured to the front part of the boot provided with pins and adapted to be introduced in an inclined position from above between the jaws, whereby the pins of said plate become engaged in the recesses of said jaws; means on said plate adapted to effect coupling with corresponding means on said jaws, when the heel of the boot is lowered; and a spring under the front part of said plate adapted to force the heel of the boot downwards.

8. Ski fastening, comprising jaws on the ski provided with recesses; and mountings secured to the front part of the boot provided with an extended projection on either side, said mountings being adapted to be introduced in an inclined position from above between the jaws, whereby the front edges of said projections become engaged in the recesses of said jaws and the rear edges of said projections bear against the edges of said jaws when the heel of the boot is lowered, thereby effecting coupling.

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