May 16, 1939. S. WEBER 2,158,599

SKI ATTACHMENT

Filed Nov. 19, 1938 2 Sheets-Sheet 1

FIG. 1

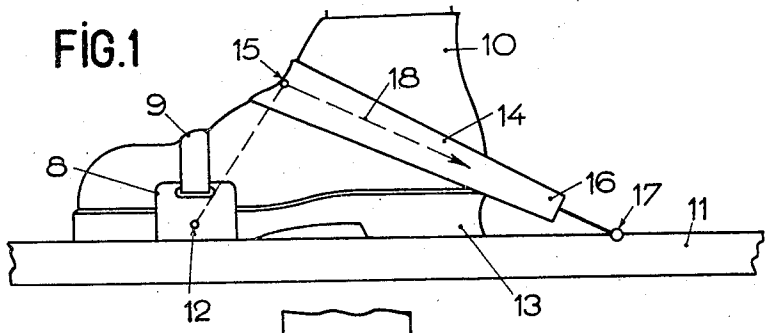


FIG. 2

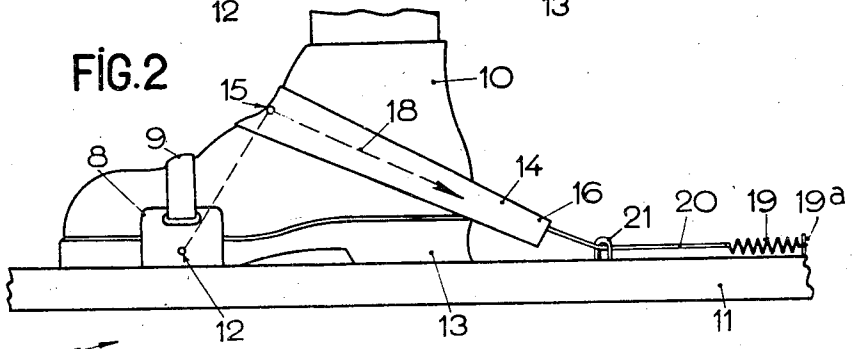


FIG. 3

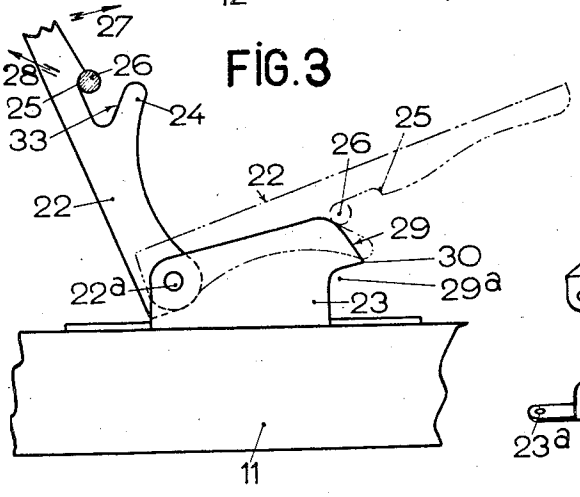


FIG. 4

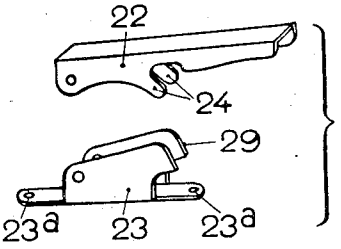
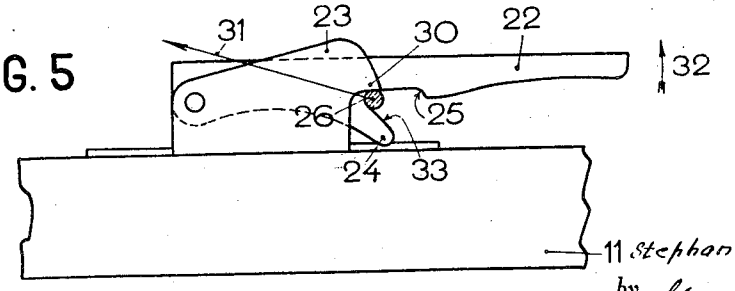


FIG. 5



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FIG. 6

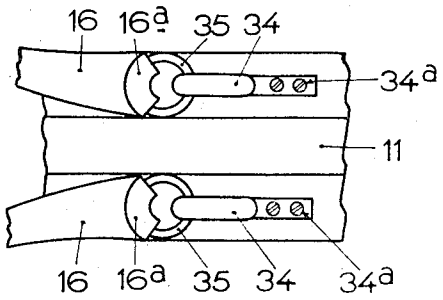
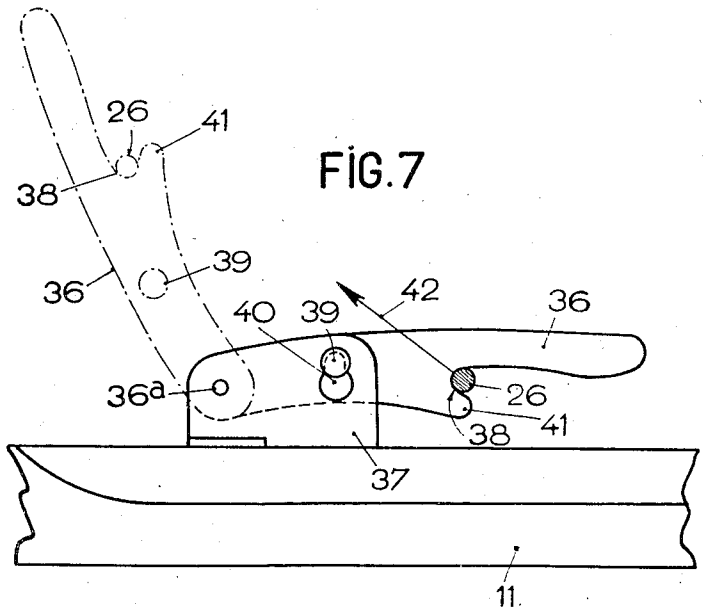


FIG. 7



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UNITED STATES PATENT OFFICE

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SKI ATTACHMENT

Stéphan Weber, Sallanches, France

Application November 19, 1938, Serial No. 241,414
In France November 17, 1937

5 Claims. (Cl. 280—11.35)

This invention relates to an attachment adaptable to a ski gripped by any conventional fastener to the toe portion of the user's boot.

The primary object of the invention is to provide a ski attachment capable of constantly urging the heel of the user's boot into contact with the ski while being able to yield temporarily on a trend of the heel to move off the ski responsive to an upward swing of the boot during skiing, for example when the user has to bend his knees for jumping over a snow knoll or hummock.

Another object of the invention is to provide a ski attachment capable of holding down the user's boot upon the ski by a dragging stress exerted obliquely and across the ankle portion of the user's boot by such means as to ensure proper hold sidewise to the ankles and to relieve them of a part of the heavy stresses to which they are subjected during skiing without, however, unduly flattening the plantar arch of the foot.

Still another object of the invention is to provide a ski attachment of simple and rugged structure capable of reducing the distortions of the soles and their wear under the friction of the toe grips while permitting the user to lace up his boots less tightly than in usual skiing practice and also to enable the user to readily disconnect the improved attachment from the ski and thereafter to walk with the attachment loosely carried on each of his boots.

With these and such other objects in view as will incidentally appear hereafter, the invention comprises the novel construction and combination of parts that will now be described with reference to the accompanying diagrammatic drawings exemplifying the same and forming a part of the present disclosure.

In the drawings:

Figure 1 is an elevational view showing a simple form of attachment in position on a boot gripped to the ski by its toe portion.

Figure 2 is a view similar to Fig. 1 showing a slightly modified form of attachment including a spring between the strap and the point of the ski to which it is fastened.

Figure 3 is a fragmentary elevational view of the lever and bracket constituting the strap-stretching means, the lever being shown in strap-releasing position.

Figure 4 is a two-part fragmentary view in perspective showing the shapes of the lever and bracket represented in Fig. 3.

Figure 5 is a view similar to Fig. 3 showing the lever instrap-stretching position.

Figure 6 is a fragmentary plan view showing how the very simple form illustrated diagrammatically in Fig. 1 may be carried out practically.

Figure 7 is a fragmentary elevational view showing a modified form of the lever and bracket constituting the strap-stretching means.

As illustrated in Figs. 1 and 2, the boot 10 is of a conventional shape as commonly used for skiing and is fixed to the ski 11 by a toe grip of known form comprising a fastener 8 anchored to the ski and a thong of leather 9 engaged through holes of this fastener and passing above the upper front face of the boot vamp. The point 12 represents the virtual axis about which the boot sole may be flexed when moving the boot heel 13 off the ski 11 incidental to an upward swing of the boot during skiing, for example when jumping over a snow knoll or hummock.

According to the invention, there is provided an attachment comprising as an essential part a flexible member adapted to be bent into loop shape so as to embrace or bestride the boot instep, fastening means for such member so located on the ski 11 rearwardly of the boot heel 13 as to stretch said member obliquely across the ankle portion of the boot while urging said heel into contact with the ski, and means which may be associated to, or incorporated with, the flexible member for allowing the latter to yield temporarily on a trend of the heel to move off the ski.

The flexible member advantageously comprises a strap or thong such as 14 made of any flexible or supple material such as pliable leather, india rubber, rubberized webbing or the like. The strap 14 may be slit to be rendered still more supple. Such loop-shaped strap 14 bears at 15 on the instep of the boot 10 and has its ends 16 fastened at 17 to a point on the ski located rearwardly of the boot heel 13. The location of this point 17 which may vary from one person to another is so chosen as to cause the strap 14 to extend obliquely athwart the ankle region of the boot in a direction (indicated by the dotted arrow 18) which is approximately at right angles to the line connecting the point 15 of application of the strap on the boot instep with the pivotal axis 12 as aforesaid. In the form shown in Fig. 1, the angle between the line 18 and the line 12—15 is a little larger than 90° so that when the boot heel 13 is slightly moved off the ski 11 as this frequently occurs during skiing, said angle is approximately equal to 90°, thereby enabling the strap 14 to operate in the most suitable conditions for drawing the boot back so that the sur-

face of the heel 13 is brought back into contact with the ski 11. This, as is well known, is essential for proper skiing, particularly when gliding down snow slopes. At the same time, as the strap 14 is of substantial width, it cannot exert such a traction on the instep as to render it painful even in the long run.

In the form shown in Fig. 2, a helical spring such as 19 fixed at its rear end to a pin 19a anchored to the ski 11 is secured at its front end to a connecting member 20 secured in turn to the rear ends 16 of the strap 14. The connecting member 20 which may be for example a cable or strong cord passes through an eyeleted bracket 21 anchored to the ski 11 and so located as to cause the strap 14 to occupy an oblique position athwart the ankle portion of the boot as above described.

The ends 16 of the strap 14 may be connected to the ski 11 by fastening means which may take several forms, some of which are shown by way of examples in Figs. 3 to 6 inclusive. Reference being first had to Fig. 6, this depicts a very simple and practical way of carrying into practice the fastening means shown diagrammatically in Fig. 1. As illustrated by this figure, a pair of spaced shackles 34 are secured to the upper face of the ski 11 by screws 34a, and metal rings 35 are engaged through the shackles 34, such rings being held in suitable hems 16a formed on the respective ends 16 of the strap 14.

Obviously the means for fastening the rear ends 16 of the strap 14 to the ski may be located either on the top face of the ski (as shown in Fig. 6) or on its side faces.

In Figs. 3 to 5 inclusive are shown fastening means so constructed as to enable the strap to be either stretched or released by a very simple manipulation that the user can perform single-handed. Such means comprise a lever 22 pivotally supported at 22a on a bracket 23 anchored to the ski 11 by any suitable means such as screws engaged through holes 23a formed in the base of this bracket (see Fig. 4). The lever 22 is channel shaped as shown in Fig. 4 and each of its cheek plates is formed with a projecting horn 24 having a cam face 33 and defining a curved elongated notch 25 in which is received a rigid yoke member such as a spindle 26 interconnecting the ends 16 of the strap 14. The arrow 27 in Fig. 3 shows the direction in which the lever 22 can be rocked backwardly about its pivot 22a to be brought to full strap-stretching position as shown in Fig. 5. The arrow 28 in Fig. 3 shows the direction in which the strap 14 (not represented) is stretched as the lever 22 is thus rocked backwardly. The bracket 23 comprises a pair of cheek plates each of which has its rearward edge so shaped as to define an overhanging hook nose 29 delineating an undercut recess 29a beyond the tip 30 of the nose.

The operation of the device shown in Figs. 3 to 5 is as follows: As the lever 22 is rocked down backwardly about its pivot 22a, in the direction shown by the arrow 27 in Fig. 3, the spindle 26 which interconnects the ends 16 of the strap 14 moves along the notch 25 owing to the traction which exercises itself in the direction shown by the arrow 28. When the lever reaches the position shown in chain lines in Fig. 3, the spindle 26 engages the outer faces of the noses 29 while the horns 24 which extend at a smaller gradient no longer serve as guides, this function being assumed by the noses 29. When the lever 22 has completed its downward stroke and reached the position shown in Fig. 5, the spindle 26 is firmly held in the recess 29a between the tips 30 of the bracket noses 29 and the lever horns 24, so that the spindle 26 cannot disengage itself. When now the user wants to release the spindle 26 and the strap 14 whose ends are interconnected thereby, it is sufficient for him to pull back the lever 22 in the direction shown by the arrow 32 in Fig. 5, whereupon the cam faces 33 of the horns 24 eject the spindle 26 out of the recesses 29a. As soon as the spindle 26 has passed the tips 30 of the noses 29, the lever 22 is instantaneously lifted due to the traction which exercises itself on the spindle 26 in the direction shown by the arrow 31 in Fig. 5.

The modification of the means for fastening and stretching the strap which is shown in Fig. 7 also comprises a lever 36 pivotally supported by a pin 36a on a bracket 37 suitably anchored to the ski 11. The lever 36 is formed with a rounded notch 38 defined by a projecting horn 41. Intermediate the notch 38 and the pivotal axis 36a, the lever 36 has a projecting stud 39 capable of being engaged into a keyhole slot 40 formed in the bracket 37. To that effect, a sufficient play is provided in the pivotal mounting of the lever 36 on the bracket 37 or, alternatively, the lever 36 is sufficiently resilient to enable the stud 39 to be engaged into the slot 40 by slightly swaying the lever 36 off the bracket 37. Once the stud 39 is engaged in the narrower portion of the slot 40, it cannot disengage itself owing to the tractional stress which is exerted on the spindle 26 in the direction shown by the arrow 42. The disengagement of the stud 39 from the slot 40 is performed in an obvious manner, whereupon the lever is pulled up to the position shown in chain lines. This untightens the strap whose spindle 26 can then be released from the lever 36.

It will be understood that once the strap is released from its fastening means on the ski, it can be left loosely on the boot while not interfering with walking of the user while he is not skiing.

It will be seen that owing to aforesaid construction the objects of the invention are fulfilled. The constructional details might vary of course without departing from the scope of the subjoined claims.

What I claim is:

1. Attaching means for fastening a boot to a ski comprising, a toe grip permanently connected to the ski and adapted to receive the forward sole portion of boot therein, a strap detachably connected to said toe grip and adapted to pass across the upper front face of the boot vamp, a substantially flat strap adapted to resiliently maintain the heel of the boot in engagement with the ski, said strap adapted to pass across the boot instep and ankle and being provided with a spindle connecting its free ends, and latching means for attaching the ends of said strap to the ski, said latching means comprising a lever pivotally attached to a member permanently secured to the ski, a reentrant recess in said lever adapted to receive said spindle, and means on said permanently secured member for maintaining said latching means in latched position against stresses imparted thereto through the spindle.

2. Attaching means for fastening a boot to a ski comprising, a toe grip permanently connected to the ski and adapted to receive the forward sole portion of boot therein, a strap detachably connected to said toe grip and adapted to pass across the upper front face of the boot vamp, a strap adapted to resiliently maintain the heel

of the boot in engagement with the ski, said strap adapted to pass across the boot instep and ankle, and being provided with a spindle connecting its free ends and latching means for attaching the ends of said strap to the ski said latching means comprising a lever pivotally attached to a member permanently secured to the ski, a reentrant recess in said lever adapted to receive said spindle, and means on said permanently secured member cooperating with said spindle for maintaining said latching means in latched position against stresses imparted thereto through the spindle.

3. Attaching means for fastening a boot to a ski comprising, a toe grip permanently connected to the ski and adapted to receive the forward sole portion of boot therein, a strap detachably connected to said toe grip and adapted to pass across the upper front face of the boot vamp, a strap adapted to resiliently maintain the heel of the boot in engagement with the ski, said strap adapted to pass across the boot instep and ankle and being provided with a spindle connecting its free ends and latching means for attaching the ends of said strap to the ski said latching means comprising a lever pivotally attached to a member permanently secured to the ski, a reentrant recess in said lever adapted to receive said spindle, and means on said permanently secured member cooperating with means on said lever for maintaining said latching means in latched position against stresses imparted thereto through the spindle.

4. Attaching means for fastening a boot to a ski comprising, a toe grip permanently connected to the ski and adapted to receive the forward sole portion of boot therein, a strap detachably connected to said toe grip and adapted to pass across the upper front face of the boot vamp, a substantially flat strap adapted to resiliently maintain the heel of the boot in engagement with the ski, said strap adapted to pass across the boot instep and ankle and being provided with a spindle connecting its free ends and latching means for attaching the ends of said strap to the ski said latching means comprising a lever pivotally attached to a member permanently secured to the ski, a reentrant recess in said lever adapted to receive said spindle, means defining reentrant recess in said permanently secured member for maintaining said spindle in latched position against stresses imparted to the latching means therethrough.

5. Attaching means for fastening a boot to a ski comprising, a toe grip permanently connected to the ski and adapted to receive the forward sole portion of boot therein, a strap detachably connected to said toe grip and adapted to pass across the upper front face of the boot vamp, a substantially flat strap adapted to resiliently maintain the heel of the boot in engagement with the ski, said strap adapted to pass across the boot instep and ankle and being provided with a spindle connecting its free ends and latching means for attaching the ends of said strap to the ski said latching means comprising a lever pivotally attached to a member permanently secured to the ski, said lever having a stud thereon with an enlarged head, a reentrant, recess in said lever adapted to receive said spindle, and said permanently secured member having an opening therein adapted to receive said stud, a portion of said opening being of a diameter commensurate to the diameter of the head of the stud and a portion thereof being of a diameter commensurate to the diameter of the shank thereof, the relative positions of the stud receiving openings being such that stresses imparted to the lever through the spindle will urge the stud into the portion of the opening of a diameter commensurate to the diameter of the shank portion of the stud, whereby said stud may not be disengaged from said opening except by manual adjustment of the lever.

STÉPHAN WEBER.