Feb. 11, 1958 E. LUNDBERG 2,822,613

SKI BOOT FITTING DEVICE

Filed March 13, 1956

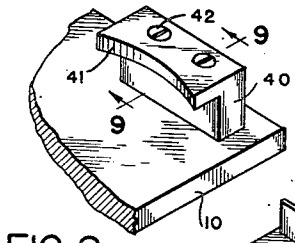


FIG. 8

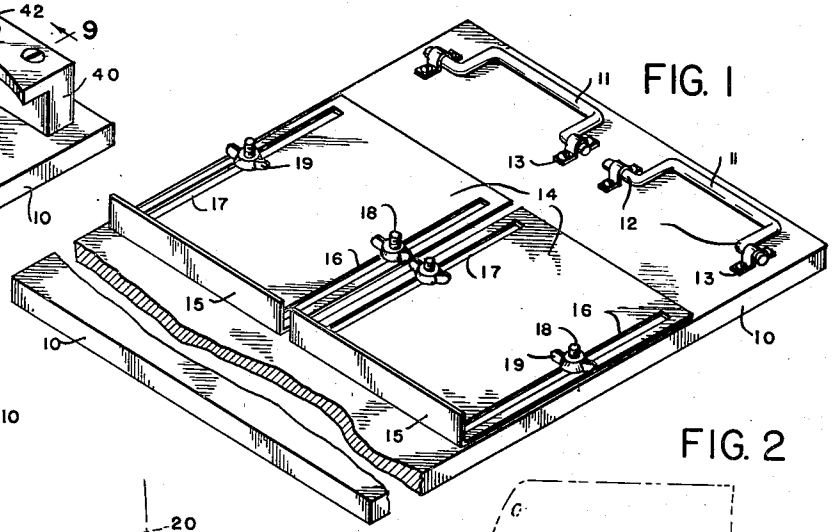


FIG. 1

FIG. 2

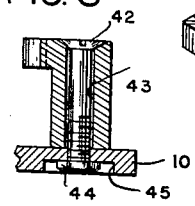


FIG. 9

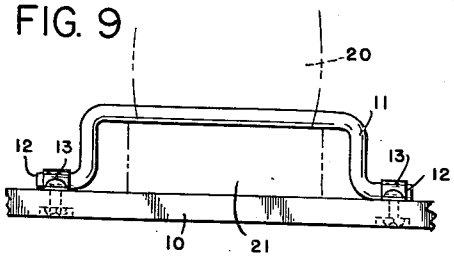
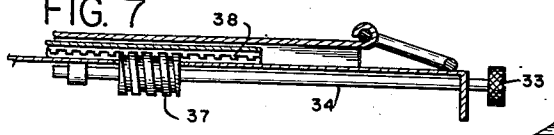


FIG. 3

FIG. 7



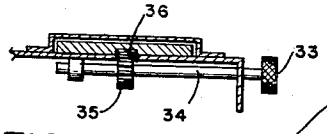


FIG. 6

FIG. 4

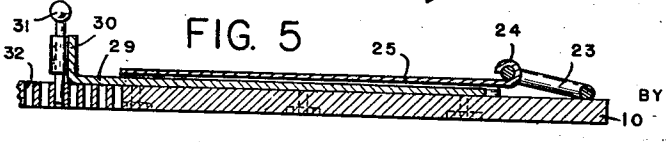


FIG. 5

INVENTOR
E. LUNDBERG

BY

ATTORNEY

United States Patent Office 2,822,613 Patented Feb. 11, 1958

2,822,613

SKI BOOT FITTING DEVICE

Eric Lundberg, Aspen, Colo.

Application March 13, 1956, Serial No. 571,284

5 Claims. (Cl. 33—3)

This invention relates to sports including those taking place out of doors and specifically to skiing whether in winter or summer and to equipment utilized when participating in this and other sports. More particularly, the invention relates to the proper fitting of certain equipment, namely, ski boots which are considered the most important equipment of the skier, it being recognized that it is most essential that the ski boot fit extremely snug around the heel and over the instep for proper control in skiing.

In order for a ski boot to fit properly, it is important that there be practically no movement of the heel of the foot or lost motion within the boot, where the latter is subjected to strain during skiing and such strain resulting from the ski boot being held firmly in place by a ski binding during the time the weight of the skier's body is leaning forward in the usual skiing position and which exerts considerable forward pressure of the feet and particularly instep against the confining portion of the boot.

In fitting a ski boot, it is difficult to determine whether the fit of the boot is correct at the most important location, namely, where there would be any appreciable lifting of the heel of the foot within the boot under the strain of normal skiing due to the fact that there is no way to secure the boot in a fixed immovable position as in a ski binding, and it is necessary that the boots be secured in fixed position so that the wearer may lean his body forward as in skiing to exert an upward pressure of the heels and insteps of the feet against the boots so that it may be readily determined whether the heels move upwardly inside the boots when they are actually being used in skiing.

It is an object of the invention to provide a ski boot fitting device by means of which ski boots of all sizes on the feet may be quickly secured in fixed position and rapidly released therefrom in order to facilitate determining the proper fit of the boots under skiing conditions.

Another object of the invention is to provide ski boot fitting means of simple and inexpensive construction, which can be easily incorporated in a relatively small easily movable unit, as well as a unit which can be used for determining the fit of ski boots regardless of size.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a perspective of a ski boot fitting device in accordance with the present invention;

Fig. 2, a side elevation;

Fig. 3, a fragmentary rear elevation;

Fig. 4, a fragmentary perspective of a modified form;

Fig. 5, a section on the line 5—5 of Fig. 4;

Figs. 6 and 7, transverse and longitudinal sections, respectively, of selectively usable rack and pinion, and worm and gear mechanisms for providing the desired adjustment of stops for preventing forward movement of the toes of the boots;

Fig. 8, a fragmentary detailed perspective of a modified form of heel holder; and

Fig. 9, a section on a line 9—9 of Fig. 8.

Briefly stated, the ski boot fitting device of the present invention comprises heel holders or clamps for retaining the heels of the boots in fixed position, and cooperating stops for preventing forward movement of the toes of skiing boots so that when the boots are thus relatively immobilized the wearer csan lean forward as far as is desired in order to exert the desired upward pressure to the heels and insteps of the feet against the upper interior portion of the boots to determine the amount of movement and lost motion of the heels of the feet within the boots and to a degree of accuracy that is not possible without securing the boots in place. The invention further contemplates a base, portable or otherwise, to which heel holders and adjustable toe stops are attached.

With continued reference to the drawing in accordance with the present invention, a base **10** is provided which, for portability, may be approximately 14" in width and 24" in length, and of sufficient thickness to afford a relatively solid platform on one end of which the heels of the user are adapted to be disposed so that the toes extend toward the opposite end of the board.

Along one end of the board are mounted one or more boot heel holders or clamps **11**, two being shown, which resemble substantially U-shaped pivoted drawer handles having outwardly turned extremities **12** forming pivots or journals in brackets **13** so that such heel holders may be disposed in substantially horizontal position flat against the upper surface of the base **10** or they may be swung to upright position as in Figs. 2 and 3 to receive the heel of ski boots, one beneath each of the same, the heels of such boots being of substantially uniform thickness regardless of size. The heel holder loops **11** are approximately 4" in length and of a size to overlie a heel approximately 1½" in height. They also preferably are formed of relatively heavy metal rod stock and held by relatively heavy brackets **13** in order to withstand the force to which they are subjected in use.

The heel holder loops may be angular or of other desired shape to fit on top of the rear of the heel of the ski boots and are capable of being swung in place and have minimum engagement with the boots to prevent marring the leather by avoiding contact with the sides of the heels.

In order to prevent ski boots from sliding or slipping forward from beneath the heel holders, the toe stops include relatively flat plates **14** having upright toe engaging stops or projections **15**. Each plate **14** is disposed adjacent a cooperative heel holder so that the device can be used for ski boots of any size. Each plate **14** is relatively thin and may be approximately 7" wide and 8" long with the upright flanges **15** at the forward end approximately 1" in height. The plates **14** are provided adjacent their lateral edges with slots **16** and **17** in which are received bolts **18** or other threaded fasteners having wing nuts **19** on their upper ends by which the plates **14** may be secured to the base **10**, the slots **16** and **17** permitting longitudinal adjustment of such plates with the upright toe stops **15**. Since the slots **16** and **17** are located near the side edges of the plate **14**, they afford a place therebetween on which the ski boots can be placed without interference.

In Fig. 2 a ski boot **20** is shown in phantom and has a heel **21** with a shoulder **22** over which the heel holders **11** can be disposed. When it is desired to fit a ski boot, the wearer of the ski boot slides the same backward to hook the heel under the heel holder loop or clamp **11**. The plate **14** is then slipped rearwardly until the upright stop portion **15** is disposed in front of and in contact with the toe of the ski boot, after which the wing nut **19** at each side of the plate **14** is tightened to secure the plate **14** in fixed position. Thereafter, the boots being

relatively immobilized, the wearer can lean forward as far as he wishes to exert the desired upward pressure of the feet against the upper inner portion of the boots to determine the amount of heel lift within the boot to determine the fit of the boot with accuracy not heretofore obtained.

In Figs. 4 and 5 are illustrated one of the many possible modifications of the invention. In this embodiment heel holders **23** are employed which may include a hollow rectangular member of heavy wire or rod stock, such member being of a length so that when pivotally secured or fastened in position at one side, it can be swung over the heel as in the embodiment previously described.

Mounting the heel holder member **23** is an encircling hinge or pivot portion **24** of a channel member **25** having attaching side portions **26** and **27** adapted to be fastened by screw **28** to a suitable base such as the base **10** previously described.

The side members are offset from the body of the plate sufficiently to receive beneath said body a plate **29** having an upright forward portion forming a toe stop **30**. The plate **29** is slideable beneath the channel member and is adapted to be secured in adjusted position by means of a locking bolt **31** adapted to engage a series of openings **32** in the base.

In the use of this device the plate **29** is disposed in a forward or extended position and the wearer stands on the channel member and slides the heel of the ski boot rearwardly beneath the raised heel holder disposed in uppermost position. Thereafter the plate **29** is moved rearwardly until its upright forward portion engages the toe of the ski boot, whereupon the locking bolt **31** may be inserted in one of the openings in the base.

If desired, relative movement between the base **10** and the toe stops can be accomplished in other ways, for example, by an operating knob **33** attached to a shaft **34** carrying a pinion **35** for engaging a rack **36** disposed longitudinally along the underside of the toe stops **14** or **25**.

If desired, as another illustration of toe stop adjusting device, the shaft **34** may be disposed longitudinally of the toe stop and may have fixed thereto a worm **37** which engages gear teeth **38** or gear teeth on the underside of the toe stop.

The brackets **13** may be attached to the base **10** in any desired manner, as for example, by bolts and nuts **13'**, which bolts are located in openings **39** through the base **10** and with the nuts in the recesses **39'** on the underside of the plate.

Instead of the heel holder previously described, which is movable relative to the base on which it is mounted, a heel holder **40** may be employed of L-shaped construction, having a curved overhang **41** adapted to engage the upper surface of the heel **22** similar to the heel holder **11**. The heel holder **40** may be held in fixed position in any desired manner as for example by means of bolts **42** extending through openings **43** in the body **40** and nuts **44** located in recesses **45** on the underside of the base **10**.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A ski boot fitting device comprising a base plate on which a ski boot is adapted to be supported while worn on a foot, a rigid U-shaped bail adapted to engage the upper surface of the rearwardly projecting portion of the heel of a ski boot, means to pivot the free end of each leg of the U-shaped bail to said base plate substantially at the surface of the base plate, the space between the legs of the U-shaped bail being greater than the width of any heel on boots to be fitted, the legs of the bail being relatively short with respect to the height of the heel of the boot while being of sufficient length whereby the bight portion of the U-shaped bail may engage the upper surface of the rearwardly projecting portion of the heel of any of the boots to be fitted, a boot toe engaging stop adjustably mounted on said base for movement toward and away from the heel receiving bail whereby the boot to be fitted may be secured to the foot of a person with the bail engaging the upper surface of the back of the heel with the plane of the rigid U-shaped bail being obtuse with relation to the bottom of the forwardly extending portion of the boot, whereby when the toe engaging stop is adjusted to engage the toe of the boot with the bight portion of the U-shaped heel engaging bail in intimate contact with the upper surface of the back of the heel, the boot will be firmly retained with the heel closely adjacent the base plate so that the person being fitted may flex the ankle and observe the reaction of the foot within the boot.

2. The invention according to claim 1 in which worm and gear means are provided for obtaining adjustment of the toe stop.

3. The invention according to claim 1 in which rack and pinion means are provided for adjusting the toe stop.

4. The invention according to claim 1 in which the toe stop is adjustable by means of a movable pin on the toe stop engageable with a plurality of spaced apertures in the base plate.

5. The invention according to claim 1 which the toe stop is adjustable by means of slots on the toe stop and studs having thumb screws projecting upwardly from the base plate through said slots.

References Cited in the file of this patent

UNITED STATES PATENTS

263,971	Schaefer	Sept. 5, 1882
778,171	Cook	Dec. 20, 1904
1,033,301	Bresnahan	July 23, 1912
1,074,406	Borel et al.	Sept. 30, 1913
1,636,754	O'Sullivan	July 26, 1927
1,679,387	Topham	Aug. 7, 1928
1,850,852	Scholl	Mar. 22, 1932
2,517,919	Pennybacker	Aug. 8, 1950
2,567,772	Jansen	Sept. 11, 1951
2,601,131	Weber	June 17, 1952
2,610,861	Campbell	Sept. 16, 1952
2,705,150	Hansen	Mar. 29, 1955