Feb. 10, 1970 R. B. LANGE 3,494,054

ATHLETIC BOOT COMBINATION

Filed June 27, 1968 2 Sheets-Sheet 1

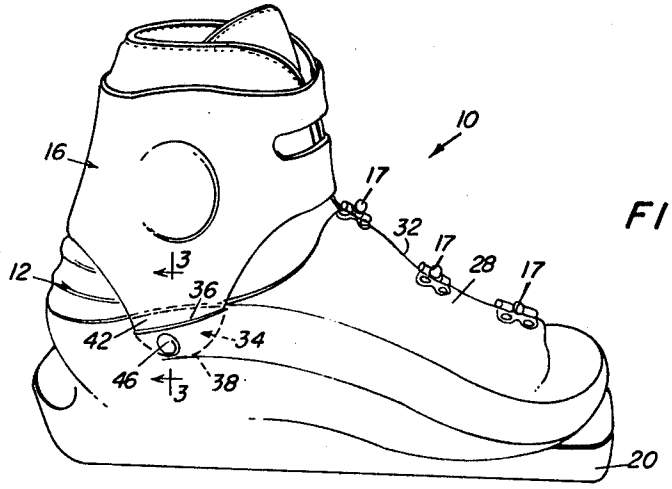


FIG. 1

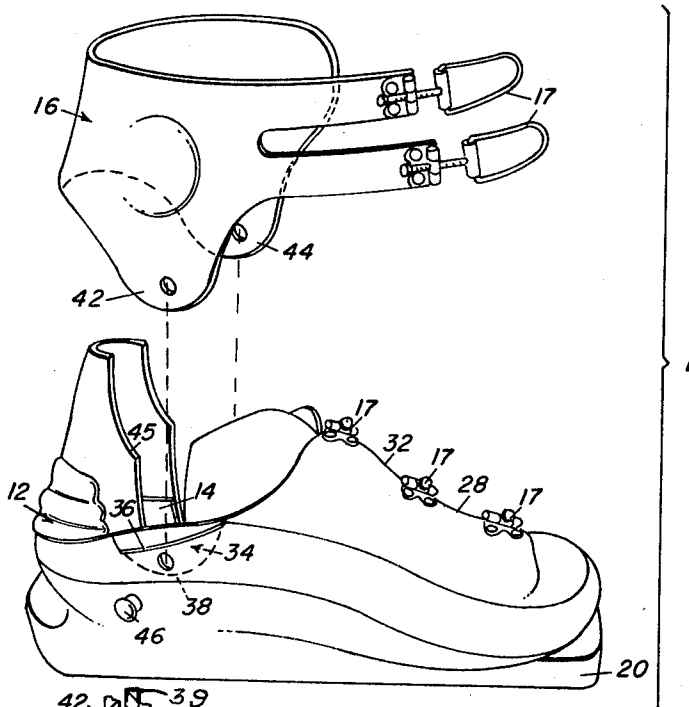


FIG. 2

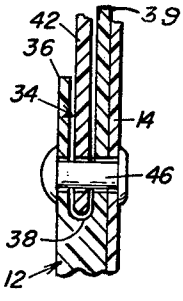


FIG. 3

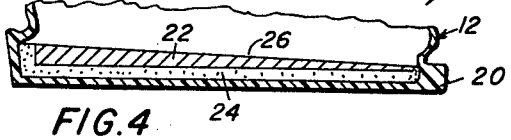


FIG. 4

INVENTOR
ROBERT B. LANGE
BY Robillard and Byrne
ATTORNEYS

Feb. 10, 1970 R. B. LANGE 3,494,054

ATHLETIC BOOT COMBINATION

Filed June 27, 1968 2 Sheets-Sheet 2

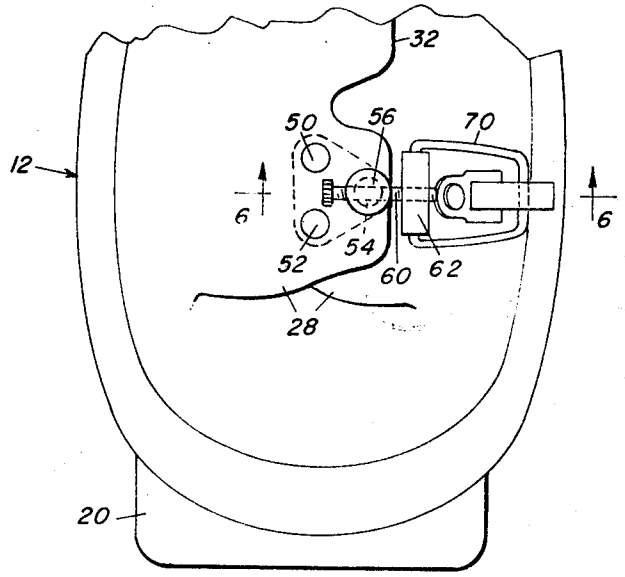


FIG. 5

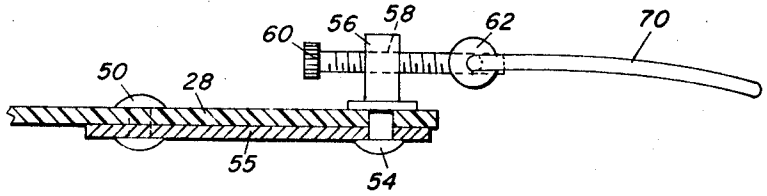


FIG. 6

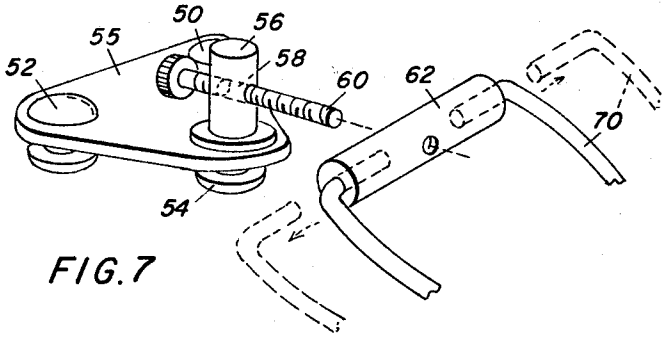


FIG. 7

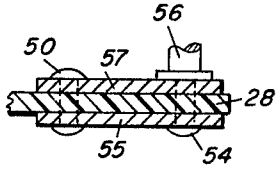


FIG. 6a

INVENTOR
ROBERT B. LANGE
BY Robillard and Bepmo
ATTORNEY

United States Patent Office 3,494,054 Patented Feb. 10, 1970

3,494,054

ATHLETIC BOOT COMBINATION

Robert B. Lange, P.O. Box 741, Dubuque, Iowa 52001

Filed June 27, 1968, Ser. No. 740,620
Int. Cl. A43b 5/04
U.S. Cl. 36—2.5 6 Claims

ABSTRACT OF THE DISCLOSURE

A plastic ski boot of rugged characteristics accomplished by providing the pivoting gaiter with a trunnion pocket and the buckles thereof with a spanner plate.

This invention relates generally to ski boots and more particularly relates to improvements in the ruggedness and performance of plastic ski boots. The use of plastic in ski boots has many remarkable advantages. One of the principal advantages of plastic ski boots is their general rigidity which leads to a fine edge control by the skier. Pivoted gaiters have been provided to permit a forward flexing of the skiers' legs while preserving the sought-after rigidity. One principal objective of this invention is to provide an improved pivoting joint between the outer shell of the boot and the gaiter through the use of a trunnion pocket in the outer shell.

More specifically, an important objective of this invention is to provide a pair of trunnion pockets in the sidewall of the outer shell of the boot which pockets receive the lower portions of a pivoted gaiter and having the openings of said pockets disposed below the upper, inner edge of the outer shell such that water, slush, snow, or other contaminants will not seep into the interior of the boot because of the pivoted joint.

As is recognized by students of the art, the ski boot is the principal connection between the skier and the ski. The more perfect this union, the better the control of the ski. In view of this, there have been many ingenious buckles provided for insuring that the ski boot is snugly fitted to the foot of the wearer. Because of the great strain which must be absorbed by the buckle, it is important that all tendencies for the buckle to tear from the mounting be eliminated. Another principal objective of this invention is to provide a mounting for a buckle which reinforces the outer shell in such a manner that tear-out or rupture is virtually eliminated.

A further objective of this invention is to provide a plastic ski boot having an outer shell of novel and unique design which pivotally receives a gaiter at an improved pivot position and includes means for mounting a buckle thereon at a distance removed from the pocket in a manner to eliminate the tearing of the sidewalls themselves.

A further objective of this invention is to provide an improved sole reinforcement member which leans the skier forwardly while having a sufficient dimension at the greatest area of stress.

These and other objects of the invention will become more apparent to those skilled in the art by reference to the following detailed description when viewed in light of the accompanying drawings, wherein:

FIGURE 1 is a side elevation;

FIGURE 2 is an exploded elevation view of the invention;

FIGURE 3 is a cross-sectional view along the line 3—3 of FIGURE 1;

FIGURE 4 is a longitudinal sectional view of the boot sole section;

FIGURE 5 is an enlarged plan view of a buckle assembly;

FIGURE 6 is a cross sectional view along the line 6—6 of FIGURE 5;

FIGURE 6*a* is a cross sectional of double spanner embodiment; and

FIGURE 7 is a partial perspective view of the buckle shown in FIGURE 6.

Referring now more particularly to the drawings wherein like numerals indicate like parts, the numeral **10** indicates the boot of this invention. The boot includes an outer shell **12**, an inner thermoplastic shell **14**, a U-shaped gaiter **16**, a plurality of buckle members **17** and a sole portion **20**.

Within the sole section **20** is a wedge-shaped reinforcing and filler block **22** embedded and secured to the outer shell **12** by a bed of epoxy resin **24**. The slant on the upper surface **26** of the wedge-shaped block comfortably leans the skier and supports him in a front leaning position.

Extending upwardly from the sole section **20** is the foot-receiving portion or outer shell **12** having two front flap portions **28** which define an opening **32** toward the toe of the boot. Trunnion pockets **34** are formed along the sides of shell **12** just below the ankle bone of the wearer. Only one pocket **34** and its associated parts will be described, it being understood that a corresponding trunnion pocket is formed (but not shown) in the shell portion away from the teader in FIGURE 1. The pocket opening edges **36** are spaced a distance below the upper edges of the outer surface of the shell. The pockets have semi-circular bottoms **38** and the opening edges **36** slant toward the heel of the boot. Since the inner surfaces or panels **39** of the trunnion pockets extend above the outer panels thereof (above edges **36**), any snow, water, ice or dirt that becomes lodged in the pockets **34**, will not enter the interior of the boot but rather will seep to the rear.

The gaiters **16** are formed with semi-circular lower hinge portions **42** and **44** which are respectively received in the trunnion pockets. The pockets are adapted to receive these lower hinge portions and to permit the forward pivoting action of the gaiter member. Each of the hinge members is pivotally secured to the outer shell by way of rivet studs **46**. The studs extend through either side of the pockets **34** and as seen in FIGURE 3, through the inner shell **14**. Such an arrangement provides a very stable pivot trunnion between the members.

The gaiter member **16** and the upper shell **12** are firmly secured to the leg of the wearer by drawing the side flaps **28** and the gaiter member together. Quick release buckles have been found very suitable for these purposes. The above-mentioned pocket trunnion concept provides a connection between the gaiter and the main boot of great strength. An improved buckle retention means is disclosed in FIGURES 5–7 which retains this strength for the entire boot. A triangular spanner plate **55** is secured to the interior surfaces of the boot by a plurality of rivets **50**, **52**, and **54**. The rivet **54** is formed with an upright rod **56** which has a transverse threaded opening **58** therethrough. The opening **58** receives a threaded shaft **60** which is formed with a journal **62** at its outer end. The journal is cylindrical in shape and has openings at either end thereof to receive the ends of a flexible spring-steel securing loop **70**. The locking members which cooperate with these boots are of the multiple screw lever type more fully described in United States Patent 3,363,288 issued Jan. 16, 1968.

A double spanner arrangement is shown in FIGURE 6*a* wherein an upper spanner **57** cooperates with the inner spanner **55** to grasp the flap **38** therebetween.

As it is well known to the art, individual shapes and configurations of the foot vary widely between individuals. In the cited patent an improved buckle having coarse and fine adjustments is disclosed. By utilizing flexible loops of the type described herein a still further means of adjustment is available via a simple replacement of loops of different lengths.

In a general manner, while there has been disclosed in the above description, what is deemed to be practical and efficient embodiments of the invention, it should be well understood that the invention is not limited to such embodiments as there might be changes made in the arrangement, disposition, and form of the parts without departing from the principle of the present invention.

I claim:

1. A plastic athletic boot comprising an elongated outer shell having first and second sidewalls having an upper periphery defining a foot-receiving opening,

first and second trunnion pockets formed in the exterior of said sidewalls below said periphery and having a pocket opening defined by an upper edge slanted toward the rear of said boot,

a U-shaped gaiter having first and second lower ends received in and substantially filling said pockets, and means pivotally securing said lower ends in said pockets.

2. The athletic boot recited in claim 1 wherein the bottoms of said pockets are semi-circular and said lower ends are semi-circular and generally of the same dimensions as said pockets.

3. The athletic boot recited in claim 1 wherein an inner shell is disposed in said outer shell and said means is partially supported by said inner shell.

4. The boot of claim 3 wherein a first buckle element is mounted on one portion of said sidewall and a second buckle element is mounted on an opposing side thereof, first and second spanner plates respectively juxtaposed adjacent said first and second buckle elements interiorly of said sidewalls and means extending through said side walls for securely fastening said buckle elements to said spanner plates.

5. The boot of claim 3 wherein connecting means are adapted to extend between said first and second buckle elements and said connecting means include a removable loop having spring-like characteristics.

6. A plastic athletic boot of a type having an elongated shell having first and second sidewalls and having an upper foot receiving opening, a U-shaped gaiter having first and second lower ends pivotally secured to said shell and having buckle elements for drawing said shell and said U-shaped gaiter securely about the foot of a wearer, wherein the improvement consists of means mounting said buckle elements comprising

first spanner plates disposed along the interior of said shell,

second spanner plates disposed exteriorly of said shell and one each of which is disposed under one of said first plates and

rivet means extending through said shell and said first and second plates for securing said first spanner plates and said second spanner plates to said shell.

References Cited

UNITED STATES PATENTS

3,239,952	3/1966	Lange et al.	36—2.5
3,363,288	1/1968	Lange et al.	36—50 X
3,405,463	10/1968	Werner	36—2.5

PATRICK D. LAWSON, Primary Examiner

U.S. Cl. X.R.

36—50