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H. MARTIN

3,545,106

SKI BOOT WITH MECHANISM FOR TIGHTENING THE CLOSURE FLAPS

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3 Sheets-Sheet 1

Fig. 1

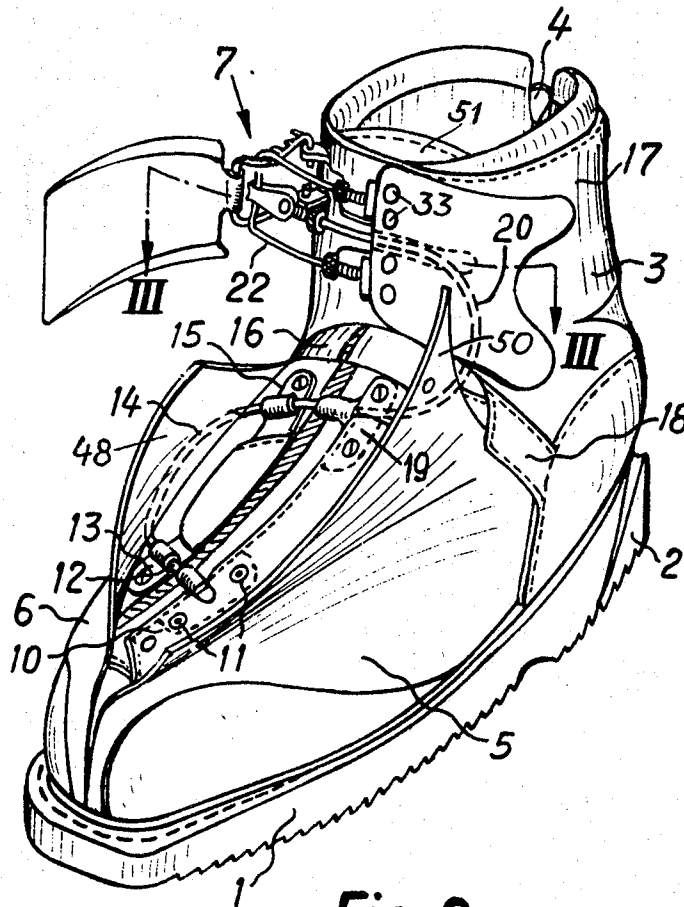
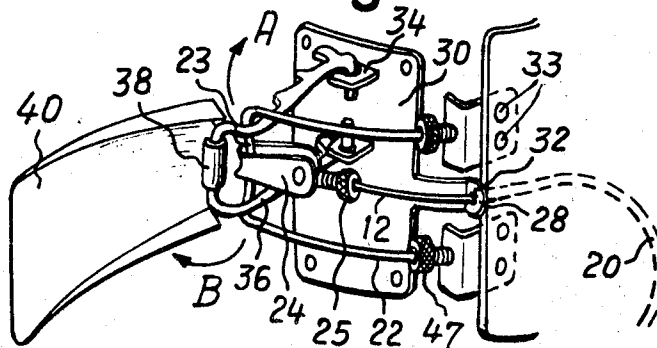


Fig. 2



INVENTOR

HANS MARTIN

BY

Jacobi & Davidson

ATTORNEYS

Dec. 8, 1970

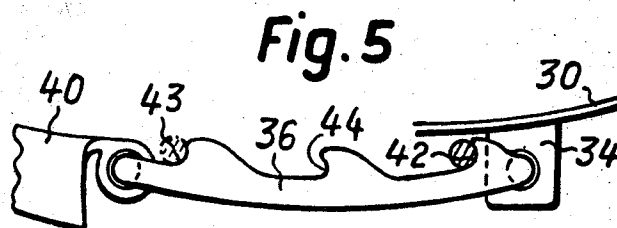
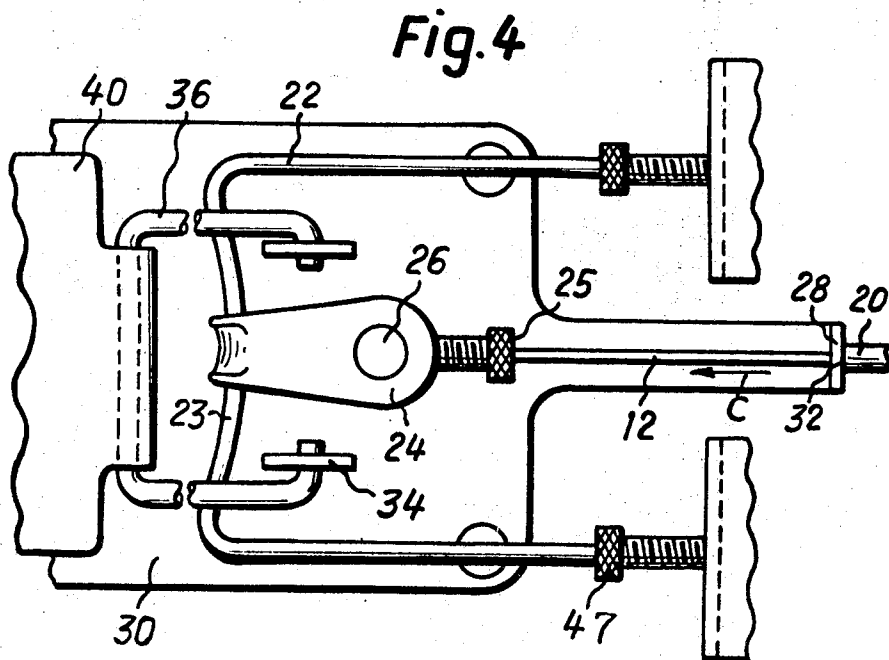
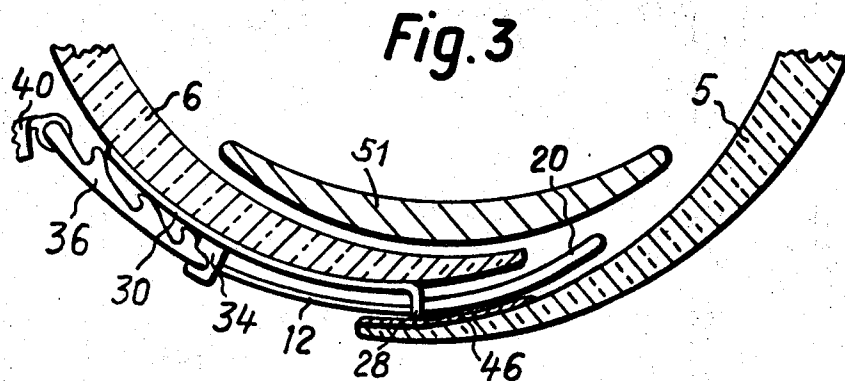
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HANS MARTIN

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3 Sheets-Sheet 3

FIG. 6

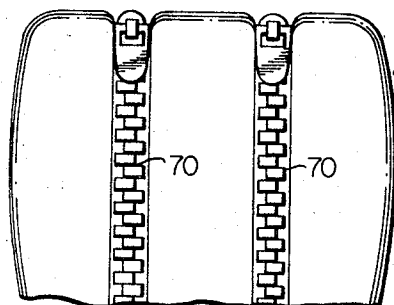
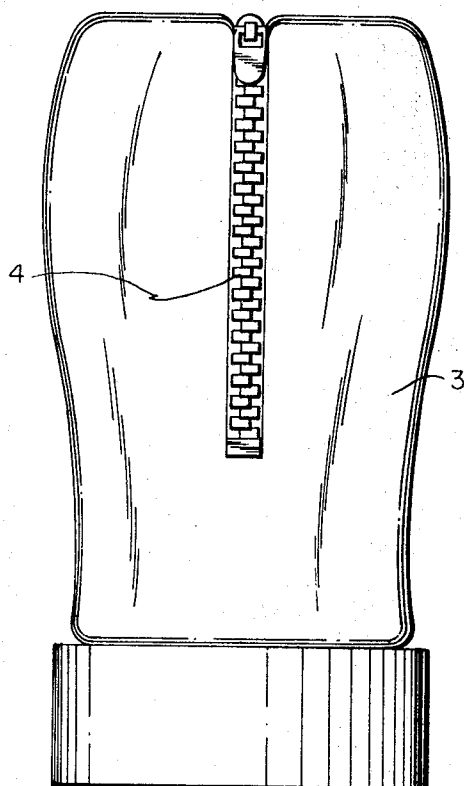


FIG. 7

INVENTOR.
HANS MARTIN
BY *Werner W. Keleman*
His Attorney

1

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SKI BOOT WITH MECHANISM FOR TIGHTENING THE CLOSURE FLAPS

Hans Martin, Volkmarstrasse 6, Zurich, Switzerland

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14 Claims

ABSTRACT OF THE DISCLOSURE

A mechanism for drawing together the closure flaps of a boot, especially a ski boot which comprises at least one traction member at the region of the instep of the boot. This traction member is guided over both of the closure flaps. A single pivotal tensioning lever means cooperates with each such traction member in order to tighten or loosen, as desired, the closure flaps over their entire length.

BACKGROUND OF THE INVENTION

The present invention relates to an improved ski boot equipped with a mechanism for tightening its closure flaps.

It is known to the art to draw or tie together the closure flaps of a boot upper by means of laces. Persons wearing ski boots, however, find it cumbersome and time-consuming to tie the laces before commencing skiing and to loosen them thereafter, loosening being necessary in order not to impede the blood circulation through the feet. In most instances, a large portion of the laces has to be untied. On the other hand, ski boots equipped with buckles are also known to the art, wherein tightening of the boot is accomplished by four to six buckles, each of which has to be manually operated.

SUMMARY OF THE INVENTION

Accordingly, a primary object of the present invention relates to a ski boot or the like equipped with an improved mechanism for tightening the closure flaps thereof in a relatively simple and quick manner.

Another very significant object of the present invention relates to an improved mechanism for tightening the closure flaps of a boot, wherein tightening or opening of the boot can be carried out with a single simple manipulation.

Still a further object of this invention deals with a tightening mechanism for the closure flaps of boots which is relatively simple in construction, economical to manufacture, easy to operate, highly reliable as well as not readily susceptible to malfunctioning.

Now in order to implement these and still further objects of the invention which will become more readily apparent as the description proceeds, the inventive tightening mechanism incorporates at least one traction member in the region of the instep. This traction member extends over both closure flaps. Each such traction member interacts at the upper region of the upper with a single tensioning lever device which by means of a pivotal movement permits tightening or loosening the closure flaps along their entire length. As a result, the boot may be tightened or loosened in a faster and simpler manner.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood, and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings, wherein:

FIG. 1 is a perspective view of a ski boot equipped with the inventive tightening mechanism;

2

FIG. 2 is a perspective view of the tensioning lever mechanism;

FIG. 3 is a cross sectional view taken along the lines III—III of FIG. 1;

FIG. 4 is an enlarged view of the details of the tensioning lever members;

FIG. 5 is a fragmentary view of a notched bracket or clamp of the tightening mechanism of FIG. 1;

FIG. 6 is a rear elevational view of a ski boot equipped with a slide fastener; and

FIG. 7 is a cutaway rear elevational view of a ski boot showing showing two slide fasteners.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Describing now the drawings, the ski boot pursuant to FIG. 1 possesses a shoe sole 1, a heel 2 and a shoe upper 3. In the heel area, the boot is equipped with a downwardly extending conventional closure 4 and could be a "zipper" or any other form of slide fastener means. The latter permits enlarging the foot's entrance opening so that the boot can be put on or removed comfortably when the closure 4 is open. The presence of this closure 4 ensures for a relatively short operational path with respect to the drawing together or tightening of the closure flaps 5 and 6. For example, in order to ensure that the foot, during the downhill run is supported safely and securely, it is necessary to draw together both closure flaps 5 and 6 along the instep throughout their entire length in such manner as to provide a tight fit. This is achieved by means of a single lever-tensioning closure mechanism 7 which will be described in greater detail farther below. Hence, the zipper 4 serves to enlarge only the entrance area of the boot when it is put on or taken off, whereas the clamping closure mechanism 7 itself serves solely to tighten or loosen the upper 3 of the boot. A slide fastener closure 4 can be seen more clearly centered in the heel area in FIG. 6.

Closure flap 5 is equipped in the vicinity of the tip of the boot with a mounting plate or strap 10 which is attached to the boot by means of rivets 11. A traction member, such as a Bowden-cable which includes a cable core 12 is anchored to this mounting plate 10. The other closure flap 6 is equipped with a similar mounting plate or strap 13 at which is mounted a cable covering 14 of the traction member. A further mounting plate or strap 15 is attached to the same closure flap 6 at the vicinity of the region where the instep is followed by the leg portion which is just below the bridging strap 16 located at the region of the knee or break point of the upper. This bridging strap 16 is formed of a somewhat softer material in order to allow movement between the leg portion 17 of the upper 3 and the instep portion 18. On the first mentioned closure flap 5, at a point lying approximately across from the mounting plate 15, there is provided an additional mounting plate on strap 19 which serves to fix the cable covering 20. The cable covering 14 is flexed through an angle of about 180° between the mounting plates 13 and 15 and, thus, the cable core 12 inside of the cable covering is likewise bent through said angle. The cable covering 20 is guided in the area of the leg portion 17 in the shape of an opposite bend so that both of the cable covering portions 14 and 20 define a configuration of a wave or an S-curve.

A bracket or clamp 22 is mounted by means of rivets 33 in the area of the leg portion of the closure flap 5. This bracket 22 is substantially U-shaped and carries a pull strap 24 at its middle web, portion 23.

Pull strap 24 has threaded therein a screw 25 which is provided with a throughbore permitting the passage of the cable core 12 and has thickened portion or bulge 26 at

3

its front end, as best seen in FIG. 4. Cable core 12 is conducted through an eye 28, said eye being a continuation of and protruding from a base plate 30 which is mounted on closure flap 6. When the tightening mechanism is closed the eye or eyelet 28 serves as a stop for the neighboring front end 32 of cable covering 20 which can thus be drawn or pulled in the direction against the other closure flap only up to this eye 28.

By virtue of the relatively large dimension of the base plate 30, the pressure is well distributed and there is avoided any tilting of the base plate 30. An additional clamp or bracket 36 engages with two webs or arms 34 extending from base plate 30. This bracket or clamp 36 is likewise essentially U-shaped. A cover plate 40 providing an extension member is hingedly mounted at the middle region of the bracket 36 in such fashion that the pivotal or swivel action is limited by stops. Instead of a one-piece clamp or bracket 36 such could be constructed of several parts which, for example, could be riveted or welded together.

This bracket 36 is equipped on one side with three notches 42, 43, 44 with which the bracket 22 can be selectively engaged. If this bracket 22 is hung into the first notch 42 which is closer to its axis of rotation and if this bracket together with cover plate 40, is swung in the direction of arrow A (FIG. 2), the cable core 12 may be somewhat tightened. Thereafter, the bracket 36 comes to rest in a terminal position behind its dead-center position and neighboring the leg portion and thereafter remains fixed in that position. In order to achieve a relatively long lever arm for this tightening or tensioning operation, the cover plate 40 can be tilted outward in the direction of the arrow B as shown in FIG. 2, so that there is available for the manual force a relatively long lever arm. A stop which is not visible in the drawing is located between cover plate 40 and bracket 36 in order to limit the pivotal movement of the cover plate 40 around the sleeve or eye 38. Upon completion of the tightening operation, the cover plate 40 can be rocked or tilted back again and in that closed position will follow the outline of the boot, thereby covering both brackets 22 and 36. While in this position, it covers the boot tightening mechanism which remains invisible from the outside, thus giving the boot an appealing appearance.

If it is desired that both closure flaps 5 and 6 should be drawn more tightly against each other, then the bracket 22 will be engaged with the second or third notch 43, 44 or, if present, additional notches. This will enable the cable core 12 to be drawn further in the direction of the arrow C (FIG. 4) as soon as the bracket 36 is pushed in the direction of arrow A.

In order to render possible adjustment of the tension exerted upon the leg area 17 and the instep area 18 of the boot independently of one another, so that such tension can be regulated to the individual shape of the foot, the bracket 22 can be adjusted by means of screws 47 independently of the particular tensional force exerted by the cable core 12. On the other hand, it is also possible to adjust the effective length of cable core 12 by means of the screw 25.

In order to ensure that during the tensioning or tightening operation the eye or eyelet 28 properly slides in relation to the closure flap 5, there is mounted on the underside of the closure flap 5 a sheet metal plate 46 upon which such eyelet or eye 28 bears and upon which it can slide better than on leather. The force exerted by the cable covering 20 on the eyelet 28 counteracts the force transferred to the base plate 30 by the bracket 36 when the mechanism is in its tensioned state.

Instead of providing the boot in its heel region with a single closure 4, as shown in FIG. 6, it would also be feasible to provide two parallel similar closures, as shown by reference numerals 70 in FIG. 7, and which closures 70 lie next to each other, so that a heel tongue therebetween could be swung out for the purpose of

4

inserting the foot. As is common, the interior of the boot contains a tongue 51 below the closure mechanism.

The leather portions 48 and 50, which for clarity in illustration are depicted in FIG. 1 in bent out or flexed condition, can be preferably covered with a non-illustrated elongate ornamental and cover strip, said ornamental and cover strip being detachably mounted on one closure flap. For example, this cover strip may consist of wing-profiled aluminum sheet. It is also feasible to employ a double cable with two parallel extending cores instead of a single Bowden-cable, wherein both cores could be used to achieve variable tensional conditions in that one or the other core may selectively be placed into cooperative relationship with the tightening mechanism.

Thus, while there has been shown and described present preferred embodiments of the invention, it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied and practiced within the scope of the following claims.

What is claimed is:

1. A ski boot having an upper and a pair of closure flaps; a mechanism for drawing together said closure flaps which comprises at least one traction member and tensioning means, said tensioning means including a first guide means extending longitudinally a substantial distance along one of said flaps from the toe area to the midportion of the closure and secured thereto, a second elongated guide means extending longitudinally a substantial distance along the other of said flaps from the midportion thereof to the upper region of said upper, said second guide means being secured to said midportion of said other flap, said traction member extending from the area of the instep and through said guide means; said tensioning means further including a single pivotally mounted tensioning lever means on the side of said first guide means cooperating with each traction member at the upper region of said upper in order to tighten or loosen said closure flaps over their entire length.

2. In a ski boot according to claim 1, wherein at least a portion of the length of said traction member is constructed in the form of a Bowden cable possessing a cable covering and a cable core, said cable core being conducted at least across both of said closure flaps and wherein one end of said cable core is secured to one of said closure flaps in the area of the tip of the ski boot and the other end of said cable core is attached to said tensioning lever means.

3. In a ski boot according to claim 2, wherein said Bowden cable is guided in the form of a bend at least between said tensioning lever means and the area below the break point of said upper, said cable covering being supported by one closure flap and said tensioning lever means being supported by the other closure flap.

4. In a ski boot according to claim 2, wherein said cable covering comprises at least two portions flexed through approximately 180°, one such portion being attached to one closure flap and the other portion being attached to the other closure flap.

5. A ski boot having an upper and a pair of closure flaps; a mechanism for drawing together said closure flaps which comprises at least one traction member that includes a first guide means extending longitudinally a substantial distance along one of said flaps to a midportion thereof, a second elongated guide means extending longitudinally a substantial distance along the other of said flaps from a midportion thereof to the upper region of said upper and flexible means extending from the area of the instep and through said guide means; and a single pivotally mounted tensioning lever means cooperating with each traction member at the upper region of said upper in order to tighten or loosen said closure flaps over their entire length, said tensioning lever means being equipped with a first bracket attached to one closure flap, and a second bracket attached to the other

5

closure flap, said first bracket cooperating at a point spaced from its axis of rotation with said second bracket, said traction member being attached to said second bracket.

6. In a ski boot according to claim 5, further including an extendible extension member provided at said first bracket.

7. In a ski boot according to claim 6, wherein said extension member is constructed in the form of a cover plate which can be snapped out, said cover plate when in the collapsed position conforming approximately to the contour of the upper of the ski boot and covering both of said brackets.

8. In a ski boot according to claim 5, wherein said first bracket is equipped with at least two notches with which may be selectively engaged the middle part of said second bracket for tightening said traction member.

9. In a ski boot according to claim 5, further including a base plate at which said first bracket is hingedly supported, said traction member including a cable core and a cable covering, a guide eye for said cable core protruding from said base plate, said guide eye serving as a stop for the neighboring end of said cable covering during tightening of said closure flaps.

10. In a ski boot according to claim 5, wherein said traction member includes at least a cable core, means enabling the effective length of said cable core, and the effective length of said second bracket to be lengthwise adjustable independently of each other.

11. In a ski boot according to claim 1, wherein at least one closure member which extends from the top to the bottom of the boot is provided for the heel of said boot, said closure member enlarging the entrance opening for the foot when in open position.

12. In a ski boot pursuant to claim 11, wherein a pair of closure members in the form of two parallel slide fasteners spaced from each other are provided in the area of the heel of the boot, said slide fasteners serving to enable pulling out of a tongue when stepping into the boot.

13. In a ski boot having an upper and a pair of closure flaps, a mechanism for drawing together said closure flaps which comprises at least one traction member in the area of the instep, said traction member being guided over both of said closure flaps, a single pivotably mounted tensioning lever means cooperating with each traction member at the upper region of said upper in order to tighten or loosen said closure flaps over their

6

entire length; said tensioning lever being equipped with a first bracket attached to one closure flap; a second bracket attached to said other closure flap; said first bracket cooperating at a point spaced from its axis of rotation with said second bracket; said traction member being attached to said second bracket; a base plate at which said first bracket is hingedly supported; said traction member including a cable core and cable covering; a guide eye for said cable core protruding from said base plate, said guide eye serving as a stop for the neighboring end of said cable covering during tightening of said closure flaps.

14. In a ski boot having an upper and a pair of closure flaps, a mechanism for drawing together said closure flaps which comprises at least one traction member in the area of the instep, said traction member being guided over both of said closure flaps, a single pivotably mounted tensioning lever means cooperating with each traction member at the upper region of said upper in order to tighten or loosen said closure flaps over their entire length; said tensioning lever being equipped with a first bracket attached to one closure flap; a second bracket attached to said other closure flap; said first bracket cooperating at a point spaced from its axis of rotation with said second bracket; said traction member being attached to said second bracket; said traction member including at least a cable core; means enabling the effective length of said cable core and the effective length of said second bracket to be lengthwise adjustable independently of each other.

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ALFRED R. GUEST, Primary Examiner

U.S. Cl. X.R.

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