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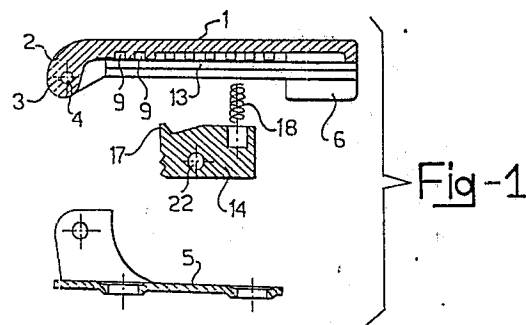
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⑤④ **An adjustable tensioning device for foot securing arrangements in ski boots.**

⑤⑦ A tensioning device is disclosed wherein a lever (1) puts under tension a small cable (25) for securing the foot in rear-fitting ski boots. On said lever, there cooperate a pawl (14) and a deflector pulley (24) acting as a purchase block.



Description

This invention relates to a tensioning device for foot securing arrangements in ski boots, which is particularly but not exclusively useful with foot securing arrangements intended for rear-fitting ski boots.

The device forming the subject matter of this invention is of a type which comprises a lever for placing a flexible pull member under tension, said lever having one end pivoted on a mount for attachment to the ski boot, a plurality of notches formed transversely on the lever body at regular intervals from one another, a pawl in elastic engagement with said notches and carried slidingly on said lever, and a means of connecting said pawl to the flexible pull member.

It is a known fact that one of the most important functions served by a device of the kind under consideration is to make the force exerted on the skier's foot by the securing arrangement controlled by the device adjustable in amount.

Since it is well-recognized that the functionality and comfort characteristics of a ski boot are tied to fine adjustment features, the research work of specialized designers has been long aimed at providing tensioning devices affording most appropriate constructional and operational features for that purpose; however, the range within which it has been possible to make the securing force adjustable in the sense specified above is dictated by the strength and manipulation characteristics expected of the tensioning device, and above all, by the outline dimensions imposed on the device as a whole.

The problem underlying this invention is to provide a tensioning device of the kind under consideration, whose constructional and operational characteristics afford a substantial improvement of the range within which the foot securing force can be adjusted.

This problem is solved by a device according to the invention being characterized in that it comprises a substantially deflector pulley type of arrangement mounted on said lever in the vicinity of the pivoted end thereof and on the lever side formed with said plural notches, and first and second leaders formed on said pawl, the flexible pull member being engaged simultaneously and endlessly with said pawl, said substantially deflector pulley type of arrangement, and again with said pawl.

In the mode of operation of the tensioning device according to this invention, the substantially deflector pulley type of arrangement acts like a block to provide all the effects which are typical and recognized for such devices. It is the very provision of this block associated and cooperating with the pawl via the flexible member that affords the aimed expansion of the foot securing force adjustment range.

The features and advantages of the invention will be more clearly understood from the following detailed description of an embodiment of the inventive tensioning device, to be taken in conjunction with the accompanying illustrative and non-limitative drawings, where:

tative drawings, where:

Figure 1 is an exploded longitudinal section view of a tensioning device according to the invention;

Figures 2 and 3 are plan and cross-sectional views, respectively, of the device according to the invention;

Figures 4 and 5 show in side elevation and in plan a detail (the pawl) of the device shown in Figure 1; and

Figure 6 is a schematical plan view of the device according to this invention.

With reference to the drawing figures, a device according to the invention comprises a tensioning lever 1 of flattened shape and provided at one end with a plurality of ear-like projections 2 which are identical and through-penetrated by holes 3, all aligned to one another and forming seats for accommodating a pin 4 through which the tensioning lever 1 is pivoted on a mount 5 for anchoring it to the shell of a ski boot (not shown).

The lever 1 has, laterally on the other end thereof, two contoured projections 6 forming a handgrip for its operation, and is provided, along its sides, with two side flanges 7, 8 (Figure 3) which impart on the cross-section of said tensioning lever 1 a U-like shape.

Formed on the flattened body of said lever 1 are plural notches 9, which are identical of one another and placed at equal intervals apart, the notches 9 extending transversely of the lever and being terminated at a set distance from the opposing side flanges 7, 8 thereof. At a middle location on these side flanges, there are formed longitudinally respective straight edges or shoulders 10, 11 (Figure 3) which define, in cooperation with the flattened body of the tensioning lever 1, two slideways 12, 13 for a pawl 14.

The pawl 14 comprises a substantially parallelepipedal body having on opposing sides thereof straight protruding edges 15, 16 (Figures 4 and 5) in sliding engagement with the above-noted slideways 12 and 13. Formed at that end of said pawl 14 which is facing toward the pivoted end 2, 3, 4 of the tensioning lever 1, is a crosswise extending dog 17 held in engagement with the notches 9 and said lever by the action of a spring 18 biasing the pawl from the other end thereof.

The pawl 14 is formed with a slit 19 (Figures 4 and 5) which is open at the top and across that wall of the pawl which confronts the pivoted end of the lever 1. This slit 19 defines on the pawl two identical portions 20, 21 which are similarly through-penetrated by respective holes 22, 23 aligned along a common axis and constituting respective leaders for a small pull cable 25, as explained more clearly hereinafter.

A deflector pulley arrangement 24 is mounted on the tensioning lever 1 close to the pivoted end and on the notched side thereof.

The cable 25, which forms the flexible pull member of a foot securing arrangement (not shown) in a

rear-fitting ski boot, is engaged simultaneously and endlessly first through one of said leaders 22 in the pawl 14, then around the pulley 24, and finally again through the other of the pawl leaders 23.

It may be appreciated from the foregoing description and illustration that the variable position occupied by the pawl 14 on the tensioning lever 1, which position is defined and retained by the dog 17 engaging in one of said notches 19, will control the amount of the pull force applied by the cable 25, and that this force is substantially doubled for a given effort exerted on the lever, by virtue of the deflector pulley 24 acting as a purchase block.

Thus, the object set forth is achieved of affording adjustment of the tensive force to be applied by the inventive device.

Claims

1. A tensioning device for foot securing arrangements in rear-fitting ski boots, comprising a lever (1) for placing a flexible pull member (25) under tension, said lever (1) having one end (2,3,4) pivoted on a mount (5) for attachment to the ski boot, a plurality of notches (9) formed transversely on the lever (1) body at regular intervals from one another, a pawl (14) in elastic engagement with said notches (9) and carried slidingly on said lever (1), and a means (22,23) of connecting said pawl (14) to the flexible pull member (25), characterized in that it comprises a substantially deflector pulley (24) type of arrangement mounted on said lever (1) in the vicinity of the pivoted end thereof and on the lever side formed with said plural notches (9), and first and second leaders (22,23) formed on said pawl (14), the flexible pull member (25) being engaged simultaneously and endlessly with said first leader (22), said substantially deflector pulley (24) arrangement, and again with said second leader (23) of the pawl (14).

2. A device according to Claim 1, characterized in that said pawl (14) has a substantially parallelepipedal body formed with a slit (19) defining two identical adjacent portions (20 and 21) through-penetrated by holes (22,23) constituting said leaders for the flexible pull member (25).

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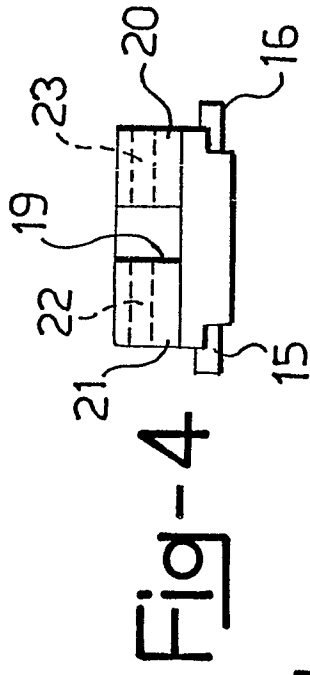
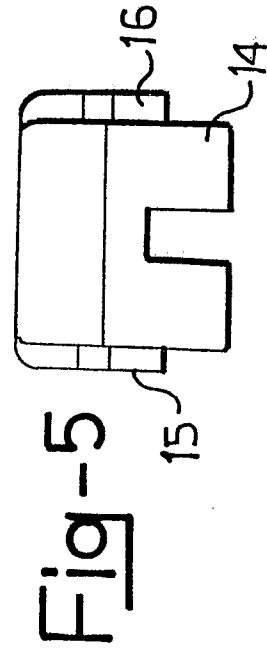
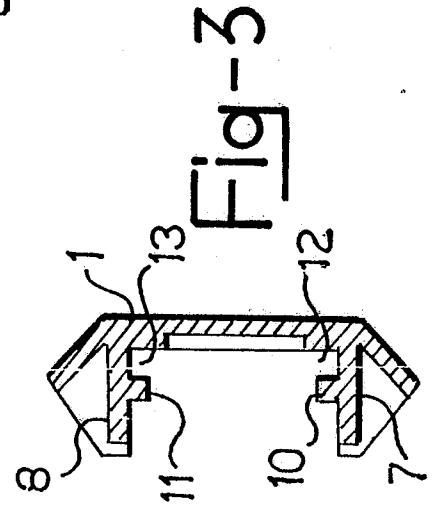
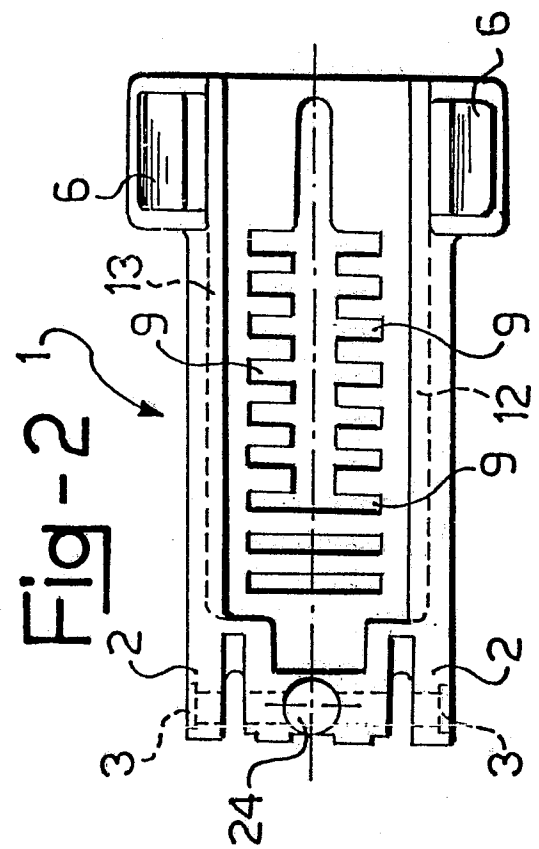
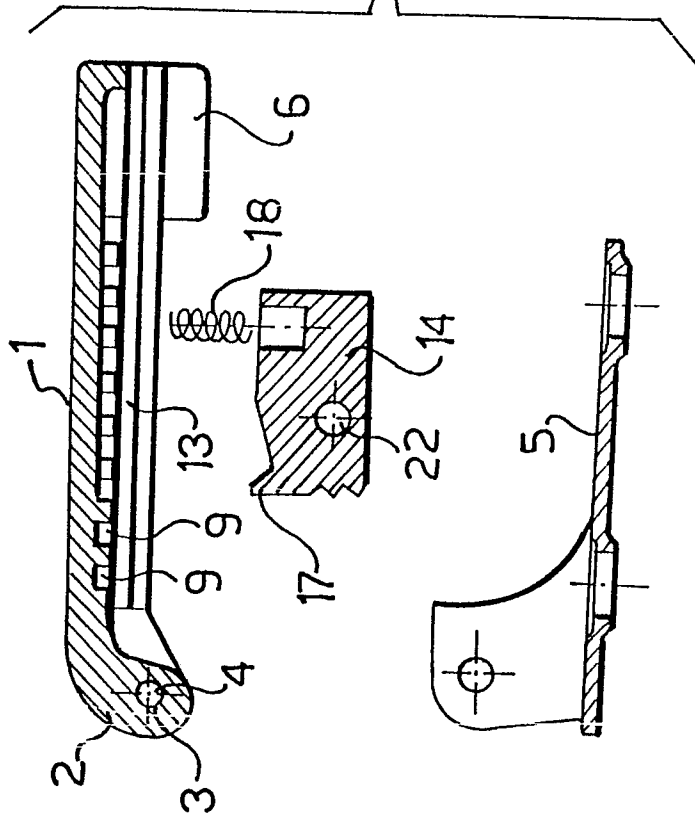
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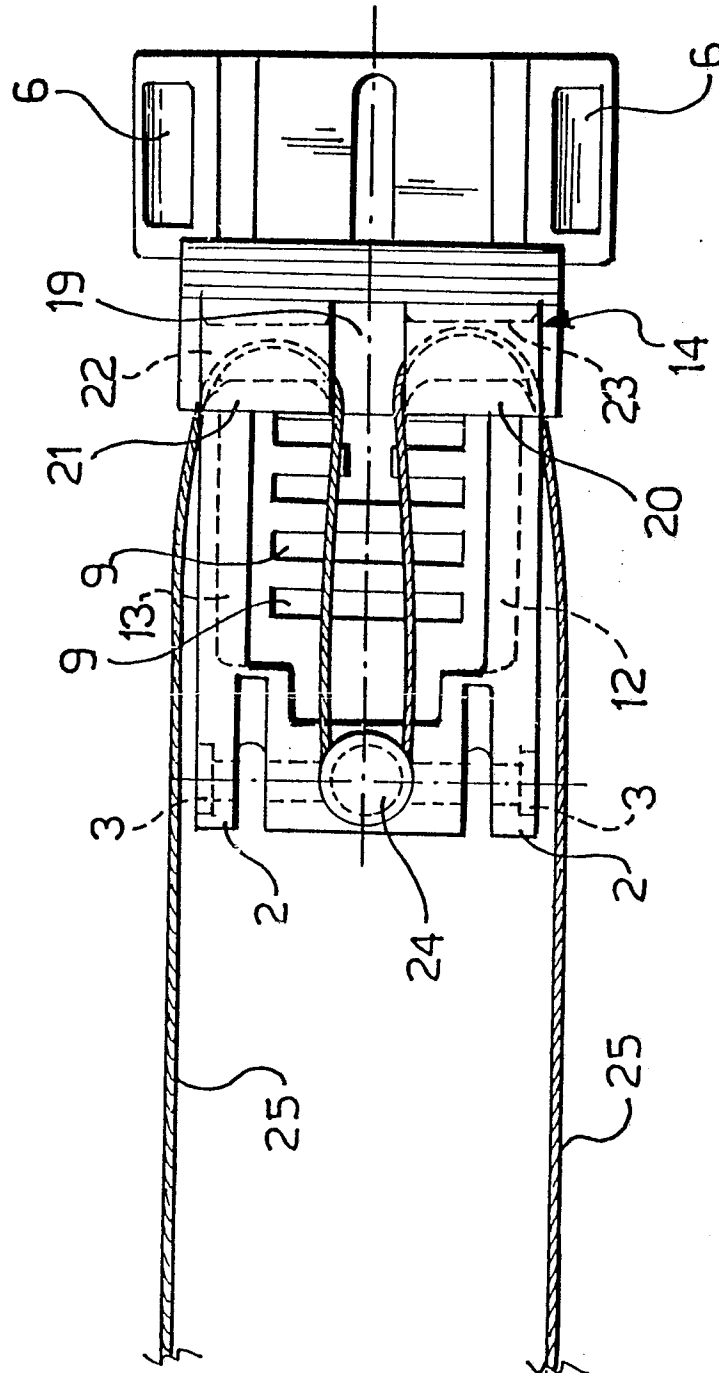


Fig-6