Jan. 16, 1940. J. W. BRUUN 2,187,537

COMBINED TOUR AND SLALOM BINDING

Filed Feb. 9, 1938

FIG. 1

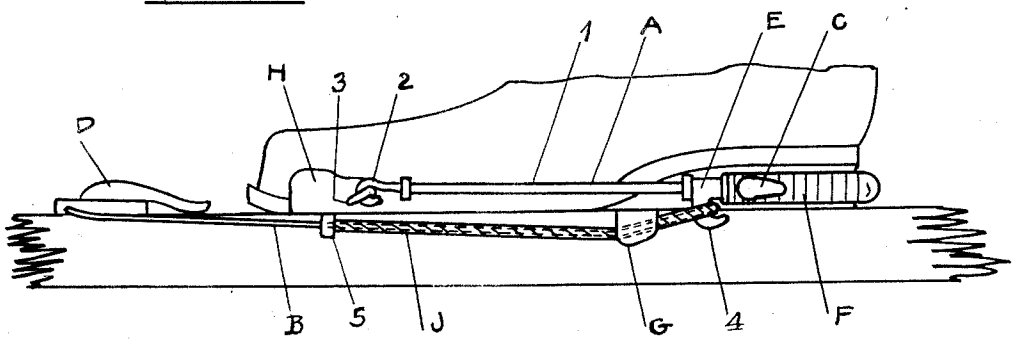


FIG. 2

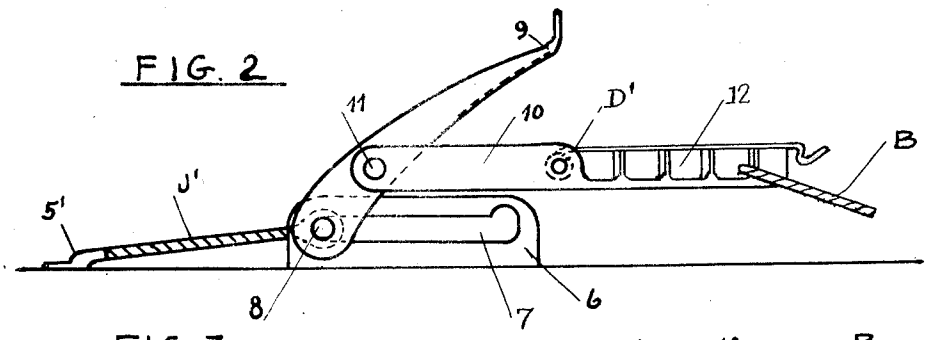


FIG. 3

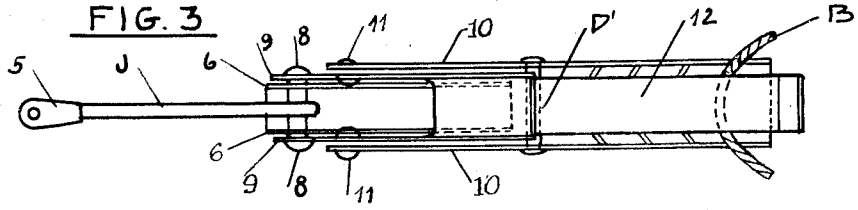


FIG. 4

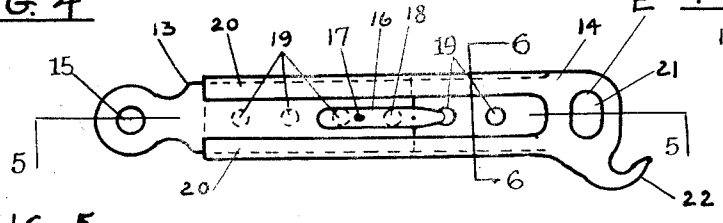


FIG. 6

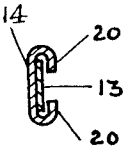
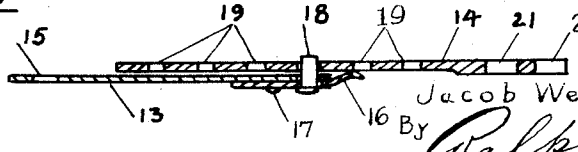


FIG. 5



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COMBINED TOUR AND SLALOM BINDING

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3 Claims. (Cl. 280—11.35)

The present invention concerns a combined tour and slalom binding, and is characterized by being chiefly a combination of an ordinary binding, whose fastening device goes from the one toe-iron around the heel to the other one, with an inserted tightener and a spring-affected cable, causing a nominal lifting of the heel.

The presently used slalom bindings consist of besides the usual toe-irons for holding the boot, a cable which is directly connected with the powerful spring going around the heel (hereafter called the Bildstein). The cable which is not connected with the toe-irons, serves to press the boot firmly into the toe-iron, running uninterruptedly from the one end of the Bildstein via an ear, fastened to the edge of the ski between the heel and the toe-iron, out to a fastening and tightening device placed forward of the toe of the boot, continuing in the same manner to the other end of the Bildstein, in such a way that the cable causes a downward slanting pressure on the foot. Such bindings are not suitable for touring purposes, as the slanting pressure in the long run causes the persistent rubbing on the heel. Some bindings have two ears fastened on to the edge of the ski, one for use when touring and one for slalom purposes, but it has proved nevertheless that the pressure becomes too slanting. The ideal for tour bindings is the straight pull betwen the heel and the toe-iron.

The present invention remedies these drawbacks by providing the usual tour binding with a cable, which may be fastened permanently or detachably to the Bildstein, and thus regulated that in connection with a tightening device placed in front of the boot, it does not allow the heel to be lifted too much from the ski, when used for slalom or downhill. On the tightening device being released the cable is slackened, but through a spring the cable is being held in such position that it does not drag.

The enclosed drawing will as an example elucidate the invention, showing:

Fig. 1, the combination binding as a slalom binding,

Fig. 2 shows a modified form of tightening device in a larger scale, seen from the side,

Fig. 3 is the same as Fig. 2 seen from above,

Fig. 4 is a view of a modified form of fastening device seen from the side,

Fig. 5 is a section taken on line 5—5 of Fig. 4, and

Fig. 6 is a section taken on line 6—6 of Fig. 4.

As shown in Fig. 1, the binding consists of a coil spring F which goes around the heel of the shoe and has its ends connected by fastening devices E to the connecting members A which extend to the toe-irons H. Attached to the fastening devices E is a cable B which is loosely mounted inside spiral springs J, one end of which is fastened to the devices E. The bight of the cable B is connected to the tightening device D and at each side of the ski the cable extends beneath the ears G attached to the edge of the ski, preferably adjacent to and forward of the fastening devices E.

The connecting members A may consist of a cable, leather strap or iron bar 1, which at one end is fastened to the toe-iron H by a hook or eye 2 which engages the bolt 3 attached to the toe-iron. The opposite end of the member A is connected to the fastening device E which has a hook 4 formed integral therewith for attaching the ends of the cable B. The fastening device E may be connected with the coil spring F by a conventional adjusting device C now commonly used. The cable B rests loosely within the spiral spring J and is attached to the hook 4 and extends along the side of the ski passing through the tightening device D and along the opposite side of the ski to the corresponding hook on the opposite side. As seen in Fig. 1, the spring J stretches from the hook 4 to a point under the toe of the boot, where a mounting 5 is screwed on the edge of the ski, so that the spring is taut between the mounting 5 and hook 4. The tightening device D may be of conventional type.

In Fig. 2 and Fig. 3 the detail construction of a modified form of tightening device D' is shown, together with a new type of spring J' which is mounted in front of the toe of the boot. The device D' includes a channel bracket 6, U-shape in cross section, which is screwed on the top of the ski. In the vertical flanges of the bracket, as shown in Fig. 2, longitudinal slots 7 are formed which may be slanting, and slidably mounted in the slots is a transverse bolt 8. One end of the spring J' is fastened to the bolt 8 and its opposite end is attached to the top of the ski by a mounting 5'. A lever 9 is also pivotally mounted on the bolt 8 and pivotally connected to the lever 9 by means of bolts 11 are parallel arms 10 and secured between the arms is a cable-attaching device 12 having a series of notches to adjustably receive the bight of the cable B.

In Figs. 4, 5, and 6 the detail construction of a modified form of fastening device E' is shown, which consists of a metal plate 13 which is slidably mounted within the flanges 20 of the plate 14. The plate 13 is provided with an aperture 15

at its outer end which may be fastened direct or through a connection to the toe-iron H. A leaf spring 16 is affixed to the side of the plate 13 by a rivet 17 and is provided with a pin 18 fitting loosely in a hole through the plate which is adapted to engage in one of a series of openings 19 formed in the plate 14. The outer end of the plate 14 is provided with an eye 21 to which the spring F is connected, and formed integral with the plate is a depending hook 22 for fastening the cable B thereto.

Under normal going, the tightener D or D' is released whereby the downward pull is abolished, allowing the heel and the foot to lift or drop freely, thus operating as an ordinary tour binding. Under movement, the spring J will be elastic, when the heel is lifted, giving the foot free movement, and the cable B lying within the spring J, which is fixed to the edge of the ski, will not drag on the ground, as this is prevented by the spring J.

If the binding be provided with the device D' shown in Figs. 2 and 3, and the binding be used for touring, the arm 9 is turned down against the device 12, which then will lie against the ski with the channel bracket 6 between the two arms 10. The bolt 8 will then be in the position as shown in Fig. 2, and the cable B will be slack, without trailing on the ground, the spring J' holding it raised. If the heel moved up and down, the spring J will move elastically in the slot 7, thereby holding the cable B raised without restricting the movement of the foot. The spring J' has also here the same mission as the springs shown in Fig. 1, if the binding is to act as a slalom binding, the arm 9 is turned over towards the spring J', whereby the bolt 8 under spring-pressure is carried in the slot 7 to the opposite end, which forms a point of support for the cable B which is attached to the device 12. The cable B will then allow only a very nominal lifting of the heel.

The fastening device E' shown in Figs. 4–6 is also used for the adjustment of the rod A. If the spring 16 is lifted, the pin 18 is removed from insertion in the openings 19 of the plate 14, and it may be moved forward or backward until the distance be suitable, when the spring is released thereby pushing the pin into a corresponding hole 19.

I claim:

1. A ski fastening attachment comprising toe-irons, a coil spring adapted to surround the heel of a shoe, adjustable means connecting the ends of said spring with said toe-irons, a cable having its ends connected with the ends of said spring, a tightening device mounted on the ski forward of said toe-irons having engagement with said cable, ears projecting from the sides of the ski beneath which said cable is trained to cause a downward pull of the cable when tightened and means for holding said cable out of contact with the ground when loose.

2. In a ski fastening attachment, the combination with a tour binding including a coil spring for surrounding the heel of a shoe having its ends connected to the toe-irons of the ski, of a cable having its ends attached to the ends of the coil spring, ears projecting from the sides of the ski forward of the coil spring beneath which said cable is trained to cause the cable to pull in a downward direction when drawn tight, a tightening device attached to the top of the ski forward of the toe-irons comprising a pivotally and slidably mounted lever adapted to move longitudinally of the ski, means connecting the bight of said cable to said lever intermediate its ends, so that pivotal movement of said lever will tighten or loosen said cable, and a spring connected with said lever adapted to permit a limited movement of the cable when drawn tight and to hold the cable taut when loosened.

3. In a ski fastening attachment, the combination with a tour binding including a coil spring for surrounding the heel of a shoe having its ends connected to the toeirons of the ski, of a cable having its ends attached to the ends of the coil spring, ears projecting from the sides of the ski forward of the coil spring beneath which said cable is trained to cause the cable to pull in a downward direction when drawn tight, a tightening device attached to the top of the ski forward of the toe-irons comprising a channel bracket having longitudinal slots in its walls, a bolt slidably mounted in the slots of said bracket, a lever pivotally connected at one end to said bolt, an arm pivotally attached at one end to said lever intermediate its ends adapted to engage the bight of said cable, and a spring having one end connected to said bolt and its opposite end attached to the ski forward of said bracket.

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