

July 31, 1956

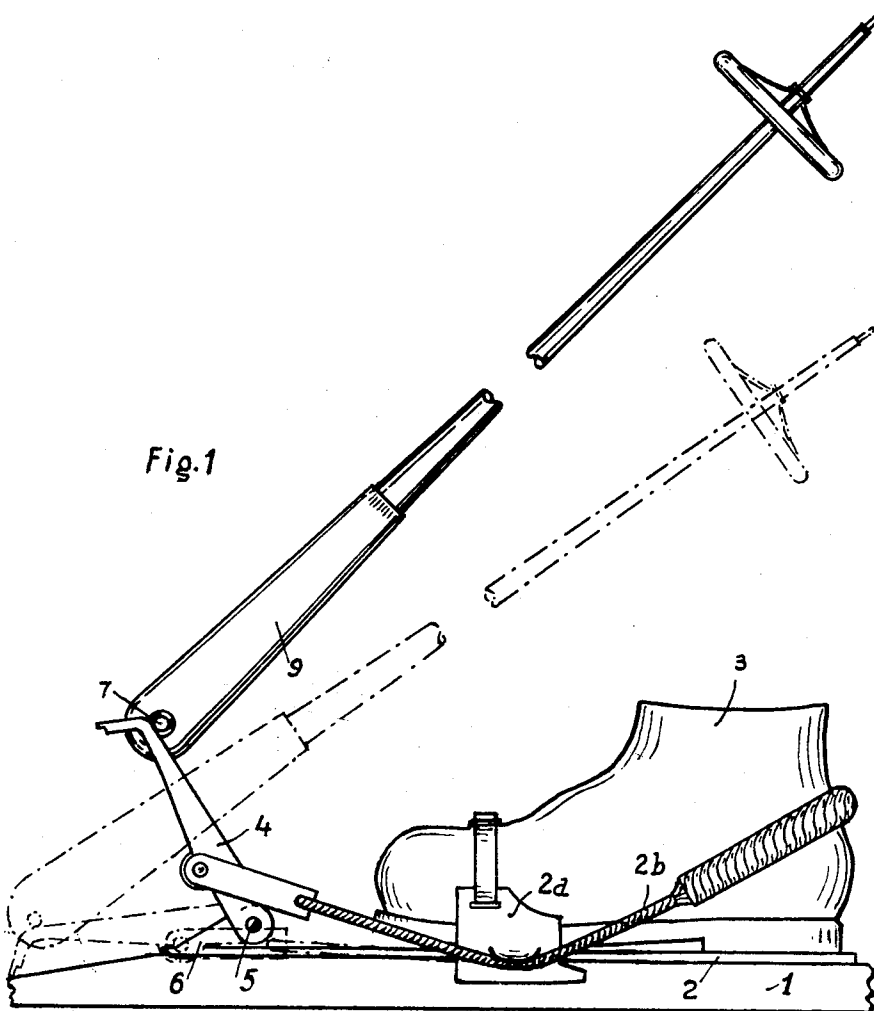
B. R. DORMOY

2,757,011

SKI-BINDING OPERATING DEVICE

Filed June 28, 1952

3 Sheets-Sheet 1



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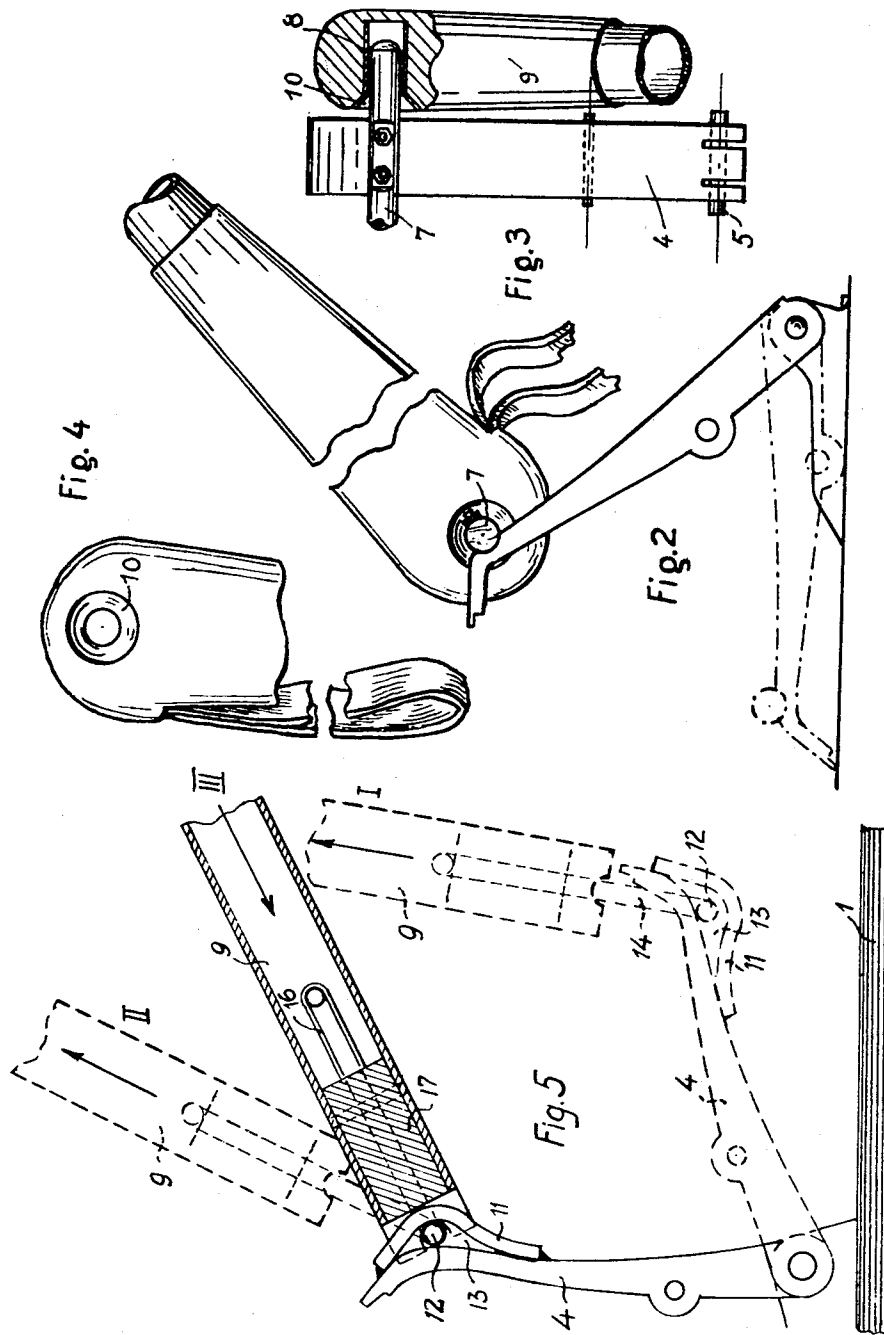
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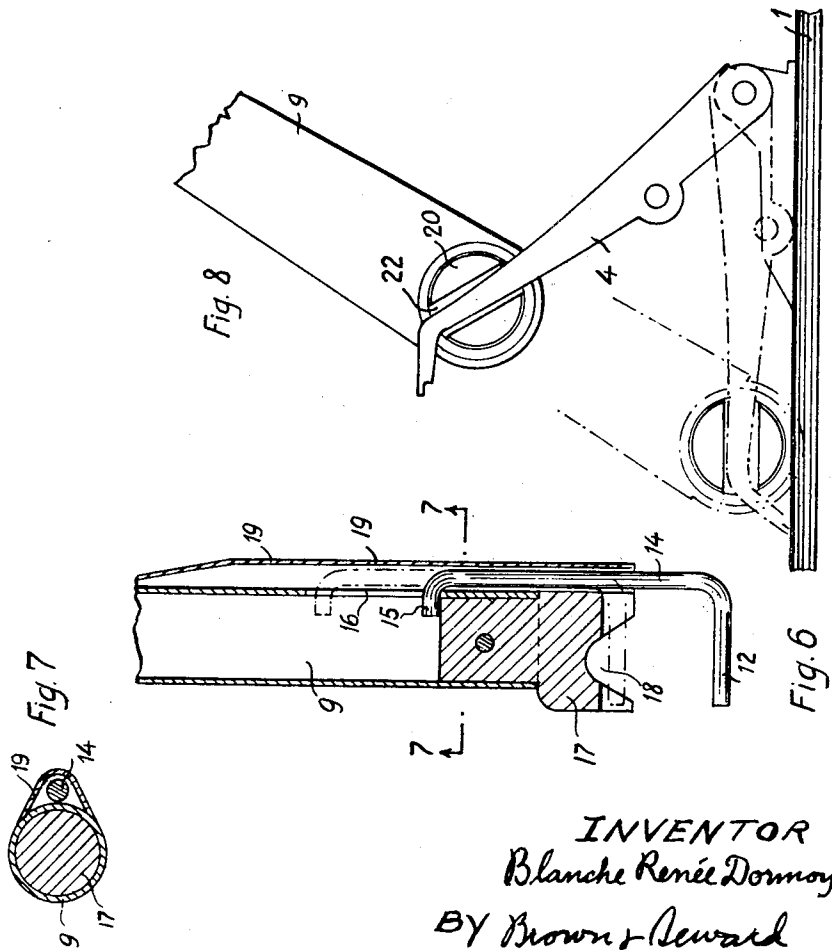
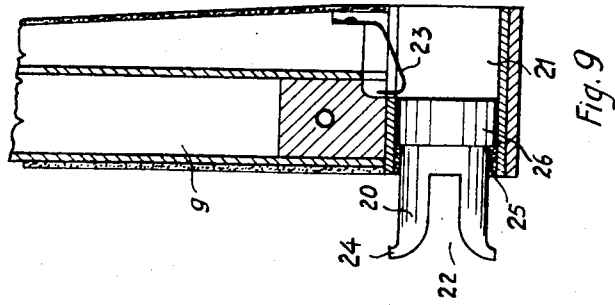
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**SKI-BINDING OPERATING DEVICE**

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1 Claim. (Cl. 280—11.35)

This invention relates to a device for operating a ski-binding by means of a ski-stick.

In ski-bindings such as shown in Reed Patent No. 2,176,226, October 17, 1939, the shoe is held in the toe-iron under the diagonal action of a spring cable running around the heel of the shoe, said cable being suitably tightened or released by means of an operating lever articulated on the ski ahead of the shoe about an axis right-angled to the ski longitudinal axis. The cable is secured on this lever so as to be tightened when the lever is rotated forward and so as to urge the lever into such forward rotation beyond a well-defined angular position of the lever or dead-point. Now, to bring the lever into said position, the skier had heretofore to exert directly on the lever with the fingers a considerable force to overcome the action of the spring cable, which action progressively increases up to the dead-point as the cable is more and more tightened. Moreover, to reach the lever, the skier has to crouch down on his heels, which makes the operation of the lever still more difficult. To release the binding, the main difficulty is to grip, especially with ski-gloves, the free end of the lever which is then kept in contact with the ski under the action of the cable.

An object of my invention is to provide means for removably articulating one end of a ski-stick on the operating lever of a ski-binding whereby the skier, without having to leave standing position, can remotely operate the lever, then acting as a crank, through the ski-stick then acting as a connecting rod articulated with said crank.

In an embodiment of my invention, one end of a ski-stick is provided with female articulation means adapted to be engaged on male articulation means provided on a ski-binding lever to be operated.

In an alternative embodiment of my invention, one end of a ski-stick is provided with male articulation means adapted to be engaged into female articulation means provided on a ski-binding lever to be operated.

Another object of my invention is to provide a ski-stick of the type described in the preceding paragraph, wherein said male articulation means are retractable into said stick.

Still a further object of my invention is to provide a ski-stick with a permanently articulated member adapted to be made removably fast with an existing element of a ski-binding lever to be operated.

This arrangement offers the advantage of permitting operating with such a ski-stick several patterns of diagonal ski-bindings without having to modify the latter.

Other objects and advantages of the invention will be apparent from the following detailed description, together with the accompanying drawings, submitted for purposes of illustration only and not intended to define the scope of the invention, reference being had for that purpose to the subjoined claim.

In these drawings:

Fig. 1 shows a ski-binding and a ski-stick designed according to a preferred embodiment of the invention.

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Fig. 2 is a detailed view showing the actuation of a ski-binding by means of the stick of Fig. 1.

Fig. 3 is a detailed view of the articulation of the stick on the operating lever.

Fig. 4 is a partial elevational view of the stick handle.

Fig. 5 shows another embodiment in which the ski-stick is provided with a retractable hook.

Fig. 6 is a vertical section of the hook-carrying end of the ski-stick shown in Fig. 5.

Fig. 7 is a detail section taken on the line 7—7 of Fig. 6, looking in the direction of the arrows.

Fig. 8 is a side elevational view of a further embodiment of the invention, in which the ski-stick is provided with a retractable articulated slotted sleeve, the operating lever itself being not modified.

Fig. 9 is a vertical section of the sleeve-carrying end of the ski-stick shown in Fig. 8.

In the diagrammatical view of Fig. 1, there is shown at 1 a portion of a ski, at 2 the foot-plate of a ski binding, on which is resting the shoe 3 of a skier, said shoe being engaged in the toe-iron 2a and being held in proper position by means of a cable 2b.

4 is the operating lever of cable 2b. Said lever is articulated at 5 around an axis right-angled to the longitudinal axis of the ski on a strap member 6 secured on the ski.

In the embodiment of Figs. 1 to 4, the device according to the invention is essentially constituted by a rod 7 fixedly secured on lever 4 substantially parallel to the articulation axle 5 of said lever and by a hole 8 having a circular section slightly wider than that of rod 7, said hole being provided in a side face of the handle 9 of the ski-stick near the end of said handle. Hole 8 is adapted to be engaged on rod 7, as clearly shown in Fig. 3, so as to establish a provisory articulation between handle 9 and lever 4.

In the example shown, instead of providing a simple hole in the tubular wall, a solid member provided with a blind hole has been fitted in the end of said tubular wall and a cylindrical socket 8 has been fitted in said blind hole, said socket being adapted to be engaged on rod 7 and the axis of said socket being substantially right-angled to the longitudinal axis of handle 9.

As shown in Fig. 3, to permit operating lever 4 by means of a stick provided with such a hole, it suffices to secure, by means of screws, rivets, welding points or the like, on lever 4, the small cylindrical rod length 7 on which is preferably provided a flat portion in the part of the rod which is in contact with the surface of the lever, said rod extending on one side or on either side of said lever. Such a rod may be mounted easily and quickly.

It is to be understood that any ski-binding comprising such a rod may be operated by means of a ski-stick according to the invention.

On the other hand, as shown in Figs. 3 and 4, the outer end of the cylindrical socket 8 is preferably slightly flared out to facilitate the introduction of the rod therinto. The edge of said flared end is preferably folded back on the edge of the hole cut in the leather coating of the handle.

In the embodiment of Figs. 5 to 7, the operating lever 4 is provided with a bridge member 11, the space 13 comprised between said bridge member and the lever being adapted to receive a pin 12 secured on the end of handle 9 and substantially right-angled to the longitudinal axis of said handle.

In the example shown in Figs. 5 to 7, said pin 12 is constituted by one end folded by 90° of a rod 14, the other end 15 of which, also folded by 90°, is slidably mounted in a slot 16 provided, for this purpose, near the end of handle 9.

A member 17 having a suitable shape has a tight fit in the tubular end of handle 9 and is provided, on its outermost face, with a notch 18 adapted to bear on the operat-

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ing lever during the operation steps implying a pushing action. Rod 14 is covered on side of the handle by a protecting plate 19. The slidable mounting of rod 14 permits retracting the same into the handle, as shown in dot lines in Fig. 6. When the articulation device is to be used, notch 18 permits, moreover, introducing a finger under arm 12 of the rod to bring the same into the position shown in full lines in which it may be used for operating lever 4.

Finally, in the embodiment shown in Figs. 8 and 9, a slotted sleeve 20 is rotatively mounted in a cylindrical bore 21 provided for this purpose in the handle towards its end and at right-angle with its longitudinal axis. Slot 22 of said sleeve is adapted to be engaged, as shown in Fig. 8, on the end of lever 4. In operation, sleeve 20 is held outside the handle by means of a small elastic clip 23. When the sleeve is to be retracted, it suffices to introduce a finger into bore 21 and to compress clip 23 while pressing upon sleeve 20 to bring the same into its housing, small outwardly folded portions 24 being provided at the outer end of sleeve 20 to limit the stroke thereof in the retracting direction by cooperating with abutments 25 provided on the edge of housing 21. In the opposite direction said abutments prevent said sleeve from being expelled out of its housing by stopping a reinforced portion 26 of said sleeve which is then locked in this position by the elastic clip 23.

The device according to the invention operates as follows:

For actuating the operating lever 4, it suffices to engage the articulation means provided for this purpose on the handle of the ski-stick directly on said lever, in the case of the embodiment of Figs. 8 and 9, and on an ancillary articulation member provided on said lever, in the case of the other embodiments. As soon as the ski-stick and the operating lever are thus articulated, the skier can easily actuate the lever from a distance by acting upon the stick, which permits him to remain in standing position.

The releasing operation only implies a simple pull which can be exerted freely in the required direction thanks to the articulation with the operating lever; as soon as the binding is opened, a simple gesture suffices to release the ski-stick from the operating lever.

To effect the fastening operation, the first step consists in pulling on the lever to bring the same substantially in alignment with the stick (see I and II, Fig. 5).

The ski-stick is then tilted rearwards about its articulation on the lever after which a pushing action is exerted

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upon the lever to finish the fastening operation (III, Fig. 5).

The free articulation of the stick on the lever permits to pass easily the dead point since the stick may be brought for this purpose into a position in which it makes a variable angle with said lever.

It will be seen that, in the examples of Figs. 1 to 4, on the one hand, and 8 and 9, on the other hand, the pull and push actions are transmitted from the ski-stick to the operating lever through one single part, while, in the example of Figs. 5 to 7, said actions are transmitted through different members viz. pin 12 and the end of the stick (bottom of notch 13).

What is claimed is:

The combination with a ski binding comprising means to hold the toe of a boot to the ski, a toggle lever pivoted to said ski about a transverse axis located ahead of said holding means, and resilient means attached to said toggle lever and adapted to engage the heel of said boot whereby longitudinal swinging motion of said lever about said axis to a position beyond dead center will tension said resilient means to thereby urge said heel downwardly against the ski, of a device permitting to swing said lever to or from said position by means of a conventional ski-stick, said device consisting of an articulation about a single axis parallel to said transverse axis and comprising two complementary pivot elements adapted to be loosely engaged and disengaged, one of said elements forming part of the ski-stick being constituted by a hole having a circular cross-section provided near one end of the stick and the other of said elements forming part of said lever being constituted by a pin having a circular cross-section slightly smaller than that of said hole and fixedly secured on said lever near its free end.

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