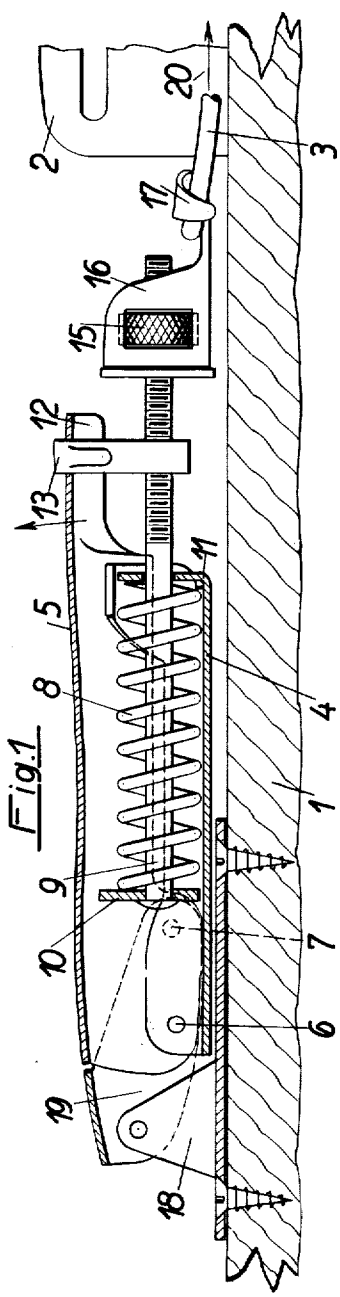
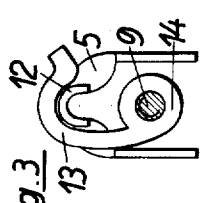
May 29, 1956 A. REHACEK 2,747,885

SKI BINDING WITH TENSION CABLE

Filed April 13, 1954 2 Sheets-Sheet 1





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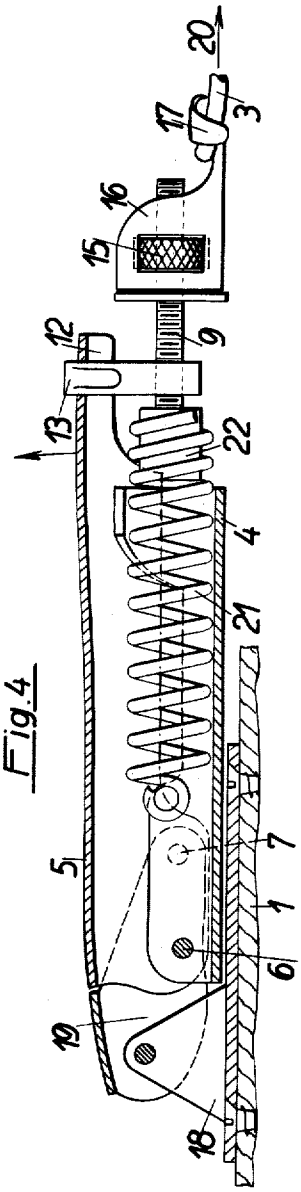


Fig.4

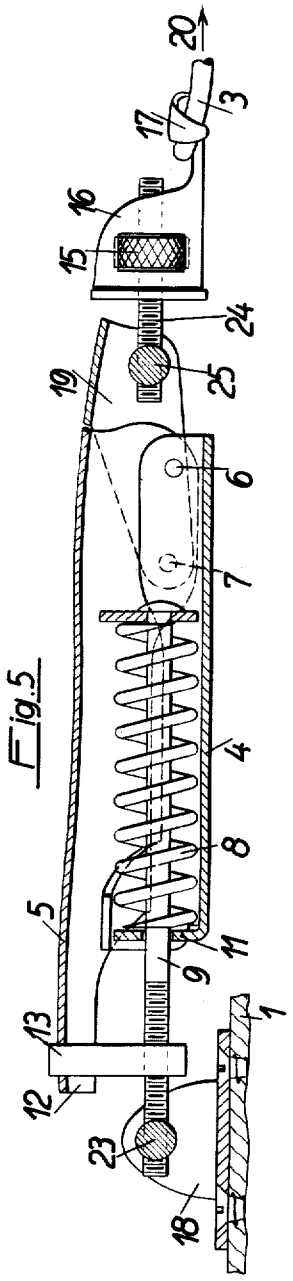


Fig.5

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SKI BINDING WITH TENSION CABLE

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7 Claims. (Cl. 280—11.35)

This invention relates to ski bindings with tension cables.

In ski bindings with a spring tightener mounted in front of the boot, the tightener and springs are arranged in front of the toe irons and the notches for the cable may be placed forwardly to such an extent as to produce a pull on the heel so strong that the heel of the skiing boot can hardly be lifted. Whereas that almost rigid grip is desired particularly by the slalom racer, it involves increased danger in the case of a fall.

To avoid that danger a ski binding has been designed in which the tightener lever is turned through its dead center into its open position when the pull on the cable becomes excessive. That construction has the disadvantage that the snow pressure acting from the front may cause a premature, undesired loosening of the binding, which would also lead to dangerous falls.

Moreover, heel cable tighteners have been disclosed which are provided with safety devices. In those tighteners the tightener lever is articulated to the cable or to one of the heel springs in such a manner that the pull of the cable on the tightener lever produces a torque in a sense tending to loosen the binding. A hook attached to one or to the other heel spring holds the tightening lever in its tightening position and releases it only when the spring is excessively strained. In such known devices, however, the detent hook is fixed to the binding base and the spring is effectively in parallel with the lever, thereby resulting in a rather bulky and cumbersome construction.

In contradistinction to these known systems, a device according to the present invention comprises a spring and an elongated, rigid member arranged in series as part of a connection linking the tension cable with the base, this connection including the tightening lever in such manner that the tension of the cable tends to swing the lever into a cable-slackening position. The detent, normally engaging an extremity of the lever, is carried by the rigid member which preferably is in the form of a threaded bolt enabling adjustment of the maximum permissible cable tension.

The drawing shows three embodiments of the invention.

Figs. 1 and 2 are side views showing the first embodiment with the tightener in tightening and relaxed positions; respectively.

Fig. 3 is an end view showing the locking member; and

Figs. 4 and 5 are side views showing two additional embodiments of the invention.

The ski **1** carries the toe irons **2**, outside of which the cable **3** extends (Fig. 1). In front of the toe irons **2** the tightener is arranged, which comprises the base part **4** and the lever **5** and contains the compression spring **8** traversed by the spring bolt **9**. The tightener is longitudinally displaceable along the ski. The compression spring **8** is held between the end wall **11** of the tightener and the end plate **10** of bolt **9**. The threaded end portion of spring bolt **9** protruding out of end wall **11**

mounts the locking member. The latter has the form of a hook **13** (Fig. 3) rigid, e. g. integral, with a hub **14** having a threaded bore. The tightener lever **5** has at its free end an extension **12**, which is engaged from above by the hook **13** when the latter is turned up. A traveling nut **15** screwed on the bolt end and partly protruding out of casing **16** enables a longitudinal adjustment of the cable. The casing **16** with the hook **17** provided thereat is connected between cable **3** and tightener **4**, **5**. A bracket **18** screwed to the ski is linked to tightener lever **5** by arms **19**.

The tension acting on cable **3** in the direction of arrow **20** is transmitted through bolt **9** and spring **8** to the tightener parts **4** and **5** and is taken up by bracket **18**. The pivots **6** and **7** of the tightener lever are arranged at such a height that the cable and the straps **19** produce a torque tending to raise the tightener lever **5**. A raising of the tightener lever is prevented, however, as long as the hook **13** holds down the lever **5** at its extension **12**. When the binding is stressed as during a run, the spring **8** may be compressed up to its admissible maximum. For this reason the relative position of locking member **13**, **14** on bolt **9** must be chosen so as to avoid a release of lever **5** during such admissible straining of the spring. On the other hand, if the tension on the cable exceeds, e. g. in the case of a fall, the upper limit of the safe spring stress, then the hook **13** following the displacement of the spring will release the extension **12** and the lever **5** will be turned up by the torque acting on it (Fig. 2). At the same time the base part **4** of the tightener follows the cable and causes the binding to become loose. The maximum stress admissible can be selected by screwing the hub **14** along bolt **9**.

In another embodiment of the ski binding, shown in Fig. 4, the tightener comprises a tension spring **21** which at one end is connected to the screw bolt **9** by the connecting piece **22** whereas the other end of the spring is joined to the pivot **6** of the tightener lever **5**. Arms **19** connected to lever **5** at pivot **7** transmit the tension of the cable from the tightener to the bracket **18**. In this case the hook **13** is also mounted on the bolt **9**. The hook **13** is longitudinally adjustable along the bolt **9** for the selection of the maximum safe spring stress. When that maximum is exceeded owing to an extreme increase of the tension of the cable, then the hook **13** will release the extension **12** and the tightener lever **5** will fly upwardly.

The embodiment of the ski binding shown in Fig. 5 differs from the construction first described mainly by the reversed arrangement of the tightener. The spring bolt **9** carries a hook **13**, which is longitudinally adjustable thereon. Preferably the bolt **9** is longitudinally adjustably fixed also in the transverse threaded-through bore in pivot pin **23** mounted in bracket **18**. This permits of an adaptation of the binding to the shoe size. The arms **19** are connected by pivot pins **7** to tightener lever **5** and transmit to the tightener the tension they receive from cable **3** through the hook **17** formed at casing **16**, a nut **15** rotatably mounted in casing **16**, and a screw bolt **24** screwed into the nut. Where the last-mentioned adjusting feature is employed, the screwed connection of bolt **9** to pivot pin **23** may be eliminated. On the other hand, the hook **17** may be fixed directly to the pivot pin **25** of arms **19**. In this case the longitudinal adjustment of the binding is effected by screwing the bolt **9** in thte pivot pin **23**.

To damp the impact exercised on other parts of the binding by the tightening lever **5** flying upwardly when released, the parts arranged to be contacted by the lever may have buffer elements such as rubber pads connected to them.

What is claimed is:

1. In a ski binding having a tension cable, a tightener base part, a tightener lever part pivoted to said base part and movable into a tightening position and arranged for connection to a ski and to be subjected to a torque tending to swing said lever part into a cable-slackening position in response to tension of the cable, a spring supported with one end on said tightener base part, and a locking member arranged to hold the tightener level part in its tightening position, the provision of a transmitting member consisting of a spring bolt connecting the other end of said spring to said cable and having an end portion protruding out of said base part and carrying said locking member.

2. In a ski binding having a tension cable, a tightener base part, a tightener lever part pivoted to said base part and movable into a tightening position and arranged for connection to a ski and to be subjected to a torque tending to swing said lever part into a cable-slackening position in response to tension of the cable, a spring supported with one end on said tightener base part, and a locking member arranged to hold the tightener lever part in its tighteneing position, the provision of a transmitting member consisting of a spring bolt connected to the other end of said spring and having an end portion protruding out of said base part and carrying said locking member, and longitudinally adjustable coupling means connecting said end portion to said cable.

3. In a ski binding having a tension cable, a tightener base part, a tightener lever part pivoted to said base part and movable into a tightening position and arranged for connection to a ski and to be subjected to a torque tending to swing said lever part into a cable-slackening position in response to tension of the cable, a spring supported with one end on said tightener base part, and a locking member arranged to hold the tightener lever part in its tightening position, the provision of a transmitting member consisting of a spring bolt connecting the other end of said spring to said cable and having a threaded end portion protruding out of said base part,

said end portion having said locking member screwed thereon.

4. In a ski binding, in combination, a tension cable, a base, first anchor means secured to said cable, second anchor means secured to said base, a rigid elongated member having one end connected to one of said anchor means, a coil spring having one end connected to the other end of said member in coaxial relationship therewith, a spring support engaging the other end of said spring, a lever pivotally connected to said support, and link means coupling said lever to the other of said anchor means; said link means, said spring and said member exerting upon said lever a torque tending to swing said lever into a cable-slackening position in response to tension of said cable; and detent means secured to said member intermediate said spring and said one of said anchor means and normally engaging a part of said lever, said detent means disengaging said lever part in response to excessive cable tension corresponding to an abnormal deformation of said spring; thereby enabling said lever to assume said cable-slackening position.

5. The combination according to claim 4, wherein said member is a bolt threadedly engaging said detent means.

6. The combination according to claim 5, wherein said second anchor means includes a bracket secured to said base and provided with a threaded bore, said bolt matingly engaging said bore.

7. The combination according to claim 4, wherein said coil partially surrounds said member.

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