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E. R. KELLER
SKI-BINDING DEVICE
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Fig. 1.

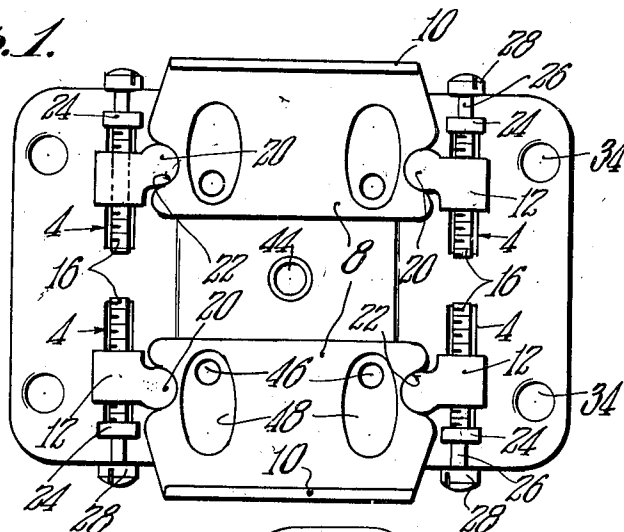


Fig. 2.

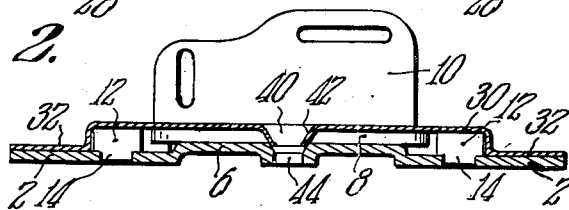


Fig. 3.

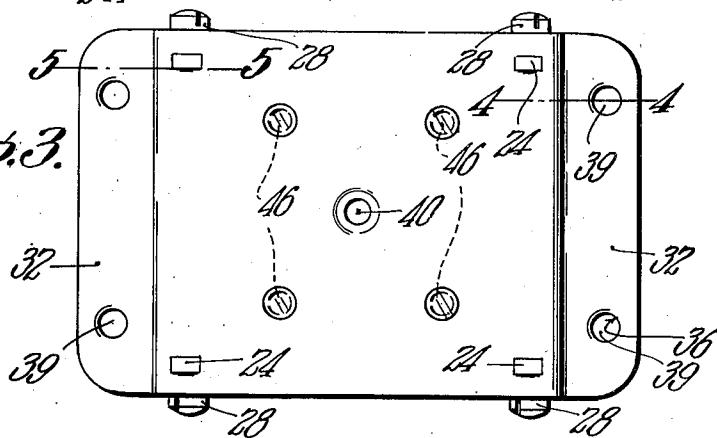


Fig. 4.

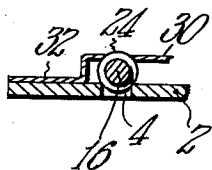
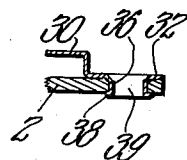


Fig. 5.

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UNITED STATES PATENT OFFICE

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SKI-BINDING DEVICE

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6 Claims. (Cl. 280—11.35)

This invention relates to improvements in ski-binding or ski-tie devices and has for its principal objects the provision of an improved ski-binding having adjustable toe irons which are adapted to snugly and efficiently fit the shoe.

According to one object of the invention, the ski-binding consists of a novel combination and arrangement of readily adjustable parts characterized by their simplicity to facilitate the production of the device at low cost.

According to another feature of the invention, the device is formed to have upper and lower plate members which are secured together in a novel manner and between which the toe irons are adjustable. As a particularly novel feature, the toe irons are adjusted by positive means so that it is possible to easily yet accurately adjust the irons to fit boots or shoes of various shapes and sizes.

Various other novel features and advantages of the invention will be hereinafter fully referred to in connection with the accompanying description of the preferred form of the invention, reference being had to the accompanying drawing wherein:

Fig. 1 is a plan view of the ski-binding device of the invention with the upper or cover plate removed;

Fig. 2 is a sectional elevational view through the device of the invention;

Fig. 3 is a plan view of the device and similar to Fig. 1 with the upper or cover plate in place;

Fig. 4 is a sectional elevational view on the line 4—4 of Fig. 3; and

Fig. 5 is a sectional elevational view on the line 5—5 of Fig. 3.

Referring now to the drawing more in detail, the invention will be fully described.

A base plate 2 is provided and this has a plurality of transverse slots 4 arranged in pairs as shown. The central portion 6 of the base plate is upset or raised somewhat as shown and on this there rests horizontal members 8 of toe irons which have upwardly-extending side portions 10.

The parts of the toe irons are movable on the upset portion 6 of the base plate 2. A nut 12 has lower tongue portions 14 which are slidable in the slots or grooves 4 and they threadedly receive adjusting bolts or screws 16.

There may be cam-like portions 20 on the nuts 12 and these are receivable in seats 22 provided in the horizontal plates 8 of the toe irons. The adjusting screws 16 preferably have collars 24 and portions 26 adjacent thereto which are re-

duced somewhat as shown. Heads 28 are provided on the outer ends of the bolts 16.

An upper or cover plate 30 has end flange parts 32 disposed in a plane below that of the main body part thereof and these rest on the end portions of the base plate 2. The main body of the plate 30 is arranged to overlie the horizontal portions 8 of the toe irons.

The base plate 2 is provided with openings such as 34 at opposite ends thereof and tubular portions 36 in the end portions 32 of the cover plate 30 extend through the openings 34 of the base plate. These portions 36 are preferably headed over at 38 so that the cover plate is thus secured in a firm manner to the lower plate 2. Also since the portions 36 are tubular, they may serve as holes through the ski-binding to receive fastening screws, bolts, or the like.

The cover plate 30 may have a central opening 40 formed by puncturing the plate and turning the metal downwardly into the form of a tube 42. This tube 42 is adapted to register with an opening 44 provided in the base plate 2 and a screw may be received therein for fastening the binding at a central part.

Other aligned openings 46 may be provided in the cover and base plates 2 and 30 and these are adapted to receive other fastening means such as screws or bolts. The horizontal plates 8 of the toe irons may be provided with slots 48 such as shown to facilitate free movements thereof and avoid interference of the said screws or bolts passing through the openings 46.

With the cover plate 30 secured to the base plate 2 in the manner described, there is provided a strong rigid structure and yet by reason of the novel manner in which the parts are assembled the need for bulky and heavy screws, bolts or the like, to fasten the device to the ski, is eliminated. In this way the structure may be relatively light in weight and inexpensive to manufacture as is desirable.

The toe irons may be adjusted at either of their ends and quite independently of one another. As a further feature, it will be seen that they are positively moved by the cams 20 which are in engagement with the seats 22 therein.

The plate 30 is provided with recesses or slots for receiving the collars 24 of the screws as shown in Fig. 5 and in this way the screws 16 are held against axial movements. Yet at the same time the screws 16 are free to rotate for moving the nuts 12 back and forth so as to adjust the toe irons.

It will be observed that the device of this in-

vention is simple in form but yet the toe-irons may be adjusted positively and accurately. With the arrangement just described, the adjustment is not likely to be disturbed in the use of the irons.

It will be seen that the toe-irons are adapted to engage shoes or boots of various sizes and that they are guided in their adjusting movements by tongues 14 on the nuts 12 as well as by the parts 20 and seats 22.

While I have described the invention in great detail and with respect to a preferred form thereof, it is not desired to be limited thereto since many changes and modifications may be made therein without departing from the spirit and scope of the invention. What it is desired to claim and secure by Letters Patent of the United States is:

1. A device of the class described comprising in combination, a base plate formed to have a raised part, a cover plate having end parts bearing on the ends of the base plate and a raised part spaced from the raised part of the base plate, means securing the said plates together, shoe-engaging members on opposite sides of the device having plates slidably guided between the raised parts of said first named plates, pairs of adjusting screws at opposite ends of said first named plates and rotatable therebetween, nuts in threaded engagement with said screws, and operative connections between said nuts and the plates of the shoe-engaging members, the said means for securing the first named plates together including tubular portions of one plate which are extended into and through openings provided in the other plate and which are headed over the outside of said opening.

2. A device of the class described comprising in combination, a base plate formed to have a raised part, a cover plate having end parts bearing on the ends of the base plate and a raised part spaced from the raised part of the base plate, means securing the said plates together, shoe-engaging members on opposite sides of the device having plates slidably guided between the raised parts of said first named plates, pairs of adjusting screws at opposite ends of said first named plates and rotatable therebetween, nuts in threaded engagement with said screws, guiding means associated with said nuts and one of said plates, and operative connections between said nuts and plates of the shoe-engaging members, said guiding means including tongues on said nuts which are slidable in guideways provided in one of said first named plates.

3. A unitary ski-binding for attachment with a ski comprising in combination, a lower plate for resting on a ski and an upper plate, the said plates being spaced apart to provide a horizontally disposed space therebetween, means for securing the plates together, adjusting screws

rotatable relative to said plates at opposite ends of said space, nuts on said screws having cams, shoe engaging members having plate portions slidable in said space and being provided with sockets which receive said cams, and guiding means associated with said nuts and one of said plates whereby the said nuts are guided for movements along said screws, the said guiding means including tongues on said nuts, said tongues being slidably received in slots provided in one of said plates.

4. A ski-binding for attachment with a ski comprising in combination, a lower plate for resting on a ski and an upper plate, parts of said plates being in abutment and parts being in spaced relation to provide a horizontal space therebetween, adjusting screws guided for rotation between said plates at opposite ends of said space, nuts on said screws provided with cams and tongue members, one of said plates being provided with guide slots parallel to said screws for receiving said tongue members whereby the said nuts are guided for movement along said screws, and shoe engaging members having plate portions in said space and being provided with sockets in which the cams of the said nuts are received.

5. A ski-binding for attachment with a ski comprising in combination, a base plate for resting on a ski, an upper plate thereover, one of said plates having offset end portions thereof in a plane spaced from the plane of other portions thereof and the other of said plates having portions resting on said offset portions whereby to provide a horizontally disposed space between the plates intermediate the ends thereof, adjusting screws rotatable between said plates at opposite ends of said space, nuts on said screws having cams at the sides and tongues at the bottoms thereof, the said lower plate having guideways in which said tongues slide whereby the nuts are guided for movement along said screws, and shoe engaging members having plates slidable in said space and being provided on opposite ends with sockets for receiving said cams.

6. In a ski binding, a base plate having adjusting elements slidable transversely thereof and each having a single lateral projection, screws for adjusting said elements, clamping members having oppositely disposed notches adapted to receive the projections on said adjusting elements, means for retaining the clamping members and said projections in alignment on the base plate and whereby said elements and members may be locked in adjusted position and said adjusting screws being readily rotatable to independently adjust the clamping members relatively to each other and with respect to the longitudinal centerline of the ski.

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