Sept. 24, 1963 W. B. DAY ET AL 3,104,888

DISASSEMBLABLE SKI

Filed June 15, 1960

FIG. 1

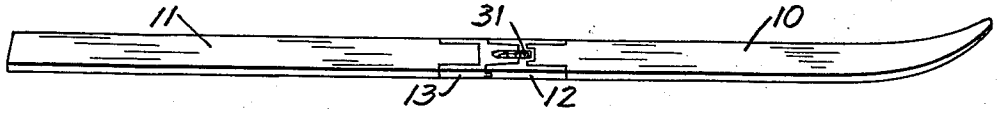


FIG. 3

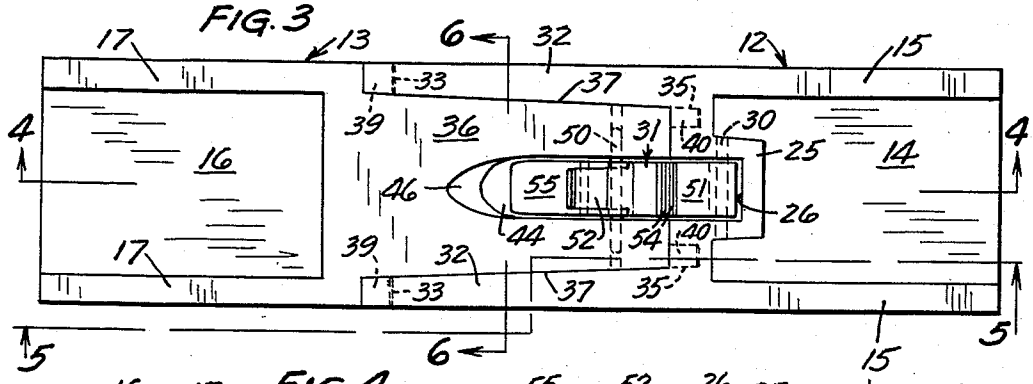


FIG. 4

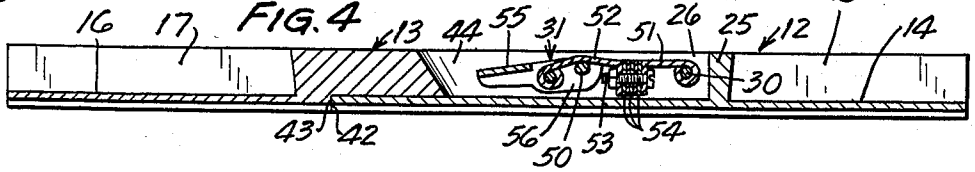


FIG. 5

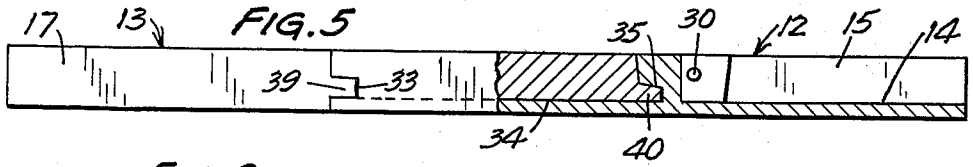


FIG. 6

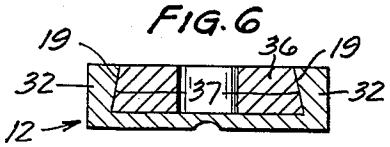


FIG. 2

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3,104,888
DISASSEMBLABLE SKI

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The present invention relates to a novel ski construction, whereby the ski can be disassembled at approximately its mid-point to facilitate carrying and handling of the ski.

The concept of having a ski which can be separated in the middle and carried in two pieces, or folded upon itself about a mid-point so that it can be stored in a small space, and the advantages attendant such a disassemblable ski, are not new. Over the past 20 years several patents have issued relating to this general concept. See, for example, Alterfer Patent No. 2,198,361, granted April 23, 1940; Svensson Patent No. 2,375,504, granted May 8, 1945; Beaudin Patent No. 2,450,538, granted October 5, 1948; and Meehan Patent No. 2,545,209, granted March 13, 1951.

Also, in recent years many types of ski bindings and harness for attaching skis to the boots of the skier have been devised. Among these are many so-called "safety" bindings by which the binding automatically releases from the boot if subjected to a sharp jerk or twist, such as when the skier falls. These various bindings and harness take many shapes. They attach to the ski at various places adjacent where the boot of the skier rests on the ski. For example, they may be attached forwardly of the boot, rearwardly of the boot, or alongside the boot. Where the binding involves the use of cables, throw clamps may be positioned alongside of the boot, or forwardly or rearwardly thereof.

It is highly desirable to the marketability and practicability of a present day ski that the same be adapted to be used with any of the various types of ski bindings or harness. This necessitates that the ski be substantially free of projections along the upper surface or sides thereof.

One principal difficulty with the various prior art suggestions, including those structures described in the prior patents above referred to, is that their assembling mechanisms involve projections extending exteriorly of the ski adjacent where the boot rests on the ski. While these projections or projecting parts might not prohibit or hamper the use of some of the various types of ski bindings and harness available on the present day market, they cannot be used with all of them.

The present invention thus has for an object the provision of a novel mechanism, rapidly and readily releasable, for disassembling the ski into approximately two equal halves, and wherein the assembling mechanism is contained entirely within the general cross-section of the ski. A more specific object involves the provision of an assembly mechanism contained entirely within the confines of the general cross-section of the ski in which engagement and disengagement occurs by the throwing of an adjustable single throw lever.

The manner in which these and other advantages and objects of the present invention are attained will be apparent from the following description of an illustrative embodiment of our invention, the description including reference to the accompanying drawing, wherein like reference characters refer to corresponding parts in the several views, and in which:

FIGURE 1 is a general view in perspective of a ski utilizing the present invention;

FIGURE 2 is an enlarged view in perspective showing the mating disassemblable parts utilized in the ski of FIGURE 1;

FIGURE 3 is a plan view of the mating disassemblable parts in their mating closed relation;

FIGURE 4 is a longitudinal section view taken along the lines 4—4 of FIGURE 3;

FIGURE 5 is a side view of the ski partially in section taken generally along the lines 5—5 of FIGURE 3; and

FIGURE 6 is a cross-sectional view taken along the lines 6—6 of FIGURE 3.

Referring now to the drawings, our novel disassemblable ski is seen to comprise a forward ski end portion 10 having an upwardly curved tip like a conventional ski and a rear end ski portion 11 shaped like the rearward half of a conventional ski. At their respective inner ends, forward ski portion 10 and rearward ski portion 11 are permanently fixed, respectively, to forward mating member 12 and rearward mating member 13. Said forward mating member 12 is affixed to ski end 10 through a channel 14 having upwardly convergent side walls into which the end of forward ski end portion 10 extends. Similarly, rearward mating member 13 is provided with a rear channel 16 having upwardly convergent side walls 17 into which ski end 11 extends.

The ski ends can be permanently affixed to their respective mating members in any fashion desired, or, as is apparent, the ski ends and its mating member can be combined into a single part. Forward mating member 12 is also provided at its mating end with an open end channel 18, the side walls 19 of which converge toward each other away from the open end thereof, and also converge toward each other in the upward direction (FIGURE 6). The inner end of the channel 14 into which forward ski end portion 10 sets is provided with a rectangular central projection 25. Within said projection 25 the inner end of channel 18 is provided with a rectangular recess 26, said recess being sufficiently deep in the forward direction so that it extends forwardly of the rearmost portion of channel 14. In this fashion, a pin 30 can extend through and be anchored in the side walls of projection 25 and extend across recess 26. A throw clamp mechanism 31 is pivotally attached to said pin, as shortly to be described.

The side walls 32 of the forward mating member 12 adjacent the open end of channel 18 are each provided with a notch extending horizontally therethrough, the lower surface of said notches 33 being flush with the floor 34 of said channel 18. The closed inner end of channel 18, adjacent the side walls 19 and flush with floor 34, is also provided with a pair of mortise slots 35 of generally rectangular cross-section.

Rearward mating member 13, at the free (mating) end thereof defines a tongue 36 shaped in all respects so as to mate with channel 18 of forward mating member 12. That is, said tongue is provided with side walls 37 which converge forwardly and which converge in the upward direction, said side walls dovetailing securely with the side walls 19 of channel 18 of the forward mating member 12. Where tongue 36 joins the main portion of rearward mating member 13, shoulders 38 are defined which complement the ends of side walls 19 of mating member 12. Projections 39 are provided on said shoulders which are conformed to fit within notches 33. Similarly, projections 40 are provided on the free end face of tongue 36, said projections mating with the mortise slots 35 in the end of channel 18.

It will be seen that when the end 36 is slid into channel 18 so that members 12 and 13 are in their mating relation, side walls 37 of said free end bear against side walls 19 of channel 18, projections 39 extend within notches 33, and projections 40 extend into depressions 35. Thus, the mating members 12 and 13 are firmly

and securely held together against any torsional or bending force applied thereto. For example, the dovetailed side walls 37 and 19, together with the projections 40 and 39, firmly resist separation of the ski ends when the ends are bent downwardly. Short of being broken, it is only by pulling the two mating members 12 and 13 apart lengthwise that they can be separated.

When the ski is assembled, only a single fine transverse line, defined by the abutting surfaces 42 and 43 of members 12 and 13, respectively (FIGURE 4), appears on the running surface.

The free end 36 of mating member 13 is provided with a longitudinal opening 44 extending entirely therethrough and having generally parallel side walls 45 and a curved inner end 46. A horizontal pin 50 extends between the side walls 45 of said slot 44, said pin being embedded within tongue 36.

Referring particularly to FIGURE 4, as previously mentioned, a throw clamp mechanism is pivotally attached to pin 30 embedded within forward mating member 12. This throw clamp mechanism comprises a forward bracket 51 and a lever support 52. Said bracket 51 and lever support 52 are held together, as shown, by bolt 53, and are separated by spacing shims 54. Pivotally affixed to the free end of lever support 52 is eccentric lever 55. Said eccentric lever is provided at its inner end with a pair of opposed spaced notched arms 56.

Bracket 51 and lever support 52 are of such dimensions (together with the thickness of spacing shims 54) that when the mating members 12 and 13 are in assembled mating relationship the throw clamp mechanism 31 can be pivoted downwardly within slot 44 in the mating member 13 so that the notched arms 56 engage the pin 50 of said rearward mating member 13. The throw lever is then pushed downwardly so that the pivotal point about which it is fixed to lever support 52 extends below a direct line extended between pins 50 and 30. Lever support 52 is bent slightly, as shown, to accommodate this relationship. Thus, any amount of pull will not cause the throw lever 55 from becoming disengaged unless the free end thereof is first lifted upwardly. When so lifted, however, it is readily disengaged and the mating members are readily separated.

Where adjustment of the clamp mechanism is desired, by simply removing bolt 53, additional shims 24 can be added, or shims removed, as necessary to lengthen or shorten the mechanism. Bolt 53 is then reinserted. Ordinarily, once the proper adjustment of the throw clamp mechanism is attained, little further adjustment is needed.

It is important to note that when mating members 12 and 13 are joined in mating relation with throw clamp mechanism 31 in clamping relation (lever 55 extending about pin 50) said clamp mechanism lies entirely within the confines of the general rectangular cross-section of said mating members. Thus, the upper surface of the ski and the side surfaces thereof, are completely free of any projections. Accordingly, any type of conventional binding mechanism can be employed with our novel disassemblable ski.

It will be apparent from the foregoing that the ski halves are readily assembled by simply sliding the mating members 12 and 13 into the mating relationship and clamping down throw clamp mechanism 31. No further manipulations are needed. When it is desired to disassemble the skis, the reverse procedure is followed. That is, the throw clamp mechanism 31 is disengaged from pin 50 and the ski halves simply pulled apart. While in the embodiment shown, the tongue-containing mating member constitutes the rear member 13 and the channeled member constitutes forward mating member 12, these can be reversed. And as previously noted, it is not necessary that separate mating members 12 and 13 be employed. Instead, if desired, the inner ends of the two ski halves themselves may be conformed to the shape of the mating members.

Having now described our invention with the aid of a specific illustrative embodiment, equivalent structures undoubtedly will suggest themselves. However, it is not our intention to be limited to the specific embodiment shown, but instead we intend to be limited only by the specification taken as a whole, including the appended claims.

We claim:

1. A disassemblable ski comprising forward and rearward ski ends, said forward and rearward ends joining together through abutting mating inner end members, the general cross-sectional shape of said forward and rearward ski ends continuing through said inner end members when joined in mating relation, one of said inner end members containing in the upper surface thereof an open end channel having converging side walls, the other of said inner end members having a tongue slidable in and out of said channel, the side walls of said tongue being contoured to mate with said convergent side walls of said channel with said mating side walls retaining said ski ends together against torsional and bending forces when said inner end members are joined in mating relation, and longitudinally movable cooperating releasable means in said mating members for releasably retaining said members in joined mating relationship under longitudinal tension, said means when in retaining position being confined entirely within the confines of said cross-sectional shape.

2. A disassemblable ski comprising forward and rearward ski ends each having affixed at the inner ends thereof a mating member, said ski ends joining together through said mating members in abutting mating relation with the general cross-sectional shape of said forward and rearward ski ends continuing through said mating members, one of said mating members being provided in the upper surface thereof with an open end channel, the side walls of said channel converging both upwardly and longitudinally away from the open end thereof, the other of said mating members having a tongue slidable in and out of said channel, the side walls of said tongue closely mating and dovetailing with the side walls of said channel with said mating side walls retaining said ski ends together against torsional and bending forces when said inner end members are joined in mating relation, an opening on said tongue adjoining said channel, cooperative adjustable releasable clamp means cooperatively disposed in said channel and said opening for clamping said mating members together under longitudinal tension, said clamp means when in clamping position being defined entirely within the confines of said cross-sectional shape.

3. For use in disassemblable skis, a pair of mating members, said mating members joining in abutting relation at their mating ends to define a generally rectangular cross-section and being adapted at their other ends for affixation to ski ends, one of said mating members being provided on the upper surface thereof with a channel opening at the mating end thereof, the side walls of said channel converging both upwardly and longitudinally away from the open end thereof, the other of said mating members having a tongue slidable in and out of said channel, the side walls of said tongue closely mating and dovetailing with the side walls of said channel with said mating side walls retaining said mating members together against torsional and bending forces when in mating relation, an opening on said tongue adjoining said channel, adjustable releasable clamp means cooperatively disposed in said channel and said opening for clamping said mating members together under longitudinal tension, said clamp means when in clamping position being confined entirely within the confines of said cross-sectional shape.

4. For use in disassemblable skis, a pair of mating members, said mating members joining in abutting relation at their mating ends to define a generally rectangular cross-section and being adapted at their other ends for affixation to ski ends, one of said mating members being provided on its upper surface at the mating end thereof with an open end channel having converging side walls, the other of said mating members having a tongue slidable in and out of said channel, the side walls of said tongue being contoured to mate with said convergent side walls of said channel with said mating side walls retaining said mating members together against torsional and bending forces when in mating relation, and longitudinally movable cooperating releasable means in said mating members for releasably retaining said members in joined mating relationship under longitudinal tension, said means when in retaining position being confined entirely within the confines of said cross-sectional shape.

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