April 28, 1970 A. F. LOCKWOOD 3,508,288

RELEASABLE WATER SKI BOOT STRUCTURE

Filed April 29, 1968

FIG. 1

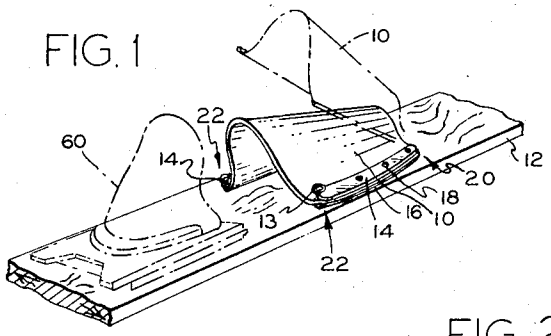


FIG. 2

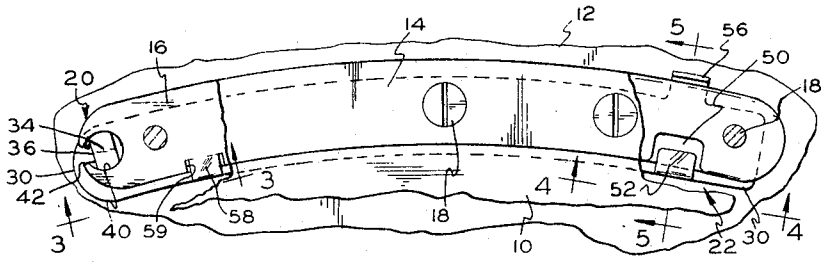


FIG. 3

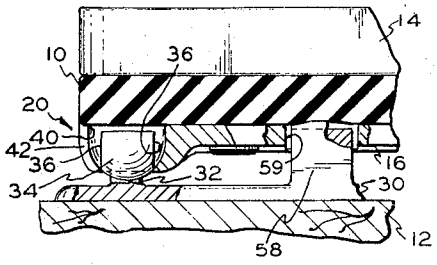


FIG. 4

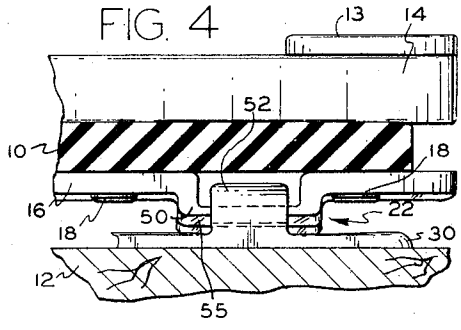


FIG. 6

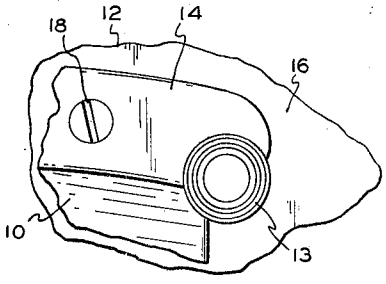
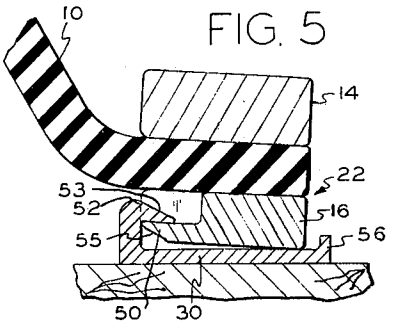


FIG. 5



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RELEASABLE WATER SKI BOOT STRUCTURE

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ABSTRACT OF THE DISCLOSURE

A flexible boot **10** is secured to a ski **12** by edge strips **14** and **16** hinged to the ski at their front ends by releasable ball and socket joints **20** and releasably latched to the ski by latches **22**. When a button **13** is pressed downwardly, a guiding post **58** and a cam **53** of a hook **52** cams a catch portion **50** to a latched position.

This invention relates to releasable water ski boot structures, and more particularly to boot structures releasably latched to skis at rear corners of the boot structures.

An object of the invention is to provide releasable water ski boot structures.

Another object of the invention is to provide boot structures releasably latched to skis at rear corners of the boot structures.

A further object of the invention is to provide a water ski boot structure in which at least one rear corner is releasably secured to the ski so that a skier can get into and out of the boot and a heel binding without changing the position of the heel binding.

Another object of the invention is to provide a water ski binding in which at least one forward corner of a boot is hinged to the ski and a rear corner is releasably secured to the ski by a latch.

Another object of the invention is to provide a water ski binding in which a boot is fixedly secured at one side edge to the ski and is releasably secured at its other edge for complete separation of the latter edge from the ski.

Another object of the invention is to provide a water ski boot which may be easily latched while the skier and ski are in the water.

Another object of the invention is to provide a ski boot which can be easily detached from and replaced on a ski.

Another object of the invention is to provide a ski boot from which the foot of a skier can be released and inserted without changing the adjusted position of a heel binding on the ski.

Another object of the invention is to provide a separable ball and socket joint.

The invention provides releasable water ski boot structures in each of which at least one rear corner of a boot is releasably latched to a ski so that the skier can insert his foot into the binding and remove his foot therefrom without changing the setting of a heel binding used therewith. In a boot structure forming one specific embodiment of the invention, the front end of a flexible boot is hinged to the ski by releasable ball and socket joints and the rear end of the boot is secured to the ski by a pair of individually releasable latches.

In the drawings:

FIG. 1 is a fragmentary, perspective view of a water ski having thereon a binding including a releasable boot structure forming one embodiment of the invention;

FIG. 2 is an enlarged, fragmentary, top plan view of the water ski of FIG. 1;

FIG. 3 is an enlarged vertical sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is an enlarged vertical sectional view taken along line 4—4 of FIG. 2;

FIG. 5 is an enlarged vertical sectional view taken along line 5—5 of FIG. 2; and

FIG. 6 is an enlarged, fragmentary, top plan view of the releasable boot structure of FIG. 1.

Referring now in detail to the drawings, a boot or vamp **10** of flexible, somewhat elastic, plastic material is releasably secured at its side edge portions to a water ski **12** by clamping strips **14** and **16** secured together by fasteners **18**. The forward end portions of the clamping strips are loosely hinged to the ski for hinged, limited universal movement by loose, releasable ball and socket joints **20**, and the rear end portions of the strips are releasably secured to the ski by latches **22**. The strips **14** are identical but allochiral, as are the strips **16**, and the side edge portions of the boot are securely clamped by the strips along substantially the entire lengths of the side edge portions of the strips.

Each joint **20** (FIGS. 2 and 3) includes a base plate **30** secured by screws to the ski **12** and having integral therewith a post **32** having an enlarged, upper ball head **34** having a pair of parallel side flats **36** and a flat top **38** spaced downwardly from the adjacent bottom face of the boot **10**. A socket portion **40** of the strip **16** has an elongated, narrow, forwardly positioned slot **42** which will pass over the head **34** only when the strip **14** is turned at a substantial angle, about 90°, to the normal, latched skiing position of the strip **16**, in which the strip **16** extends substantially longitudinally of the ski. This permits the strip **16** to be released from the ball head **34** when the strip is deliberately swung through that angle while normally loosely hinging the strip **16** to the ball head **34**.

The rear end portion of each strip **16** (FIGS. 2, 4 and 5) includes a depressed looped or catch portion **50** adapted to slip under a hook **52** carried at the inside edge of the rear portion of the base plate secured to the ski by screws. An upstanding tab or stop **56** keeps the portion **50** under the hook **52** except when the strip **16** is turned counterclockwise, as viewed in FIG. 5, from its normal position in which it is normally held by the flexing and tension of the boot, the side edge portion of the boot normally tending to be planar and to turn the strips **14** and **15** clockwise from the positions thereof shown in FIG. 5.

When either latch **22** is released, that side of the boot **10** and the strip **16** at that side can be pivoted about the ball head **34** to permit the skier's foot to be inserted or removed without disturbing the setting or adjustment of a known heel binding **60**. Also, if desired, the edge of the boot and the strip **16** can be turned about a vertical axis centered on the ball head **34** until the elongated opening **42** matches the projected area of the ball head and the strip **16** then can be slid off the ball head. When the skier's foot is in the binding and the latches **22** are secured, the flexed edge portions of the boot securely hold the portions **50** under the hooks **52**. If desired, one side edge of the boot may be permanently attached to the ski and only one of the strips **14**, one of the strips **16** and one of each joint **20** and latch **22** be used on the other side edge of the boot. However, with the pairs of strips **14** and **16** and pair of joints **20**, as disclosed, the boot **10** is hinged for movement to the broken line position thereof shown in FIG. 1, after the rear corner portions have been unlatched.

A guiding post **58** is provided on the forward, inside edge portion of each of the base plates **30**. The post **58** is flush with the inside edge of the base plate **30**, and when the rear end of the strip **16** is swung, while raised slightly from its latched position, to a position somewhat inward from its position shown in FIG. 5 and in which the catch portion **50** is over cam portion **53**, a wall **59** of an inwardly facing notch in the strip **16** engages the post **58** to prevent further inward swinging of the rear end of

the strip **16**. Then, when the thumb of the skier presses downwardly an inwardly located button **13**, beveled or cam surface **55** of the catch portion **50** engages cam surface **53** of the catch **52** and cams the catch portion **50** to the right, as viewed in FIG. 5, until the lefthand edge of the catch portion snaps off the righthand edge of the hook **52**. Then, the tension of the boot pulls the catch portion **50** under the hook portion **52**, and the righthand side edge portion of the strip **16** slides off the stop **56** and against the base plate **30**. The looped or catch portion **50** then cannot be slipped out from under the hook until the strip **16** is twisted counterclockwise sufficiently for the strip **16** to clear the stop **56** and be slid to the right. The button **13** is provided at the inner side edge portion of the strip **14** so that, when the button is pressed downwardly to effect latching, as described above, the inner edge of the strip **16** is pressed downwardly while the outer edge rests on the stop **56**. The hook **52** keeps the strip **16** elevated sufficiently for its lower lefthand corner to clear the stop **56** while the strip **16** is on the hook **52**. If, at the start of the latching operation, the rear end of the strip **16** is both too high and is swung too far inwardly, the bottom of the strip **16** engages the top of the post **58** when the button **13** is pressed downwardly and since the strip **16** is inclined downwardly and to the right, as viewed in FIG. 5, and the top of the strip also is inclined parallelly to this, the strip first cams off the post **58** and then cams off the hook **52** and snaps into its latched position. When the strip **16** is in its latched position, the post pushes somewhat into the boot to urge the strips **14** clockwise as viewed in FIG. 5.

To enable a skier to easily get his foot out of the boot **10** and heel binding **60**, he merely grasps the outer edge portion of the strips **14** and **16**, turns the strips **14** and **16** slightly counterclockwise, as viewed in FIG. 5, and pulls the strips to the right to pull the catch portion out from under the hook **52**. To latch the boot, the skier merely places his fingers under the ski and presses down on the button **13** with his thumb until the catch portion snaps under the hook **52**.

The above-described boot structures may be easily released but only by deliberate unlatching, and also may be easily latched by simply pressing down on the button **13**. Each permits easy insertion and removal of the skier's foot when one rear latch is released and without disturbing the setting or adjustment of the adjustable rear binding. The boot with the strips **14** and **16** can be quickly removed from the ski for repair or replacement without removing the base plates **30**. The ball joints are easily removed if this is done deliberately but are not accidentally separable in normal handling of the ski. The boot is easily latched even while the ski and skier are in the water.

It is to be understood that the above-described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. In a releasable water ski boot structure,

a boot,

first securing means for securing one side edge portion of the boot to a water ski,

and second securing means including releasable latch means for securing the other side edge portion of the boot to the water ski.

2. The structure of claim **1** wherein the releasable latch means is at the rear of said other side edge portion of the boot.

3. The structure of claim **2** wherein the second securing means include hinge means hinging the front of said other side edge portion of the boot to the ski.

4. The structure of claim **3** wherein the hinge means is separable.

5. The structure of claim **4** wherein the hinge means is separable only when said other side edge portion is swung to a first position at a substantial angle relative to a normal, holding position of said other side edge portion.

6. The structure of claim **5** wherein the hinge means includes a ball joint member having a ball with flattened sides and also includes a clamping strip secured to the boot and having a socket receiving the ball and an elongated opening adapted to pass over the ball when in said first position and not to pass over the ball when not in said first position.

7. The structure of claim **6** wherein the clamping strip has a first latch portion at its rear end, and including a second latch portion secured to the ski and adapted to engage the first latch portion.

8. The structure of claim **7** wherein one of the latch portions is hook-like.

9. The structure of claim **1** wherein the second securing means is adapted to completely release said other side edge portion from the ski.

10. The structure of claim **1** wherein the releasable latch means includes a first catch member carried by said other side edge portion of the boot and a second catch member carried by the ski and adapted to interlock with the first catch member when said other side portion is pressed downwardly toward the ski.

11. The structure of claim **10** wherein the boot is elastic and tension on the boot tends to hold the second catch member in engagement with the first catch member.

12. The structure of claim **10** wherein the second securing means includes hinge means at the forward end of said other side edge portion of the boot serving to hinge said other side edge portion of the boot for vertical pivot movement thereof relative to the ski,

the second catch member being secured to the rear end portion of said other side edge portion of the boot,

the first catch member being secured to the ski to the rear of the hinge means and in a position adapted to interlock with the second catch member when said other side edge portion of the boot is pivoted downwardly toward the ski.

13. The structure of claim **12** wherein the hinge means also permits horizontal pivotal movement of said other side edge portion, the first catch member comprises a hook opening downwardly and outwardly and the second catch member comprises a loop portion adapted to move inwardly under the hook and upwardly into engagement with the hook.

14. The structure of claim **13** wherein the second securing means includes a base plate secured to the ski and holding the hook, an upstanding stop on the base plate spaced outwardly from the hook and adapted to be engaged by said other side edge portion and hold the loop portion under the hook until the outer edge of said other side edge portion is lifted to a position above the stop, the boot serving to bias the outer edge of said other side edge portion downwardly toward the ski.

15. The structure of claim **13** wherein the hook includes a camming portion adapted, when the loop portions is pressed downwardly on the cam portion, to slide the loop portion outward relative to the ski until the loop portion slides off the cam portion after which tension on the boot pulls the loop portion under the hook.

16. The structure of claim **15** wherein the hinge means is a universal joint.

17. The structure of claim **15** including guiding means on the ski and the boot adapted to guide the loop portion into engagement with the cam portion when the loop portion is pressed downwardly toward the ski.

18. The structure of claim **12** wherein the hinge means comprises a ball joint.

19. The structure of claim 18 wherein the ball joint includes a ball member having parallel flats on opposite relieved sides thereof and being of a diameter greater than the distance between the flats,

the ball joint also including a socket member having a slot adapted to pass over the flats when oriented with the sides of the slot parallel to the flats and not to pass over the spherical portion of the ball when oriented with the sides of the slot not parallel with the flats.

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