Oct. 1, 1968 R. L. WEIBLING 3,403,919

SKI DEVICE WITH DEMOUNTABLE WHEELS

Filed Feb. 18, 1966 4 Sheets-Sheet 1

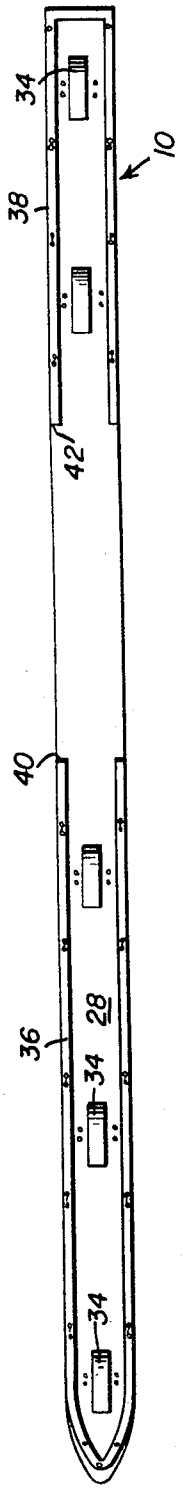

Fig. 1

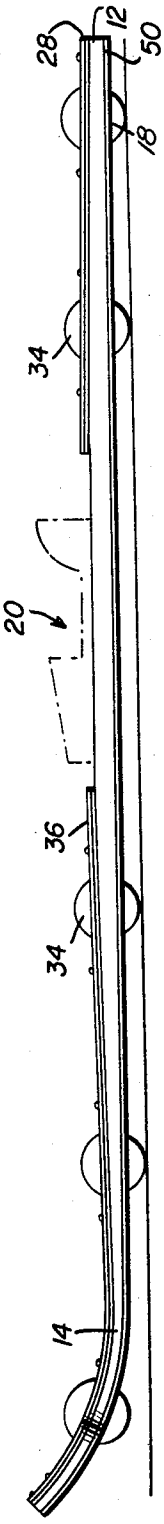

Fig. 2

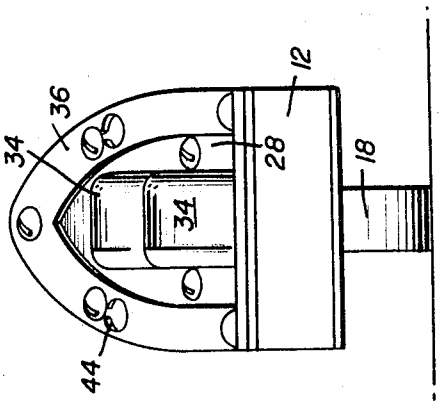

Fig. 4

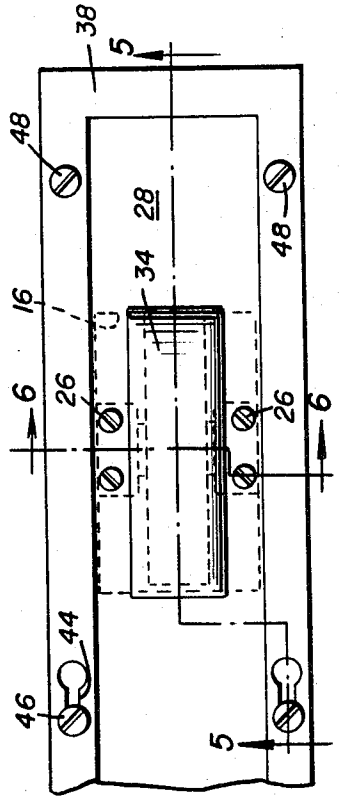

Fig. 3

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SKI DEVICE WITH DEMOUNTABLE WHEELS

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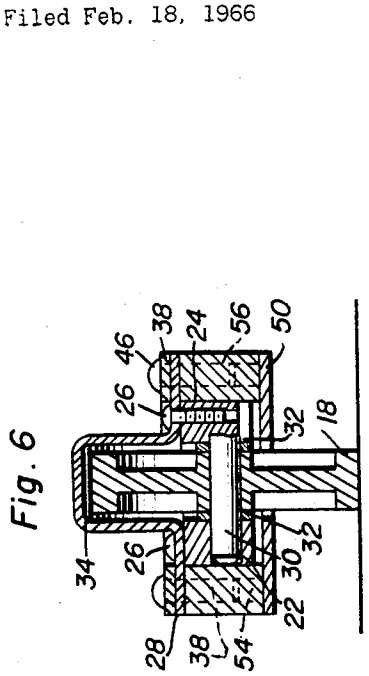

Fig. 6

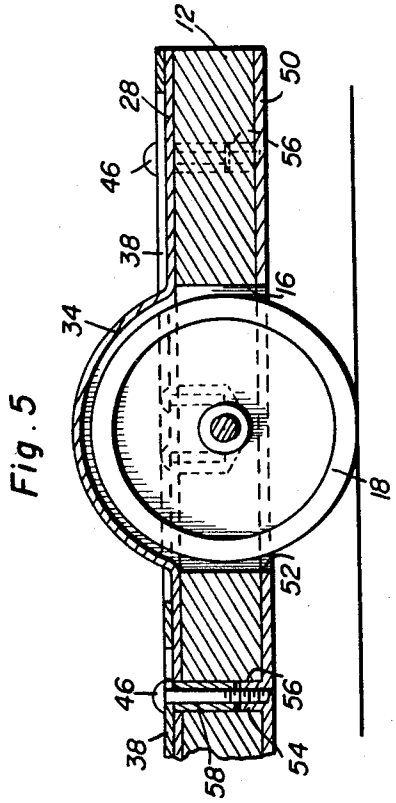

Fig. 5

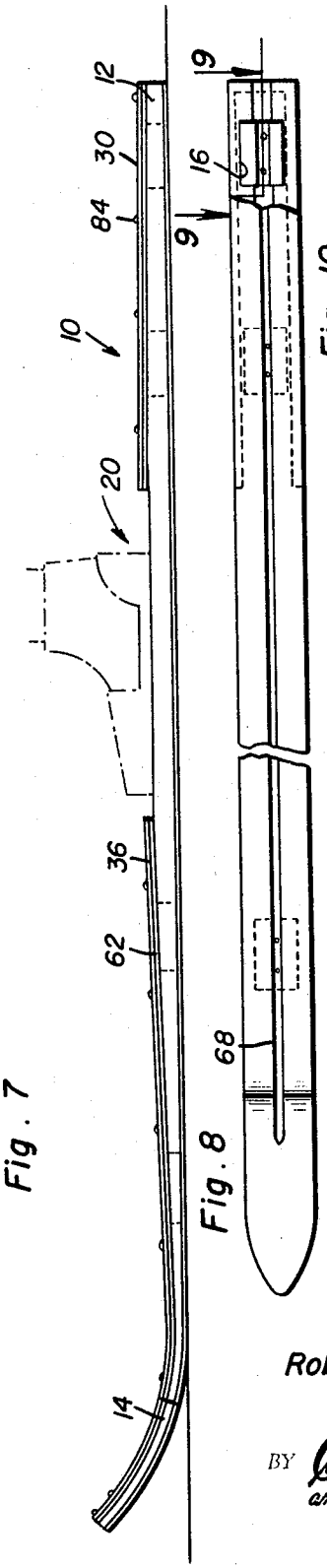

Fig. 7

Fig. 8

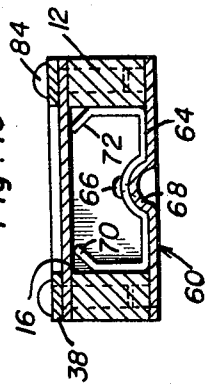

Fig. 10

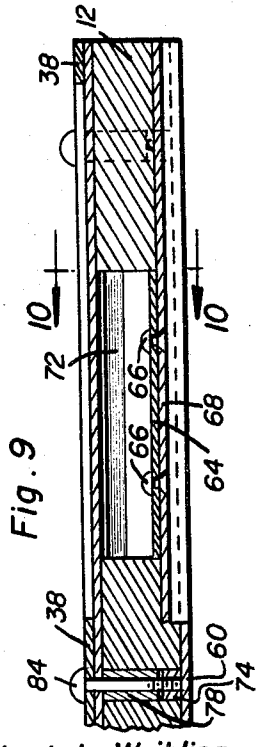

Fig. 9

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SKI DEVICE WITH DEMOUNTABLE WHEELS

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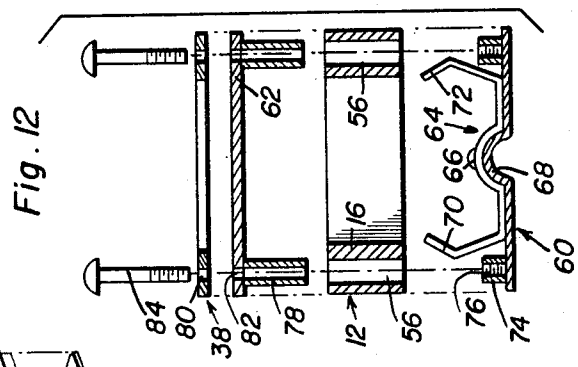

Fig. 12

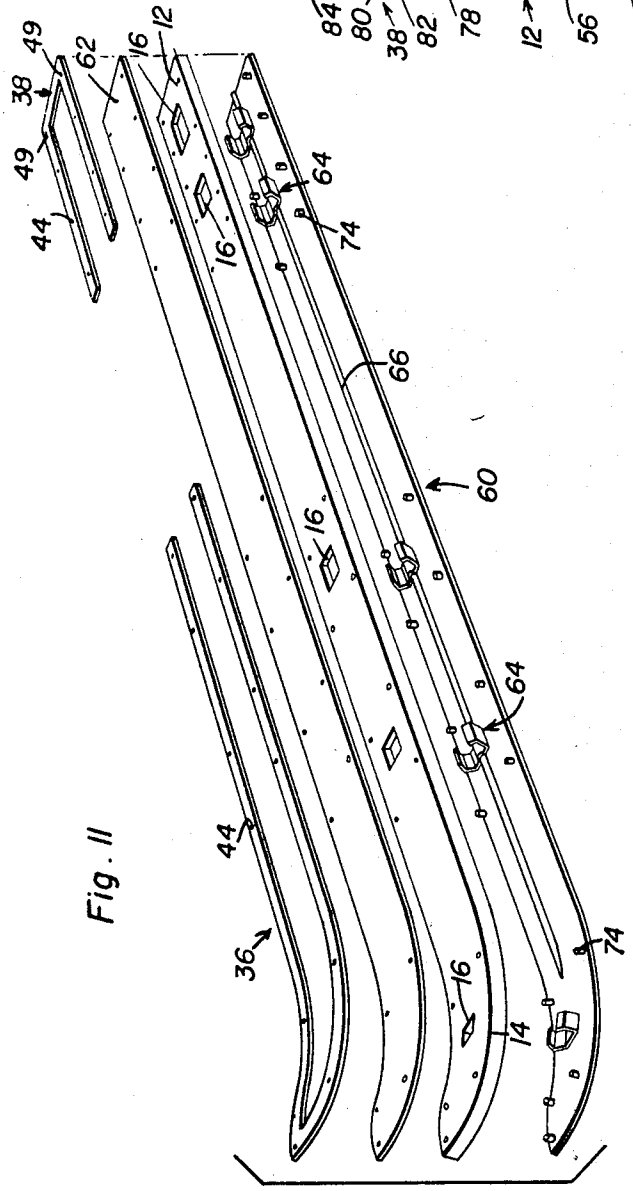

Fig. 11

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SKI DEVICE WITH DEMOUNTABLE WHEELS

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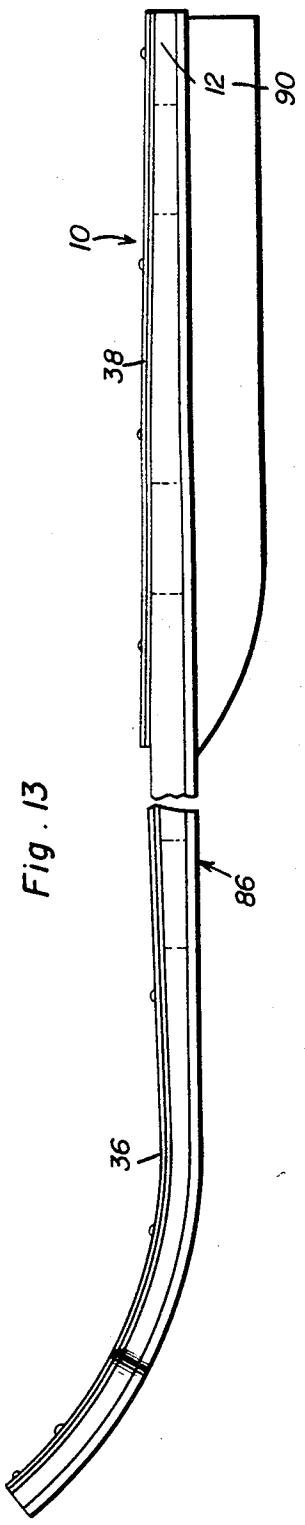

Fig. 13

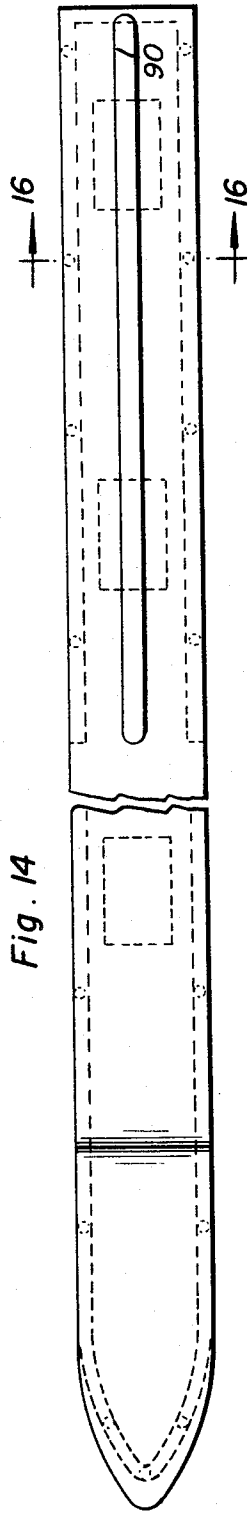

Fig. 14

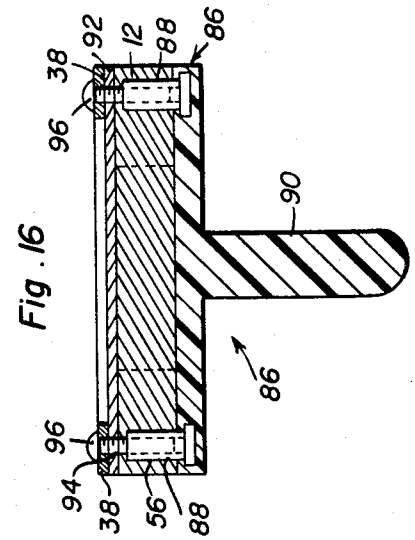

Fig. 16

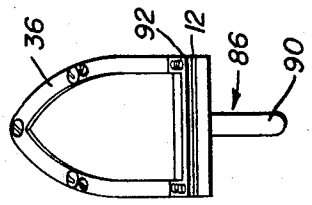

Fig. 15

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United States Patent Office 3,403,919 Patented Oct. 1, 1968

3,403,919

SKI DEVICE WITH DEMOUNTABLE WHEELS

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13 Claims. (Cl. 280—7.13)

ABSTRACT OF THE DISCLOSURE

A convertible ski including an elongated ski-shaped and panel-like body together with a pair of bottom panels or plates selectively securable to the ski body so as to underlie the latter, one of the bottom plates including a longitudinally straight undersurface for skiing over a fluent medium and the other of the bottom plates including longitudinally spaced vertical openings formed therein through which journaled support wheels mounted in downwardly opening cavities formed in the ski body and registered with the openings formed in the second bottom plate project so as to adapt the ski for movement over grass covered or bare ground surfaces.

This invention relates generally to a ski device, and more particularly to a year around convertible ski which may be utilized on snow, on grassy or hard bare slopes or in water.

Briefly, this invention comprises a convertible ski having a basic wooden ski body and various attachments for the body to enable the ski to be converted to snow, land or water usage. Specifically, a snow ski bottom of plastic-coated spring steel is mountable on the ski body by means of a snow top and locking strips. Also, a water ski bottom of molded plastic and including a rudder is mountable upon the wooden ski body by means of a similar top and locking strips. Finally, the wooden ski body includes a plurality of wheel openings therein thereby enabling wheels to be mounted in place in the body in order to enable the ski to be used on land, in conjunction with yet another top and bottom member and the same locking strips.

It is an object of the present invention to provide a convertible ski which may be used on land, snow or water.

It is another object of the present invention to provide a convertible ski which in one form includes spaced rollers to enable the ski to be employed upon dry and hard smooth surfaces with equal facility as upon snow covered surfaces, the wheels being so spaced as to provide optimum maneuverability on a flat hard surface.

It is a further object of the present invention to provide a convertible ski which in its wheeled form provides wheels that are exposed only below the rotational axis thereof and therefore able to obtain high speeds and glide over irregularities with practically no slowing down.

It is a further object of the present invention to provide a recreational device which is readily convertible for water, snow or land operation, the construction thereof being relatively simple while extremely rugged and utilitarian.

It is a further object of the present invention to provide a convertible ski which may be readily and quickly converted from one mode of operation to another.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings, forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a top plan view of the ski comprising the present invention in its wheeled form;

FIGURE 2 is a side elevational view corresponding to FIGURE 1;

FIGURE 3 is an enlarged partial top plan view corresponding to one end of the ski illustrated in FIGURE 1;

FIGURE 4 is a rear end elevational view of the ski as illustrated in FIGURES 1 and 2;

FIGURE 5 is a partial vertical sectional view taken substantially on the plane of the line **5**—**5** of FIGURE 3;

FIGURE 6 is a vertical sectional view taken substantially on the plane of the line **6**—**6** of FIGURE 3;

FIGURE 7 is a view similar to that of FIGURE 2 illustrating the ski in a second preferred form;

FIGURE 8 is a bottom plan view, with parts broken away for purposes of illustration corresponding to the view illustrated in FIGURE 7;

FIGURE 9 is an enlarged partial vertical sectional view taken substantially on the plane of the line **9**—**9** of FIGURE 8;

FIGURE 10 is a vertical sectional view taken substantially on the plane of the line **10**—**10** of FIGURE 9;

FIGURE 11 is an exploded perspective view of the snow ski form of the convertible ski comprising the present invention;

FIGURE 12 is an exploded view partially in elevation and partially in vertical cross-section illustrating the snow ski form of the invention in the same relationship as illustrated in FIGURE 11;

FIGURE 13 is a side elevational view of the convertible ski illustrated in its water ski form;

FIGURE 14 is a bottom plan view of the form of the invention corresponding to FIGURE 13;

FIGURE 15 is an end elevational view of the ski as illustrated in FIGURES 13 or 14; and

FIGURE 16 is an enlarged vertical sectional view taken substantially on the plane of the line **16**—**16** of FIGURE 14.

Referring now to the drawings with more particularity, and specifically to FIGURES 1–6, reference numeral **10** generally denotes the convertible ski comprising the present invention. The convertible ski **10** basically consists of a body member **12** which is elongate and in ski shape, the body **12** being fabricated of wood and having an upward bend at the front end thereof as indicated by reference numeral **14** so as to correspond to the usual ski shape. At this point, it may be well to refer to FIGURES 11 and 12 wherein the ski body **12** is best illustrated. Thus, in these figures it will be readily observed that the ski body **12** is of substantial ski shape and includes a plurality of spaced wheel openings **16** longitudinally along the length thereof, the wheel openings being useful when the convertible ski **10** is used with wheels, as illustrated in FIGURES 1–6.

Referring to FIGURES 5 and 6, it will be observed that the ski body **12** has mounted in each of the wheel openings **16** a wheel **18**. The wheels **18** are so spaced as to be supported with only a portion below the center axis thereof extending below the bottom of the ski whereby when the convertible ski **10** is used with wheels, if an object is hit by the wheels, the ski won't be stopped but the bottom will allow the ski to slide over the object. Thus, it will be apparent that very high speeds will be available when using the convertible ski with wheels **18** inasmuch as the ski will be able to glide over irregularities with a minimum of slowing down. Further, the spacing of the wheels is such that the skis will be able to be used on deep slopes, and if forward tilting occurs, the frontmost wheel which normally is out of engagement with the slope surface will contact the surface enabling the ski to continue rolling thereover. It will also be observed that suitable bindings generally denoted by reference numeral **20** will be mounted on the ski, the bindings forming no part of the present invention.

Referring again to FIGURES 5 and 6, it will be observed that the wheels **18** are mounted between a pair of pillow blocks **22** and **24** in the openings **16**, the pillow blocks **22** and **24** being retained therein by pillow block screws **26** which extend through ski top **28**. An axle **30** is supported between the pillow blocks **22** and **24** in the openings **16**, and washers **32** are mounted on the axle **30** on opposite sides of the wheel **18** which is also mounted thereon for rotation.

The top **28** referred to above includes a plurality of shrouds or raised portions **34** to accommodate the wheels. The shrouds **34** cover the tops of all of the wheels **18** as the top **28** extends the full length of the ski body **12**. Further, as mentioned above, these pillow block screws **26** extend through the top **28** in order to support the pillow blocks **22** and **24** in the openings **16**. Thus, it will be readily apparent that the wheels **18** are fully protected at the top of the ski by the shrouds **34**. A pair of locking strips **36** and **38** are mounted over the top **28**, the locking strip **36** being positioned at the front end of the ski as illustrated best in FIGURES 1 and 2 and terminating at a point **40**, and the opposite locking strip **38** being positioned at the rear end of the ski terminating at a point **42**. The locking strips include a plurality of keyhole slots **44** therein for receiving locking screws **46** in order to lock the strips **36** and **38** down over the top **28** to lock the top **28** on the body **12**, while allowing the locking strips to be easily removed. Thus, it will be apparent that upon a loosening of the screws **46** the strips **36** and **38** may be easily moved forward and taken off by means of the keyhole slots. However, referring to FIGURE 3 in particular, it will be observed that several screws **48** are screwed directly into holes **49** in the locking strip **38** near the rear end thereof, and not into keyhole slots, and thus these screws **48** must be removed before the rear locking strip **38** can be slid forward and removed.

A bottom **50** including a plurality of openings **52** therein corresponding with the openings **16** in the body **12** is provided, the bottom being preferably of metallic material thereby presenting a smooth bottom surface. Thus, when obstructions are hit during the use of the ski **10**, the ski **10** will easily slide thereover. Further, the bottom **50** includes a plurality of upstanding tapped or internally threaded studs **54** thereon corresponding to openings **56** through the body **12**. The top **28** includes depending bosses **58** thereon extending into the openings **56**, and thus the locking screws **46** are received through the bosses **58** and screwed into the studs **54** and retain the bottom **50** in place on the bottom surface of the body **12** as well as retaining the top **28** and locking strips **36** and **38** on the top surface thereof. Thus, by referring in particular to FIGURES 5 and 6, it will be observed that the openings **56** are spaced along the body **12**, and the tapped studs **54** and hollow bosses **58** are spaced along the bottom **50** and top **28** respectively so as to be in alignment when the bottom **50** and top **28** are mounted in place on the body **12**. It will be appreciated of course that the studs **54** are tapped in order to receive the threaded ends of lock screws **46** therein.

Referring now to FIGURES 7–12, it will be observed that the body **12** may be utilized with a snow ski bottom generally denoted by reference numeral **60**, a snow ski top **62**, as well as the same locking strips **36** and **38** whereby the device will be able to be utilized on snow in the same manner as conventional snow skis. The snow ski bottom **60** includes a plurality of spring clips **64** which are resilient metallic members mounted on the bottom **60** by rivets **66**. Thus, referring to FIGURES 10, 11 and 12 in particular, it will be observed that the bottom **60** is substantially flat on the bottom surface thereof including a centrally located longitudinally extending archway **68** upon which the clips **64** are mounted, the clip arms **70** and **72** being normally expanded, but when the bottom **60** is mounted on the body **12**, the clip arms are moved into the openings **16** and compressed as best illustrated in FIGURE 10. The clips thereby operate to hold the bottom **60** on the body **12**. The bottom **60** includes a plurality of upstanding studs **74**, substantially similar to the tapped studs **54** described above, the studs **74** also being tapped as illustrated in FIGURE 12 by reference numeral **76**. Thus, when the bottom **60** is mounted in place on the bottom of ski body **12**, the clips **64** extend into the openings **16** and the tap studs **74** extend into the openings **56**.

The top **62** includes a plurality of depending bosses **78** substantially similar to the bosses **58** described above, corresponding to the openings **56** in the body **12** and tapped studs **74** on the bottom **60**. The main purpose of the top **62** is to cover the openings **16**, thus providing a smooth closed top surface on the ski body **12**. The keyhole slots **44** of the lock strips **36** and **38** are aligned with the bosses **78** and apertures **82** in the top **62**, the openings **56** in body **12** and tapped studs **74** on bottom **60**. Thus, locking screws **84** may be utilized to further lock the bottom **60** on the body **12** in conjunction with clips **64**, as well as locking the top **62** and locking strips **36** and **38** on the top surface of the body **12**. However, the rearmost openings **49** on locking strip **38** are not slotted and hence the screws therein must be removed before the locking strip **38** may be removed.

In other material aspects, the ski device **10** when utilized as a snow ski as illustrated in FIGURES 7–12, is substantially identical to the ski device described in relation to FIGURES 1–6 above. Thus, the body **12** is a wooden ski body with openings **16** therein and curved upwardly as indicated by reference numeral **14**. The main difference therebetween is that the top **62** does not have the shrouds **34** thereon but is completely flat, including however, depending bosses **78** similar to the bosses **58** described above. Further, the bottom **60** is preferably a plastic-coated spring steel member which does not have wheel openings therein but rather is substantially flat on the bottom thereof including only the archway **68** on which the spring clips **64** are mounted. The bottom **60** does include however the tapped studs **74** substantially similar to the tapped studs **54** described above.

Referring now to FIGURES 13–16, it will be observed that the convertible ski **10** may be utilized as a water ski, when the water ski bottom generally denoted by reference numeral **86** is mounted thereon. Thus, by referring to FIGURES 13–16, and particularly to FIGURE 16, it will be observed that the body **12** is utilized with the bottom **86** thereon, the bottom **86** comprising a molded plastic bottom with tapped headed studs **88** extending upwardly therefrom into the openings **56** in the body **12**. A rudder **90** is integrally molded with the bottom **86**, the rudder **90** being conventional in the art. A top **92** somewhat similar to top **62** described above but having only openings **94** therein and not depending bosses **78** is mounted over the body **12** and retained thereon by the same locking strips **36** and **38** by means of the locking screws **96**. Thus, by referring to FIGURE 16 in particular, it will be observed that the locking screws **96** extend downwardly and are threaded into the tapped headed studs **88** in order to retain the bottom **86** on the body **12** as well as retaining the top **92** and locking strips **36** and **38** on the top surface thereof. However, in all other material aspects, such as for example the body member **12** and locking strips **36** and **38**, this form of the invention is identical to those described above.

Accordingly, in view of of the above description, it should be readily appreciated that the basic ski **10** is the wooden ski body **12** having the apertures **16** therein and locking strips **36** and **38** having keyhole slots **44** for locking various bottoms and tops on the body **12**. Thus, by use of the locking strips, a roller bottom **50** and special roller top **28** may be locked on the body **12**, and wheels or rollers **18** suspended in the openings **16** in the body **12** from pillow blocks **22** and **24**, which pillow blocks are hung in the openings **16** by means of screws **26** ex-

tending through the top 28. Further, when so desired, the device 10 may be converted from this above-described form to a second preferred form by replacing the top and bottom with snow ski bottoms 60 and top 62 whereby the device may be used as snow skis. Still further, when so desired, the water ski bottom 86 and top 92 may be mounted on the body 12 whereby the device may be utilized as water skis.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A convertible ski device comprising, in combination, an elongate body member, said body member being of substantial ski-shape, a bottom member removably mounted on the undersurface of said body member, a top member removably mounted on the top face of said body member, means for releasably retaining both said top and bottom members on said body member, said body member including a plurality of spaced wheel-receiving chambers therein, axle-supporting means mounted in said chambers, axles supported by said axle-supporting means, wheels rotatably supported on said axles, said top member including spaced raised portions therein corresponding to the spacing of said wheel-receiving chambers in said body member.

2. The combination of claim 1 wherein said retaining means includes at least one locking strip mounted in overlying relationship to said top member.

3. The combination of claim 2 wherein said locking strip includes keyhole slots therein whereby said locking strip can be easily removed from said body member.

4. The combination of claim 1 wherein said bottom member includes spaced apertures therein corresponding to the spacing of said wheel-receiving chambers in said body member.

5. The combination of claim 1 wherein said axle-supporting means are suspended on means connected to said top member.

6. A convertible ski device comprising, in combination, an elongate body member, said body member being of substantial ski-shape, a bottom member removably mounted on the undersurface of said body member, a top member removably mounted on the top face of said body member, means for releasably retaining both said top and bottom members on said body member, said body member including a plurality of spaced wheel-receiving chambers therein, said bottom member including spaced upstanding clip means thereon corresponding to the spacing of said chambers, said clip means received in said chambers when said bottom member is mounted on said body member for retaining said bottom member on said body member, the bottom surface of said bottom member being substantially smooth and closed.

7. The combination of claim 6 including spaced apertures through said body member, spaced upstanding studs on said bottom member corresponding to the spacing of said apertures, said studs being internally threaded, and retaining means mounted between said top member and said studs for retaining said bottom member on said body member.

8. A convertible ski comprising an elongated panel-like body including front and rear ends and provided with an upwardly curving front end portion, said body including upper and lower plates overlying and underlying a central body member and secured to the latter at a plurality of points spaced therealong in order to form a laminated body structure, said body including a location spaced generally centrally intermediate its opposite ends adapted to have a foot binding secured thereto, said body member including a plurality of upstanding openings formed therethrough at points spaced therealong and centrally intermediate the opposite sides of said body, one of said openings being formed in the upwardly curving front end portion and first and second pairs of said openings being generally evenly spaced along said body member intermediate the first-mentioned opening and said location and between the latter and the rear end of said body member, said lower plate including openings registered with said plurality of openings, and a plurality of wheels journaled in said plurality of openings for rotation about parallel axes extending transversely of said body and which have less than their full lower half portions projecting below the undersurface of said lower plate.

9. The combination of claim 8 wherein said upper plate includes portions thereof spaced from but enclosing the upper portions of said wheels from above.

10. The combination of claim 9 wherein said portions of said upper plate include upwardly offset and downwardly opening cupped portions of said upper plate.

11. The combination of claim 8 wherein said lower plate is removably secured to said body and said wheels are removably journaled from said body, and a second lower plate removably securable to said body in lieu of said one lower plate after said wheels have been removed, said second lower plate being imperforate in the portions thereof underlying said openings, the undersurface of said second plate being generally longitudinally straight.

12. The combination of claim 11 wherein said second lower plate includes a depending rudder so as to adapt said ski for use as a water ski when said second lower plate is being used on said body member.

13. The combination of claim 8 wherein the wheel journaled in said one opening has its lowermost peripheral portion spaced appreciably above a generally horizontally disposed plane in which the lowermost peripheral portions of the other wheels are disposed, whereby said wheel in said one opening is normally spaced above a support surface being traversed by said ski.

References Cited

UNITED STATES PATENTS

1,777,689	10/1930	Lofstrand.	
2,230,235	2/1941	Davisson	280—11.13
2,382,150	8/1945	Hartman	280—11.13 XR
2,403,885	7/1946	Thompson	280—7.13
2,485,756	10/1949	Meehan	280—7.13
2,545,209	3/1951	Meehan	280—11.13

FOREIGN PATENTS

139,847	7/1930	Switzerland.

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