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NORTHAM

(54) **HYDROPLANE SPORTING ENVIRONMENT AND DEVICES AND METHODS THEREFOR**

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Publication Classification

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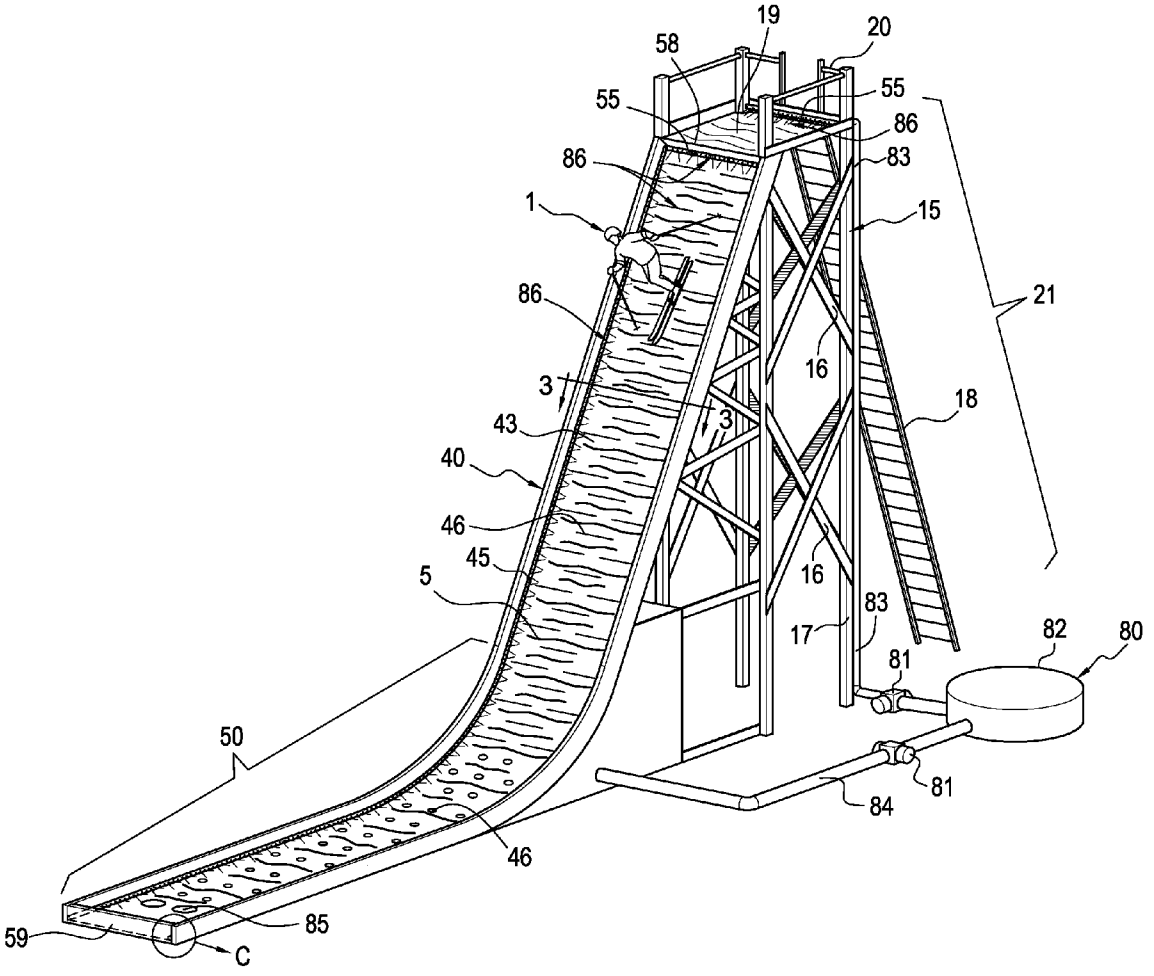
A63C 5/00 (2006.01)
A43B 5/04 (2006.01)

(52) **U.S. Cl.** **472/90**; 280/609; 280/616; 36/117.1

(57) **ABSTRACT**

The present invention provides hydroplaning equipment, such as boards, skis, bindings, boots and poles for use in connection with a hydroplaning device for a rider to perform liquid sport athletic maneuvers, which comprises a support member having a height relative to the ground and a slope; a surface member disposed on the support member, wherein the surface member forms at least an angled surface and a catchment area. The device also comprises a liquid circulation system, having a liquid source, at least one feed line and at least one return line with the liquid source being in fluid communication with the at least one feed line and the at least one return line being in fluid communication with at least one of the liquid source and a disposal location. The device includes at least one liquid dispenser disposed adjacent to the support member or the surface member.



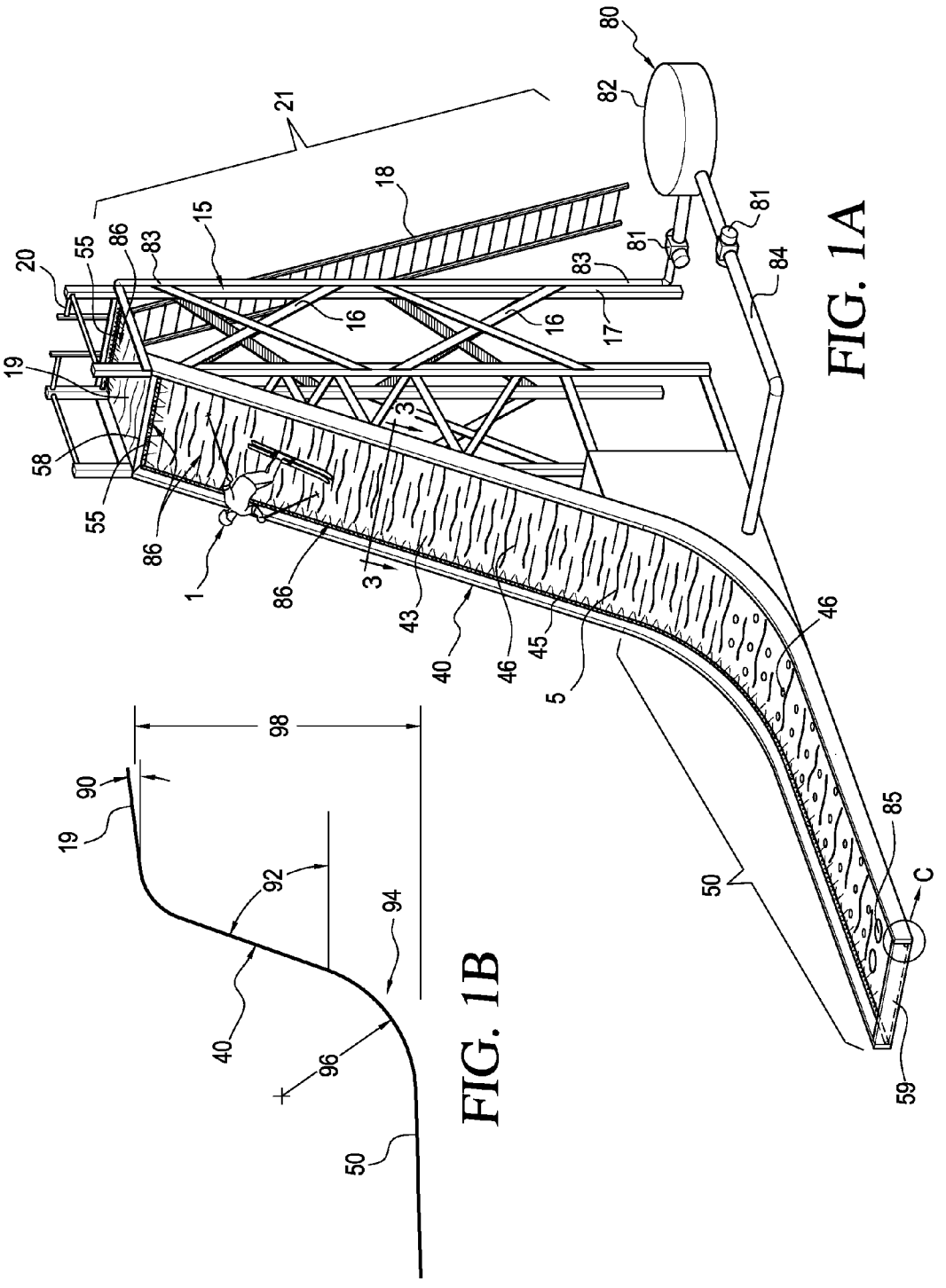

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FIG. 1A

FIG. 1B

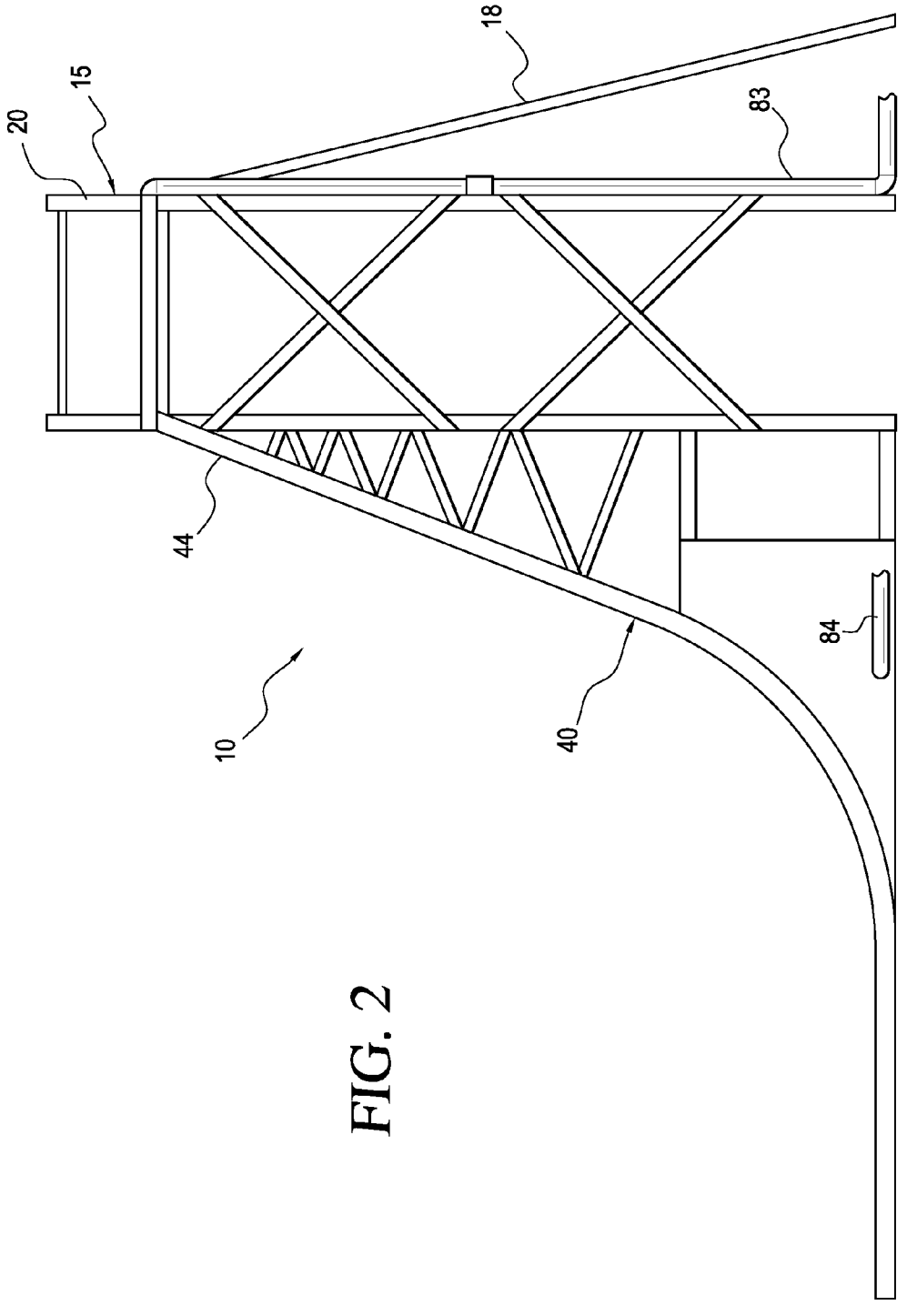


FIG. 2

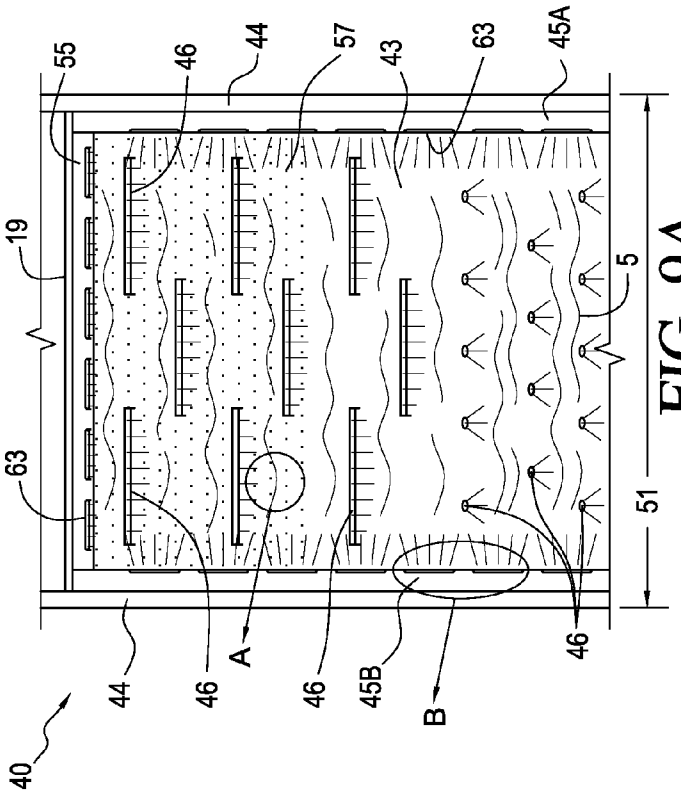


FIG. 9A

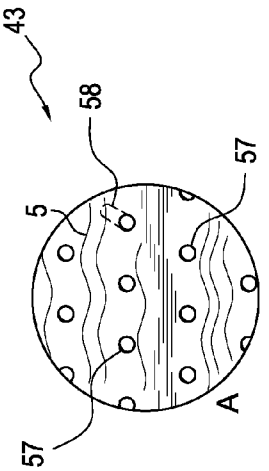
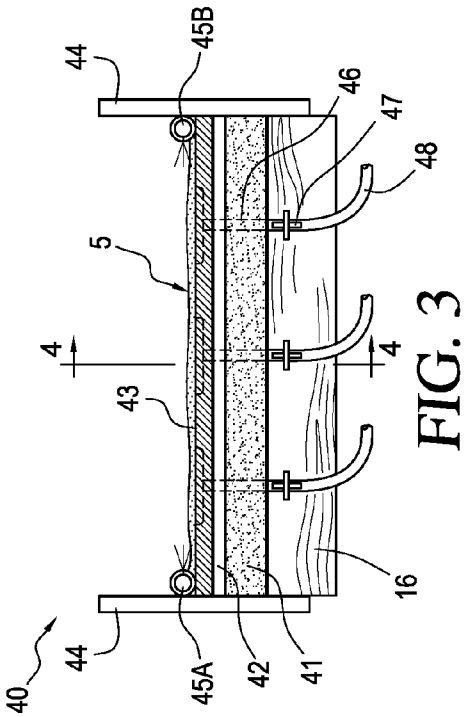


FIG. 10



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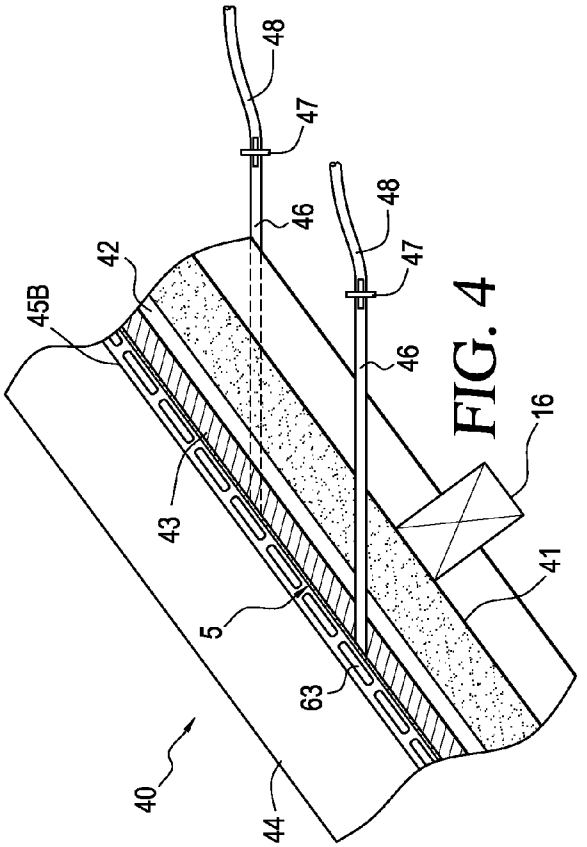


FIG. 4

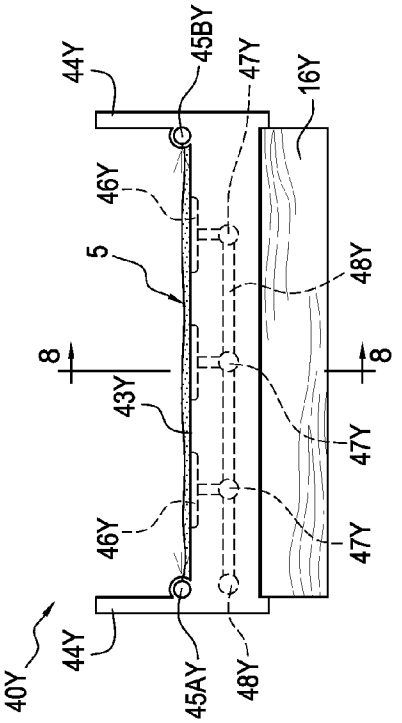


FIG. 7

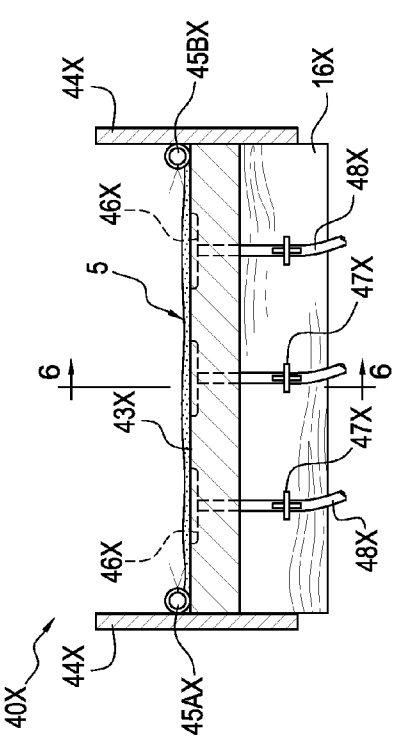


FIG. 5

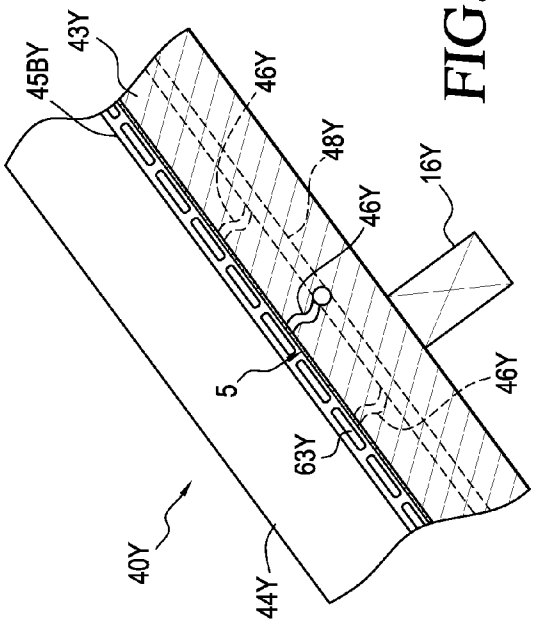
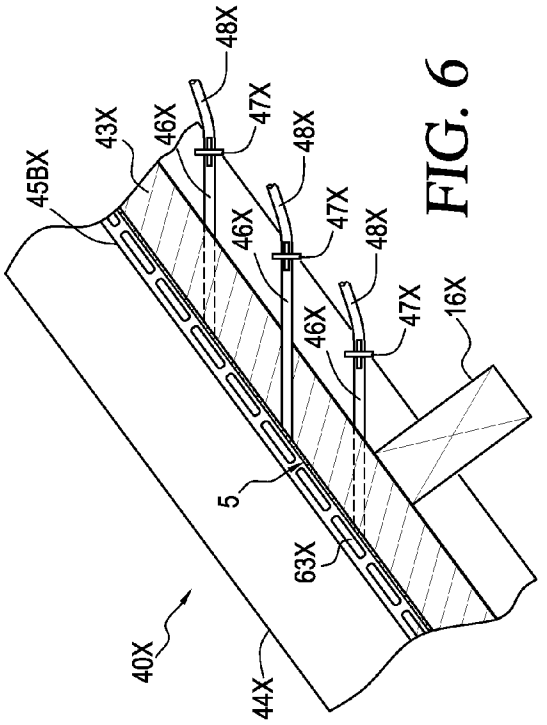


FIG. 8



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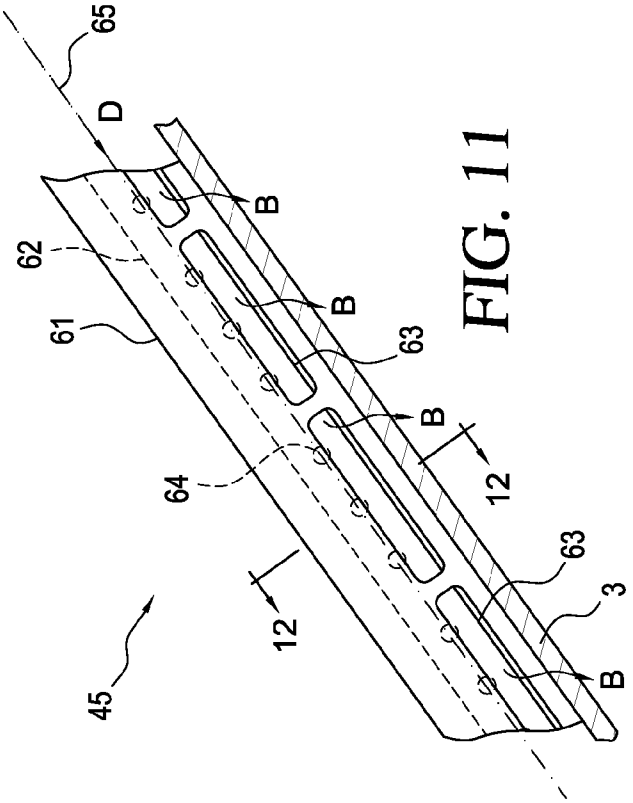


FIG. 11

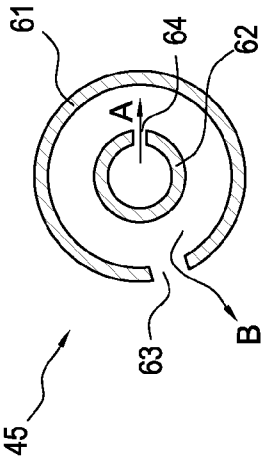


FIG. 12

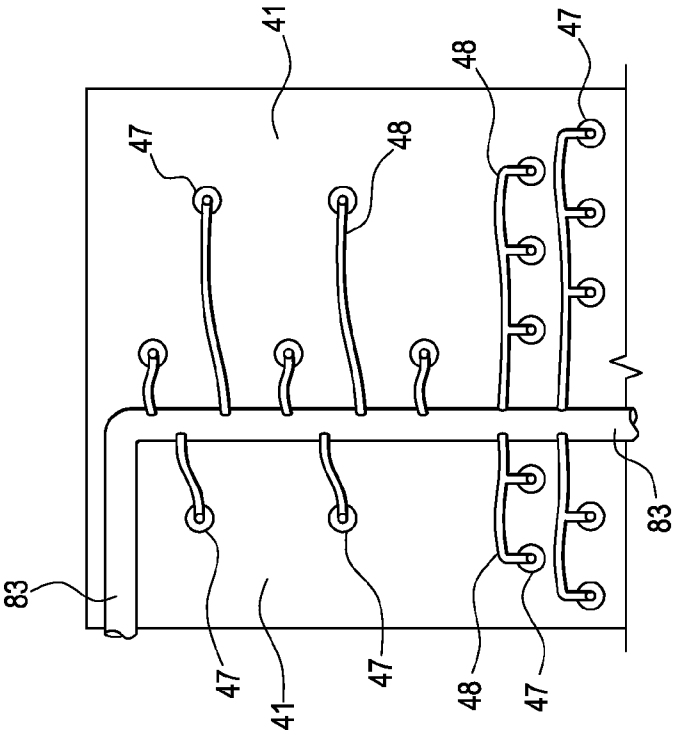


FIG. 9B

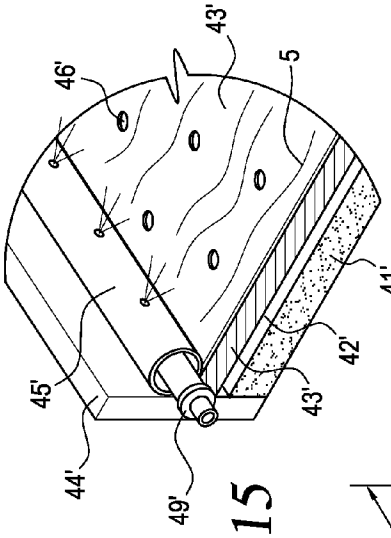
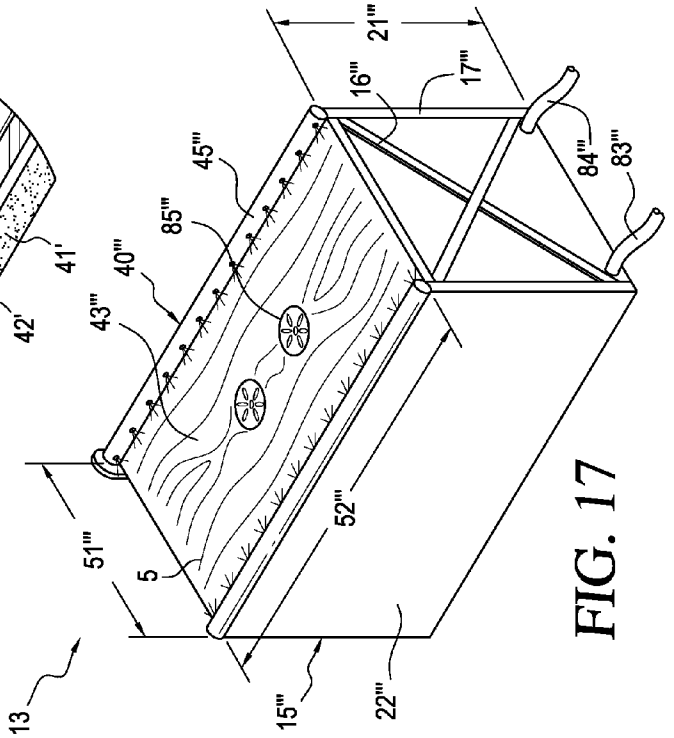


FIG. 15



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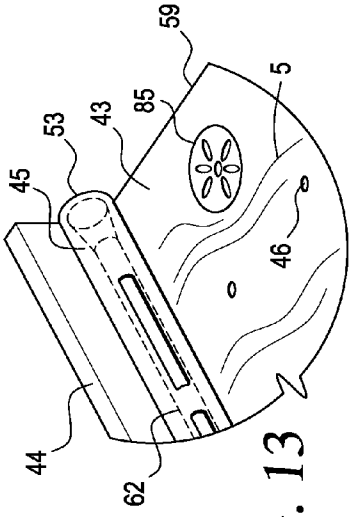


FIG. 13

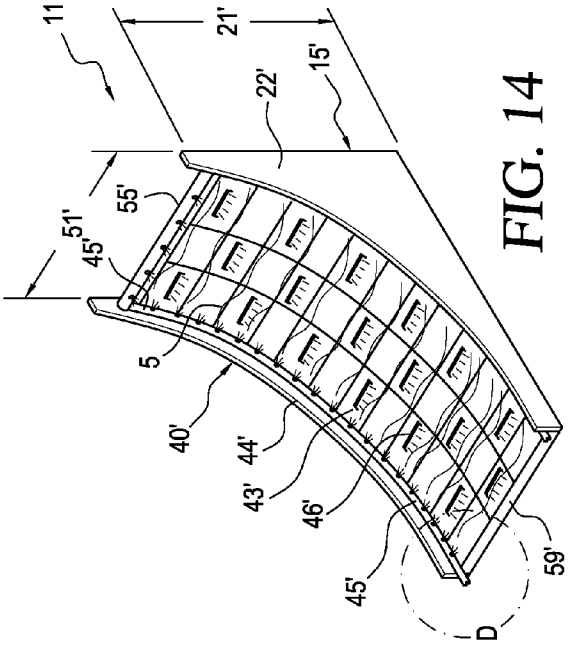
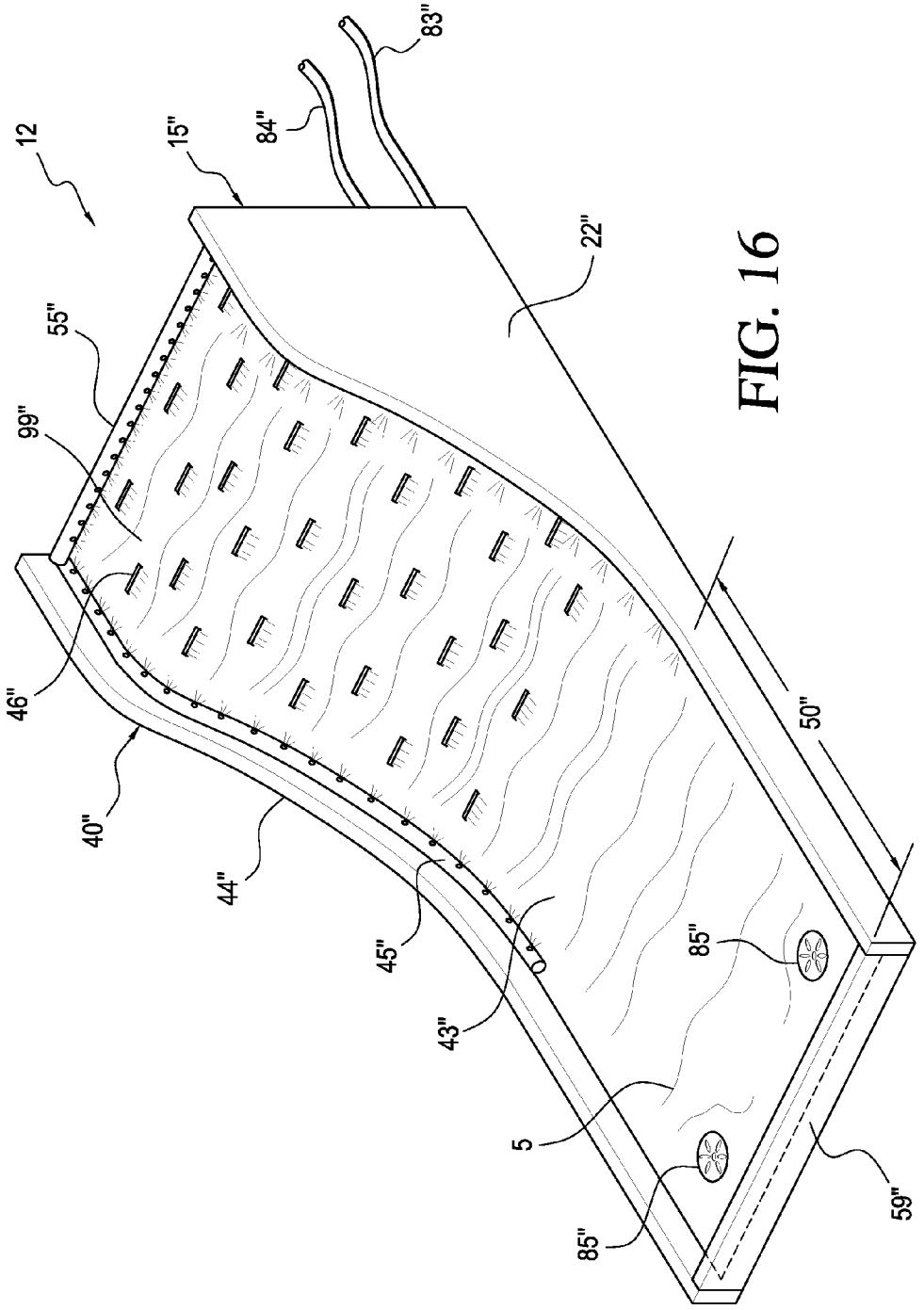


FIG. 14



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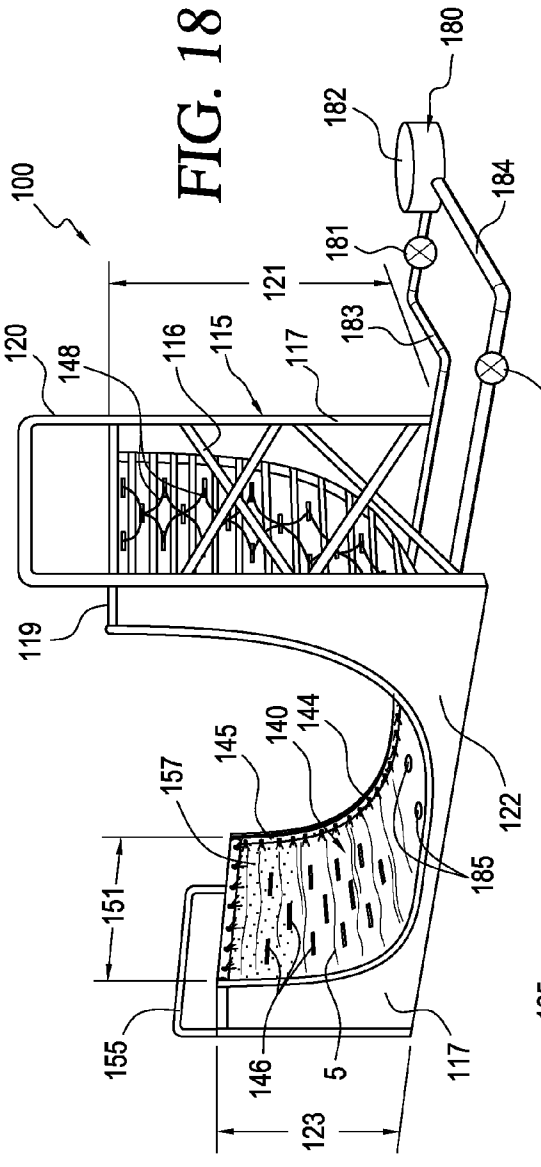
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FIG. 18

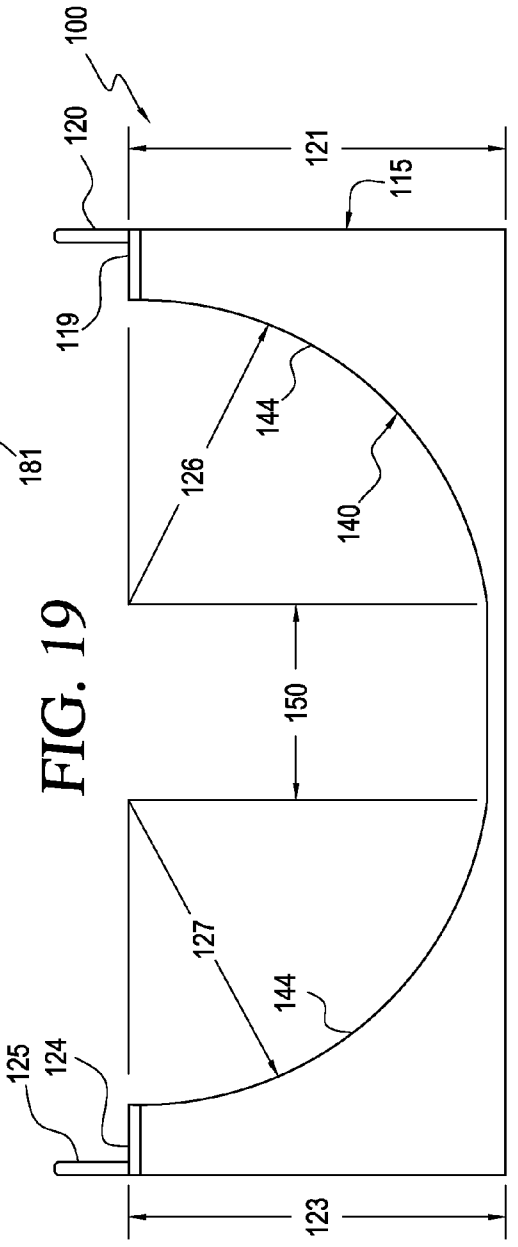
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FIG. 19

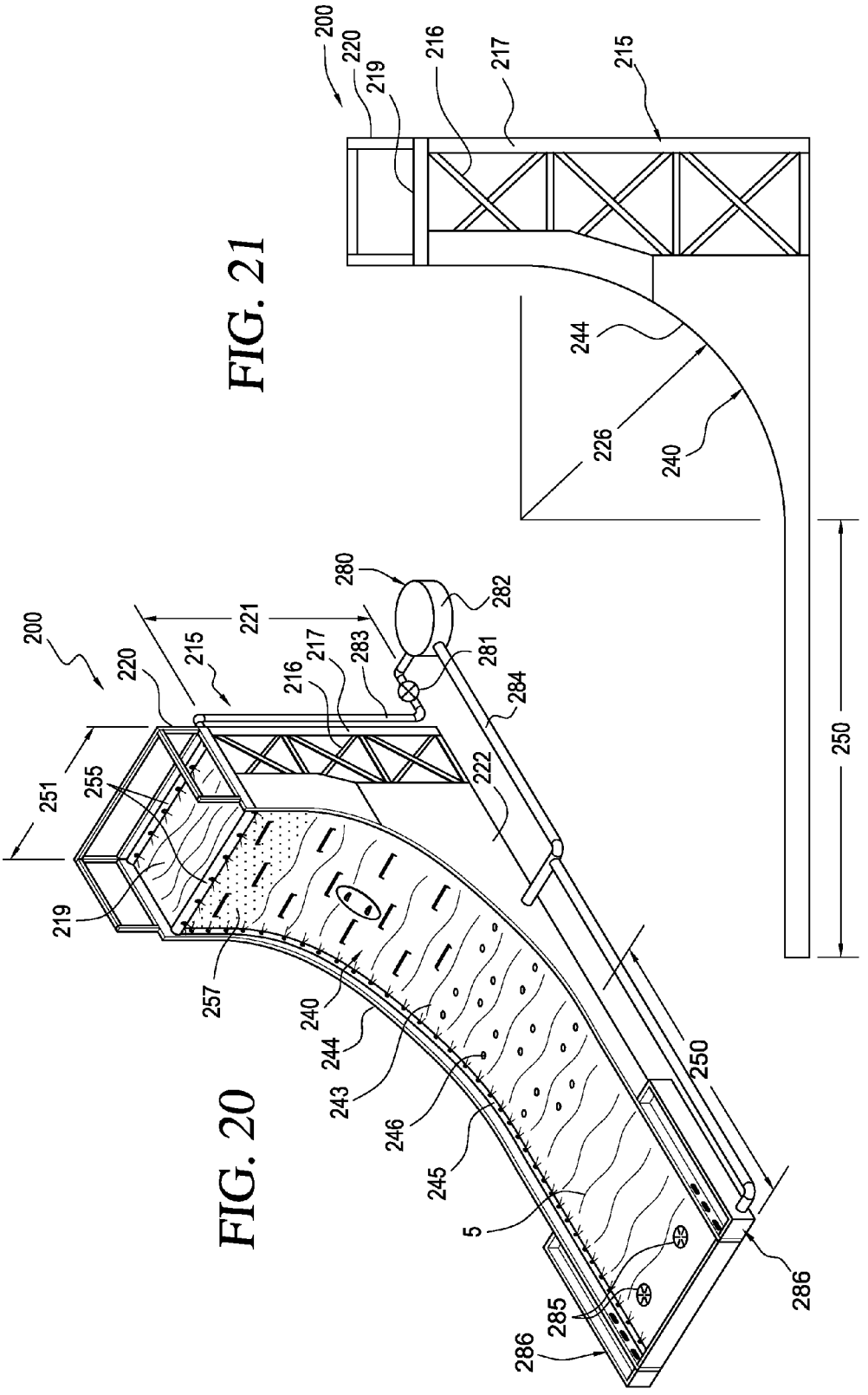
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FIG. 21

FIG. 20

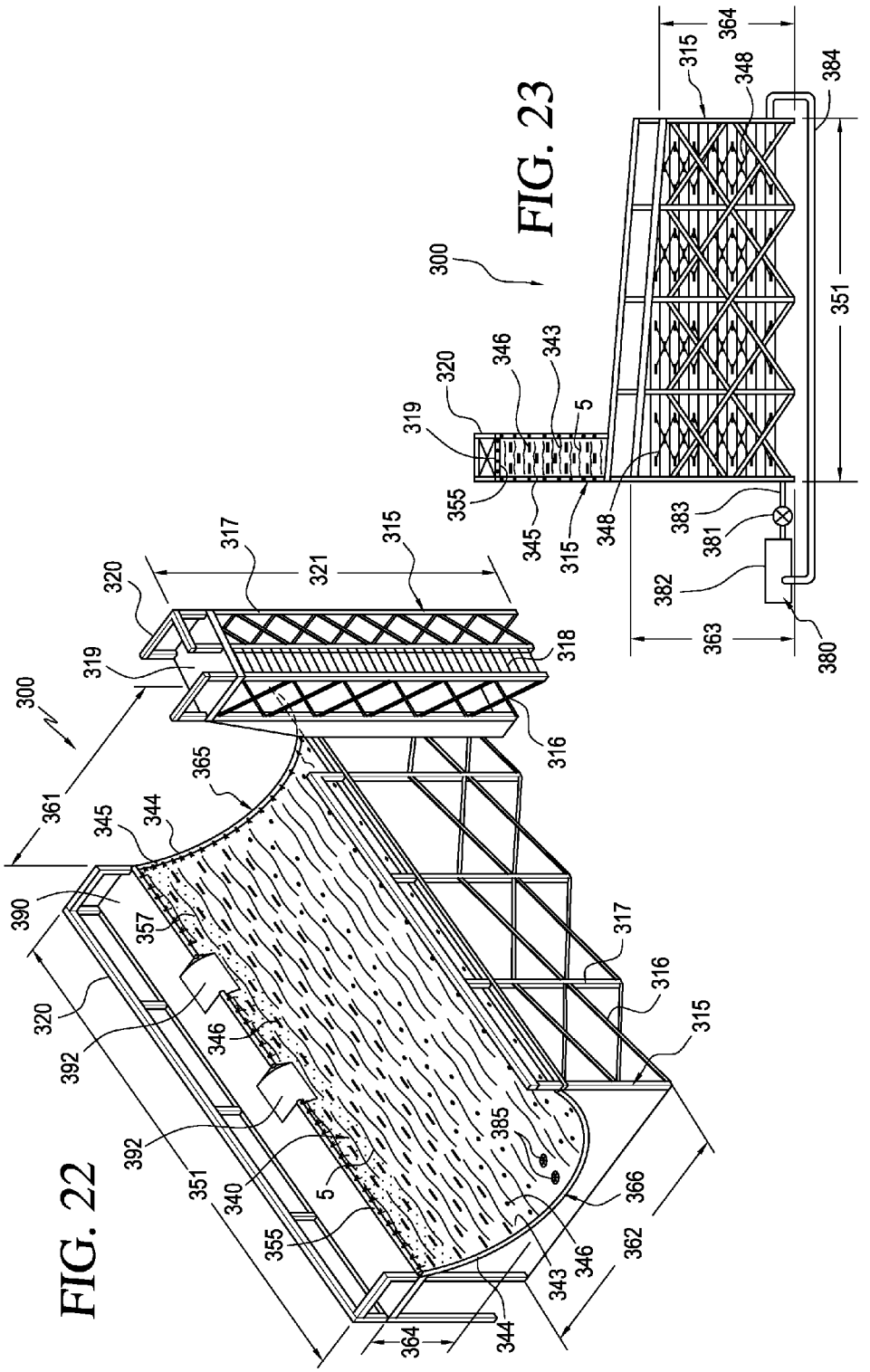
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FIG. 22
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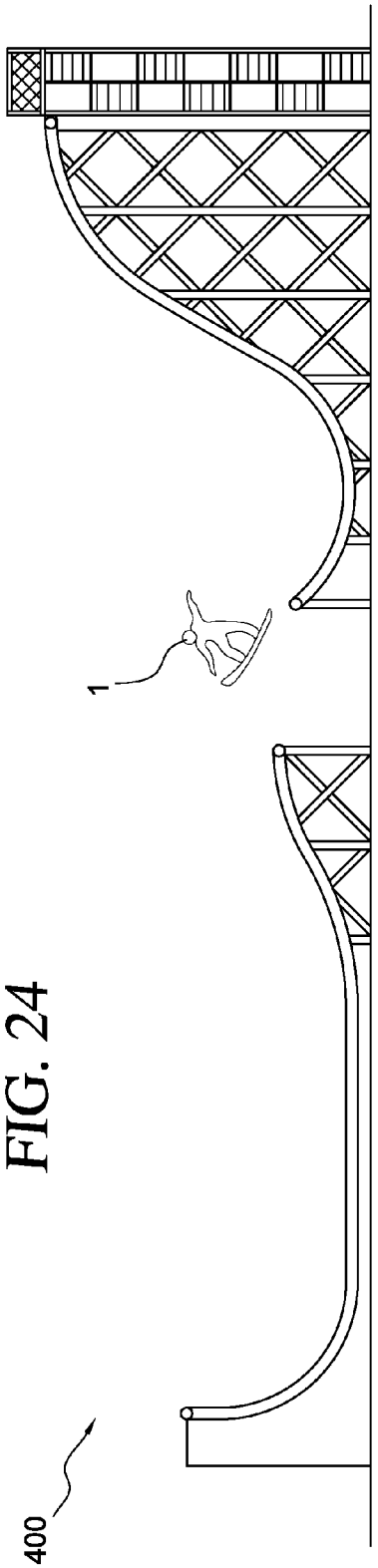
FIG. 23



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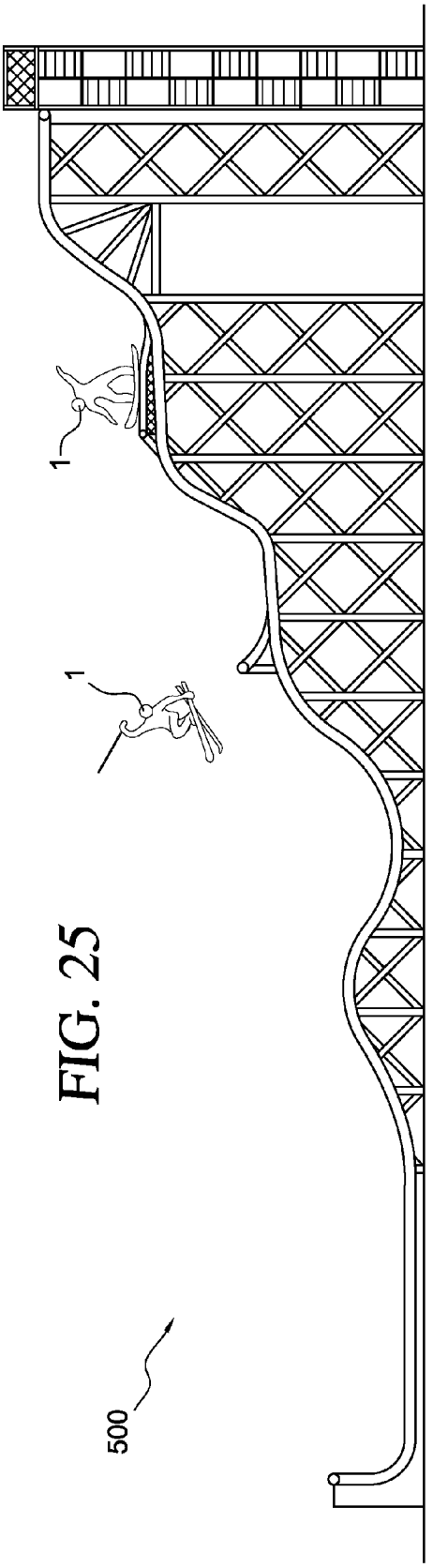

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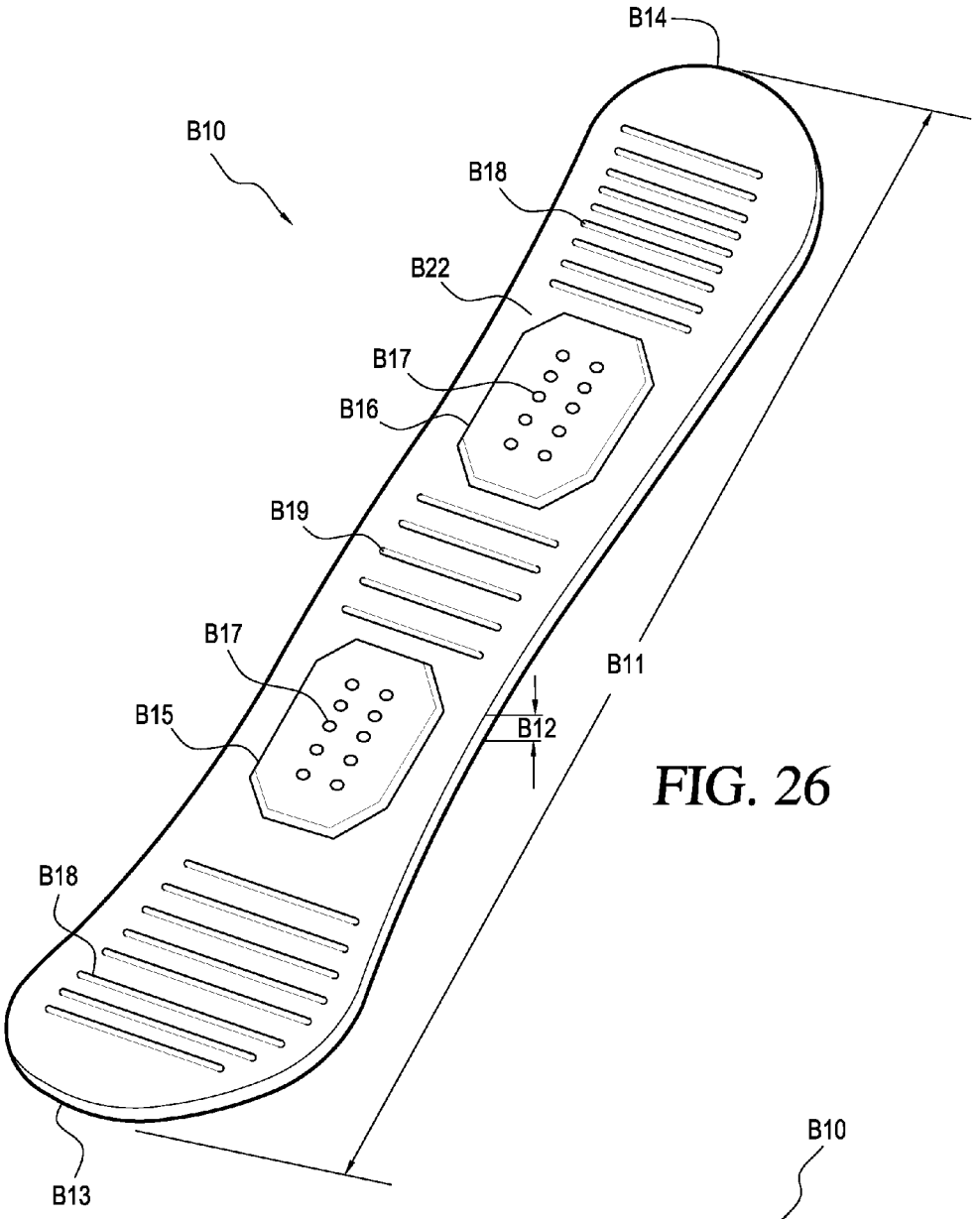
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FIG. 26

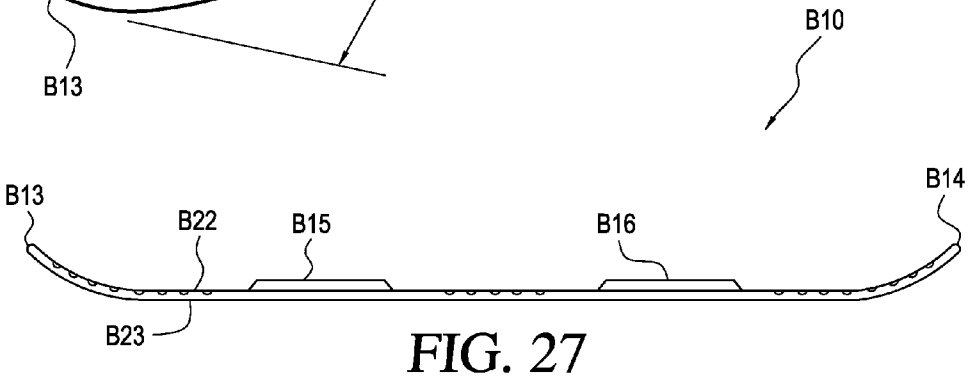
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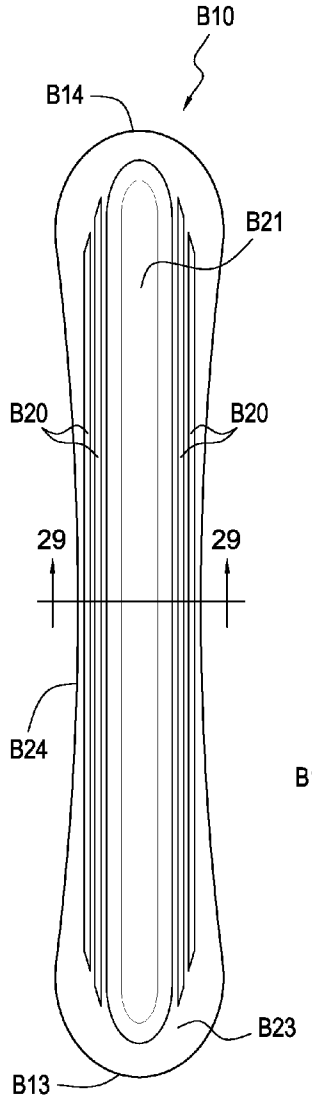
FIG. 27



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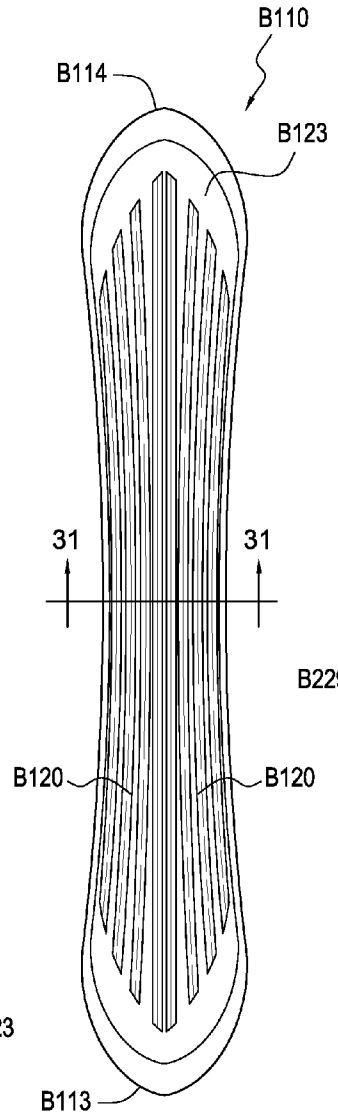


FIG. 30

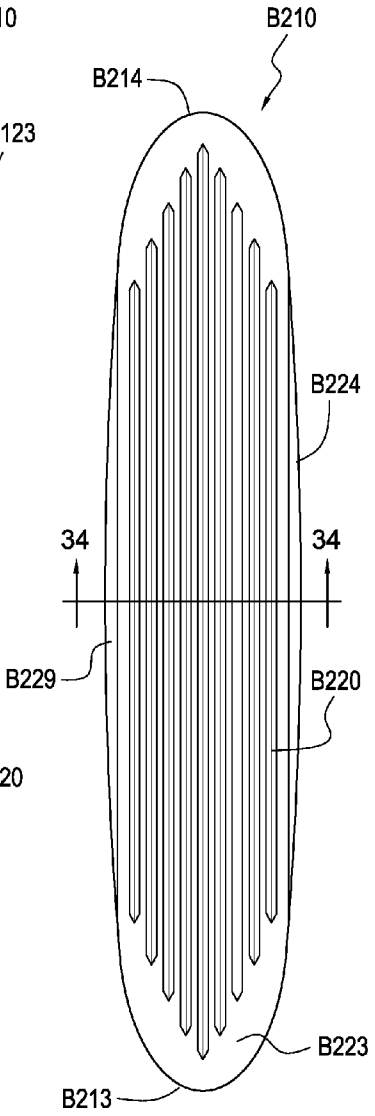


FIG. 33

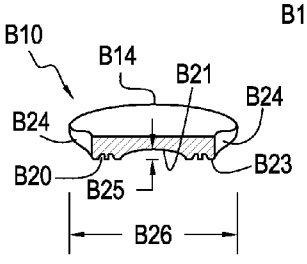
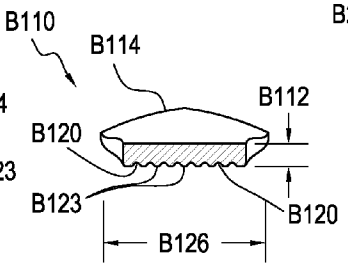


FIG. 29



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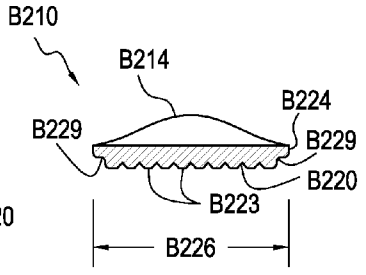

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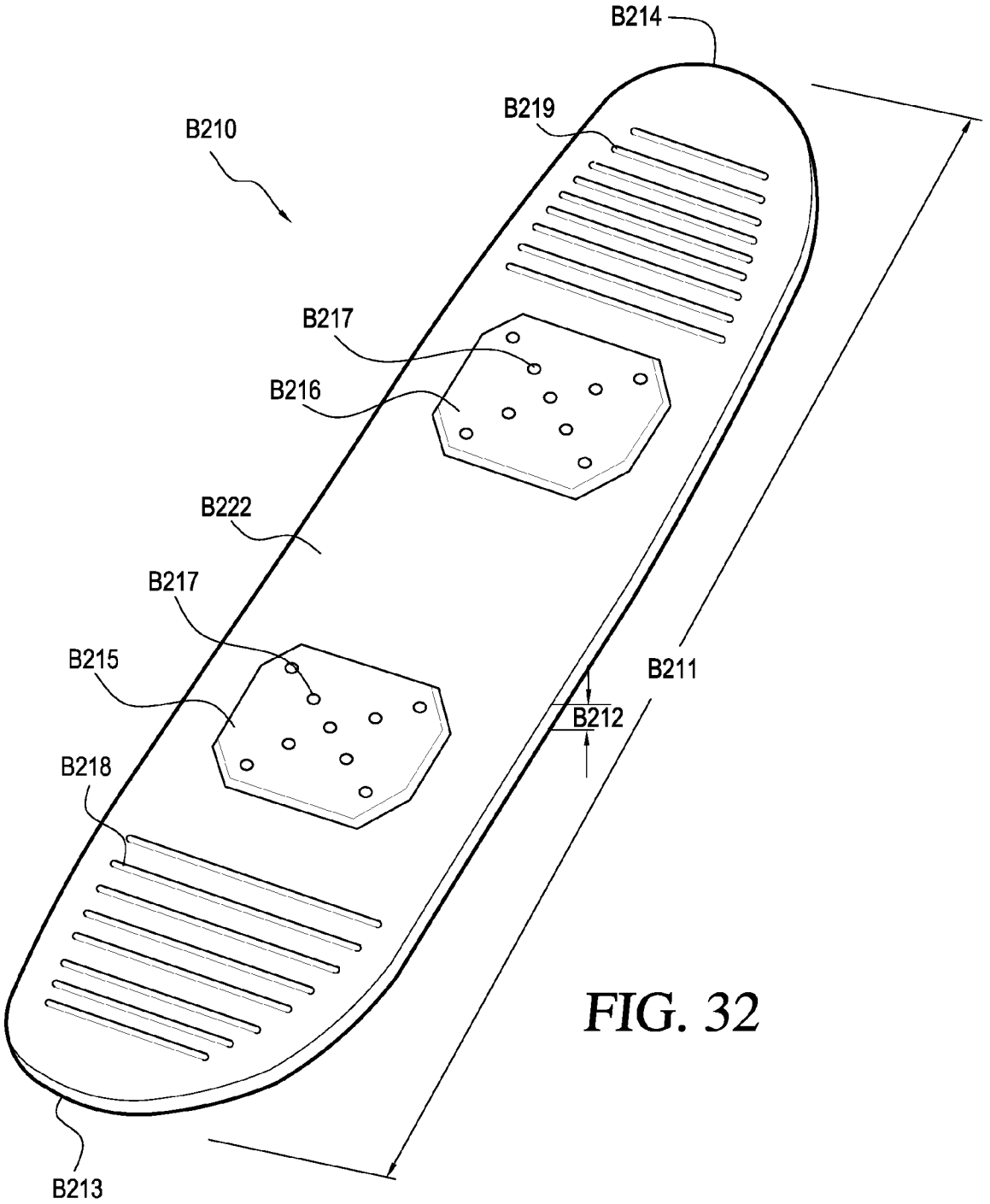
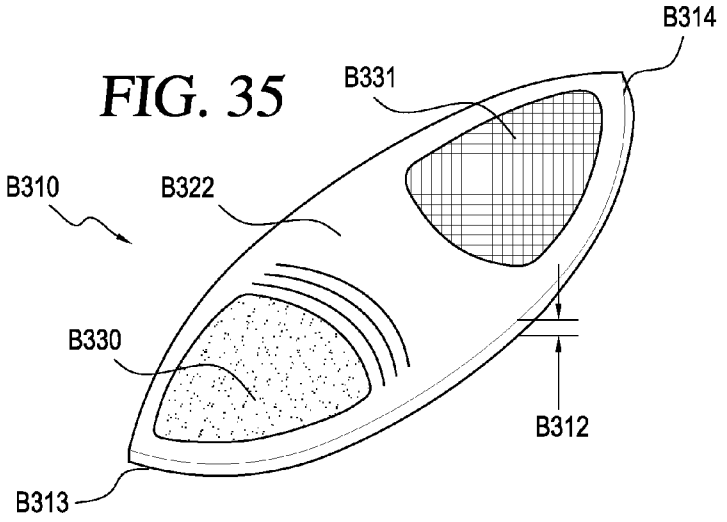
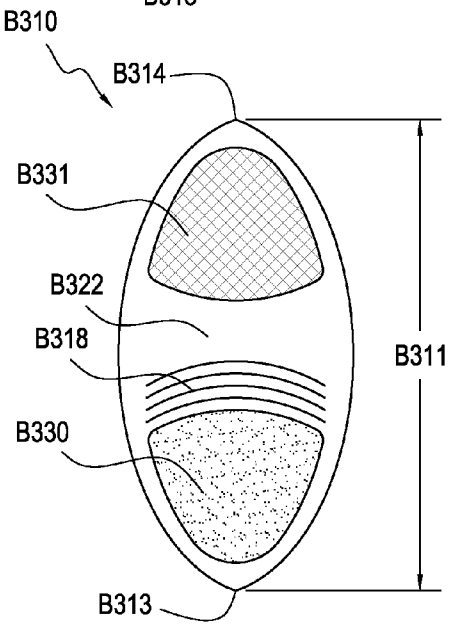


FIG. 32

FIG. 35





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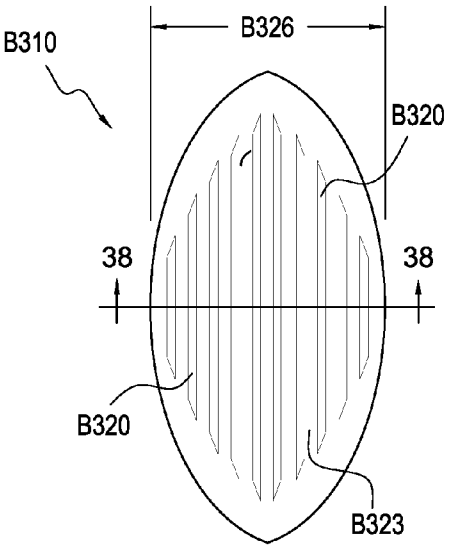

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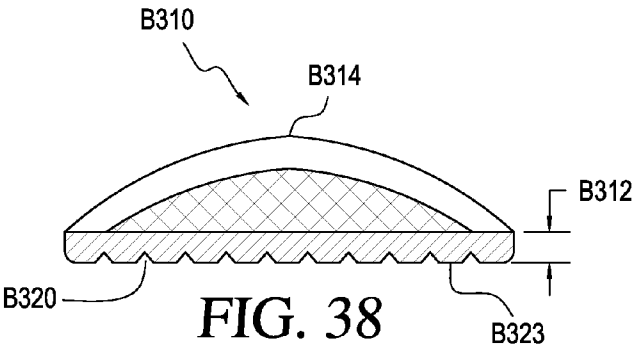
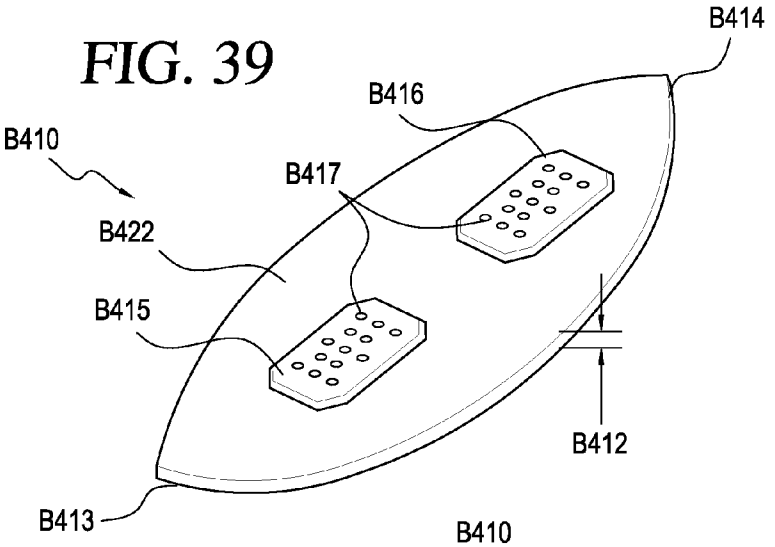


FIG. 38

FIG. 39



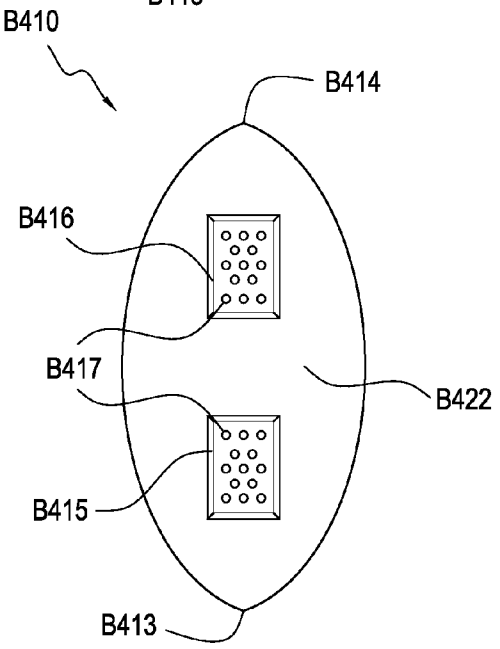
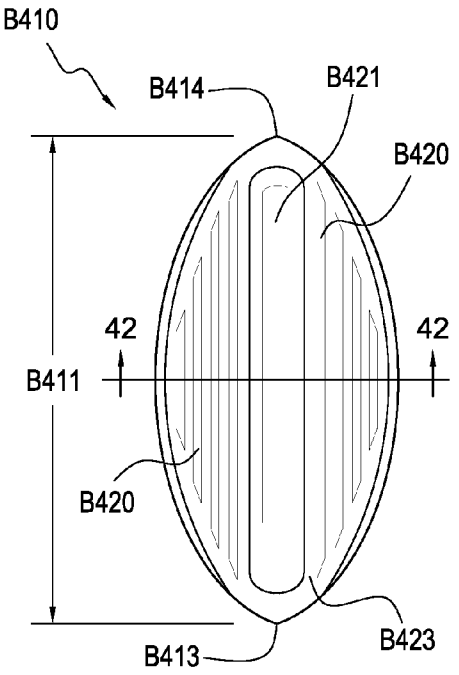


FIG. 40



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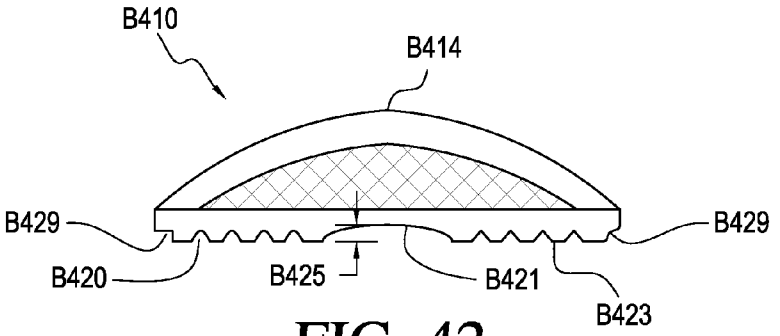

FIG. 42

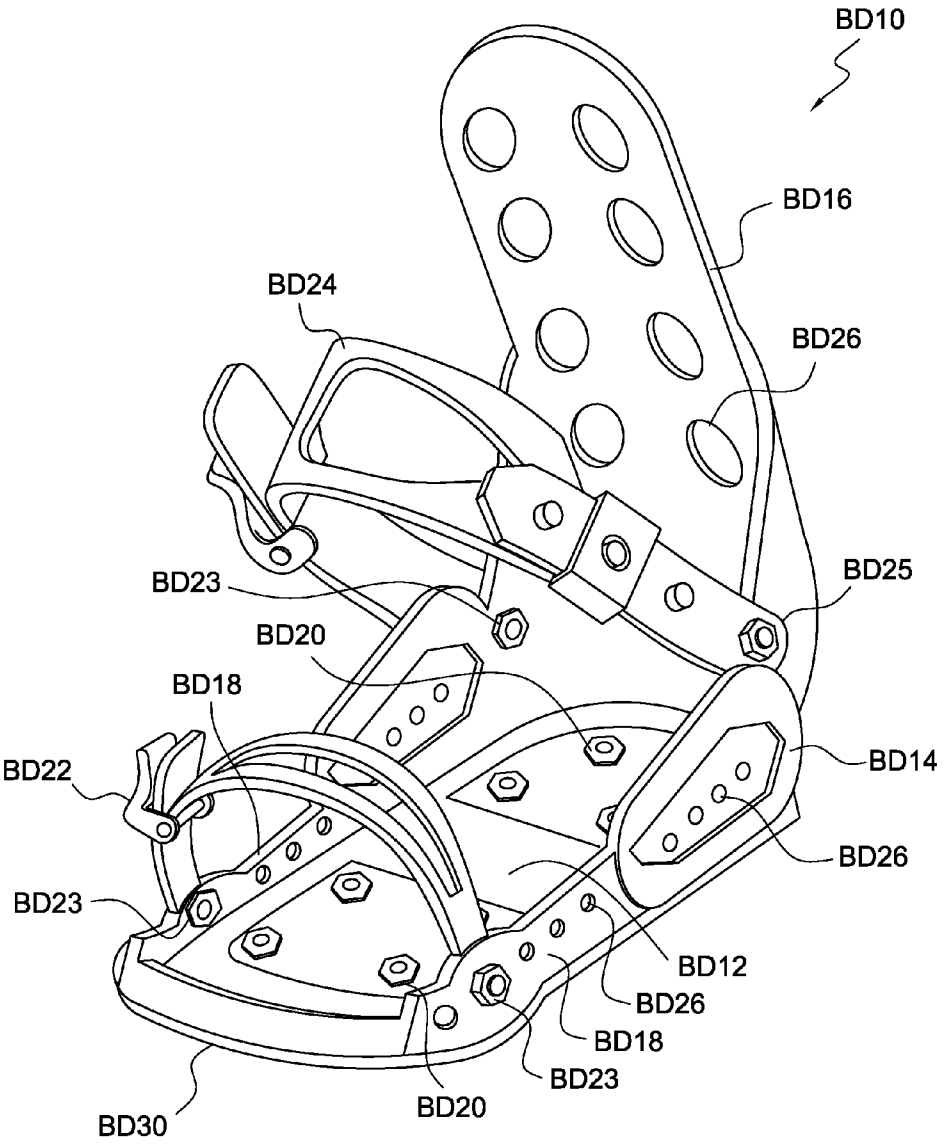
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FIG. 43

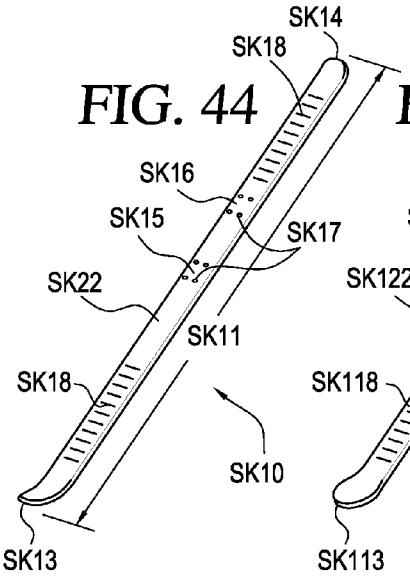


FIG. 44

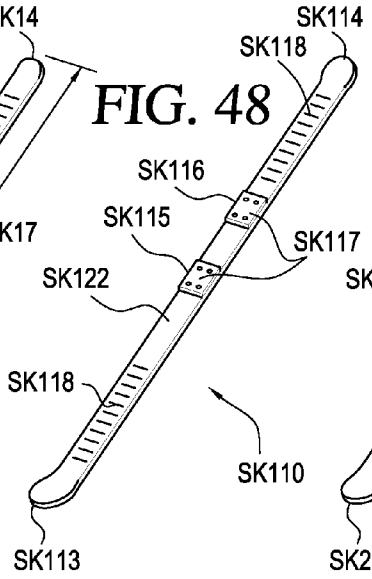


FIG. 48

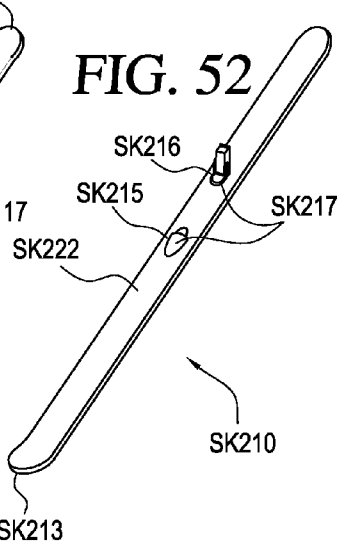


FIG. 52

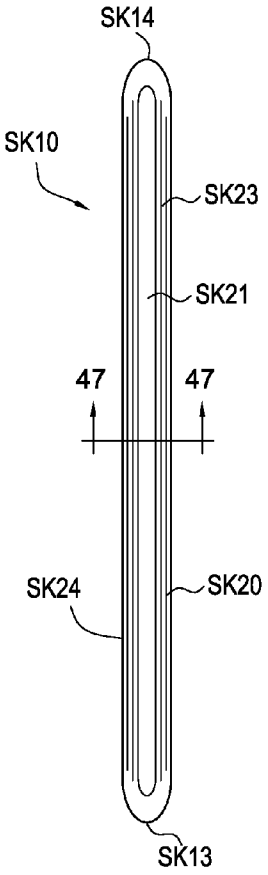


FIG. 45

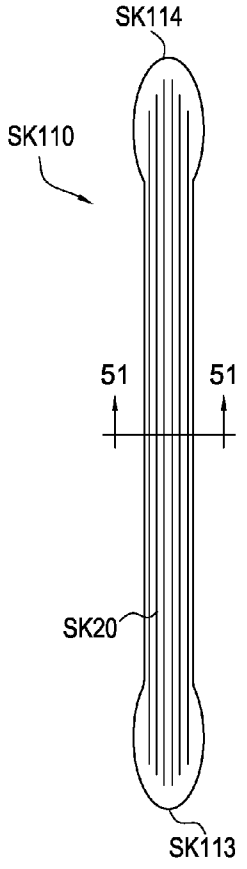


FIG. 49

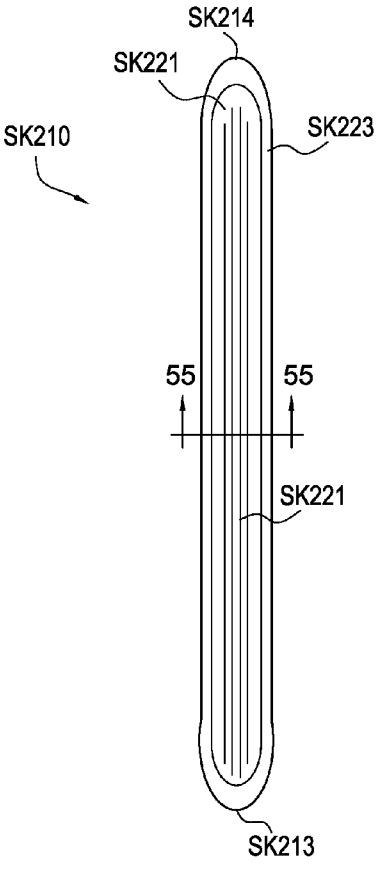


FIG. 53

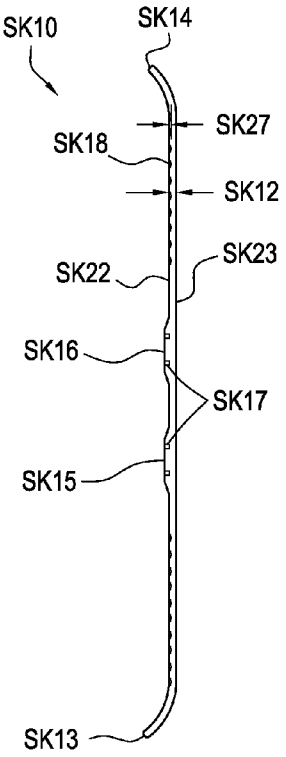


FIG. 46

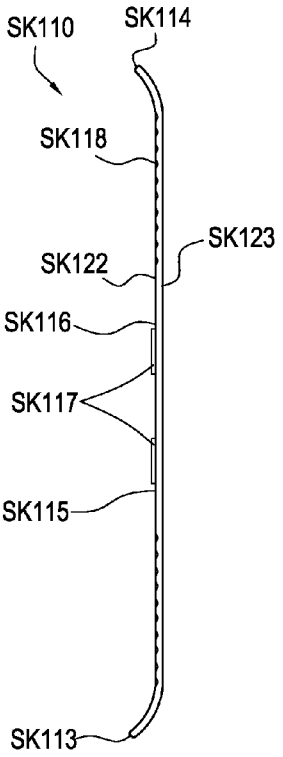


FIG. 50

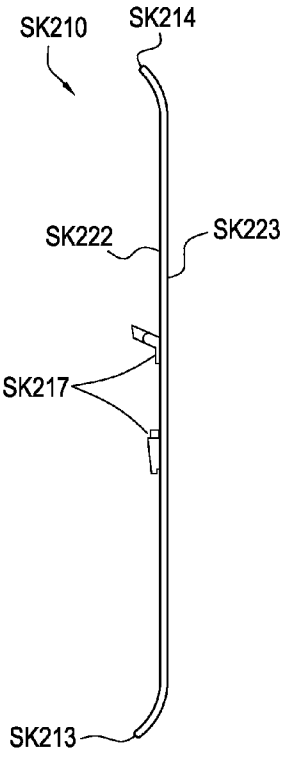


FIG. 54

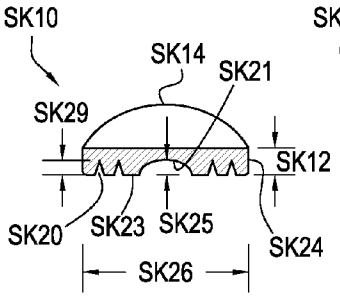


FIG. 47

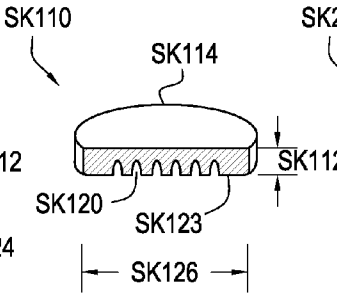


FIG. 51

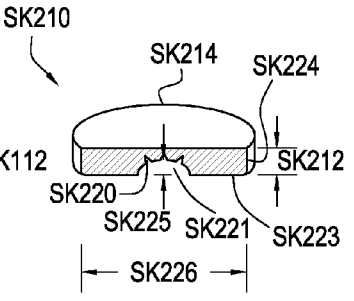


FIG. 55

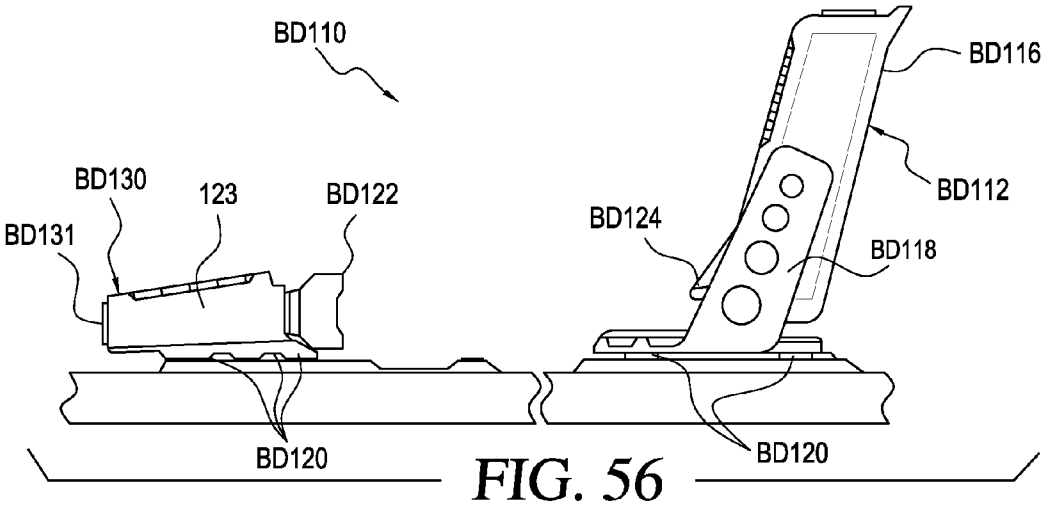

BD110
BD116
BD130
123
BD122
BD112
BD131
BD124
BD118
BD120
BD120

FIG. 56

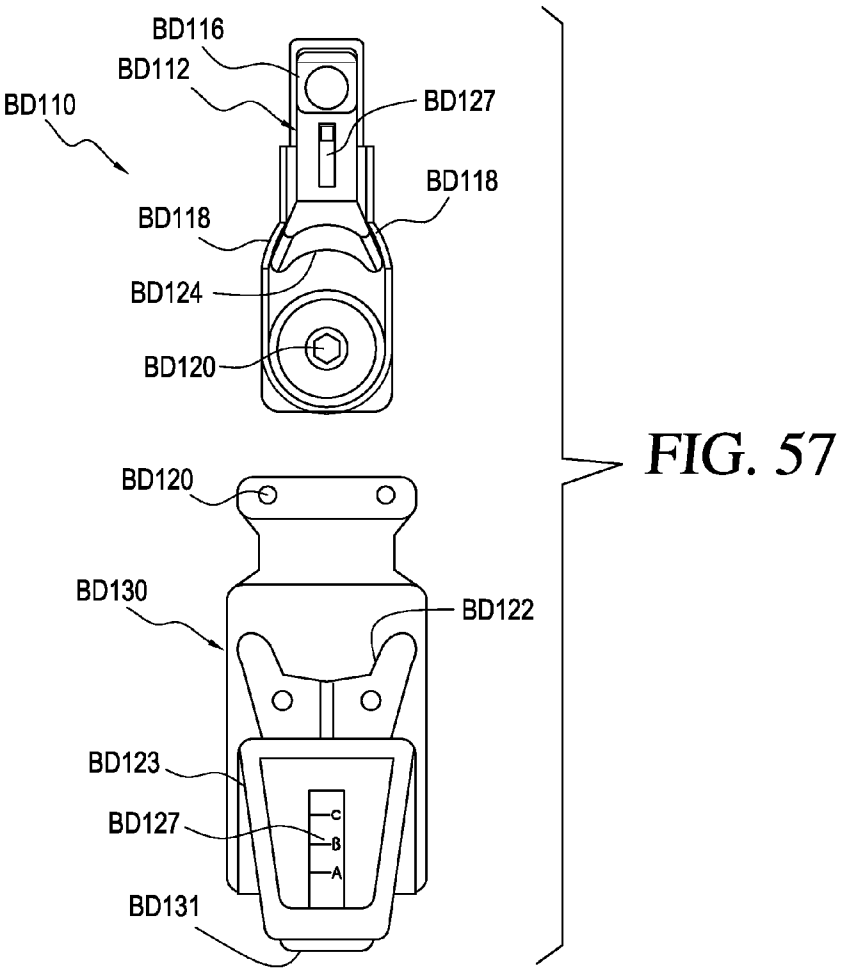

BD116
BD112
BD110
BD127
BD118
BD118
BD124
BD120
BD120
BD130
BD122
BD123
BD127
C
B
A
BD131

FIG. 57

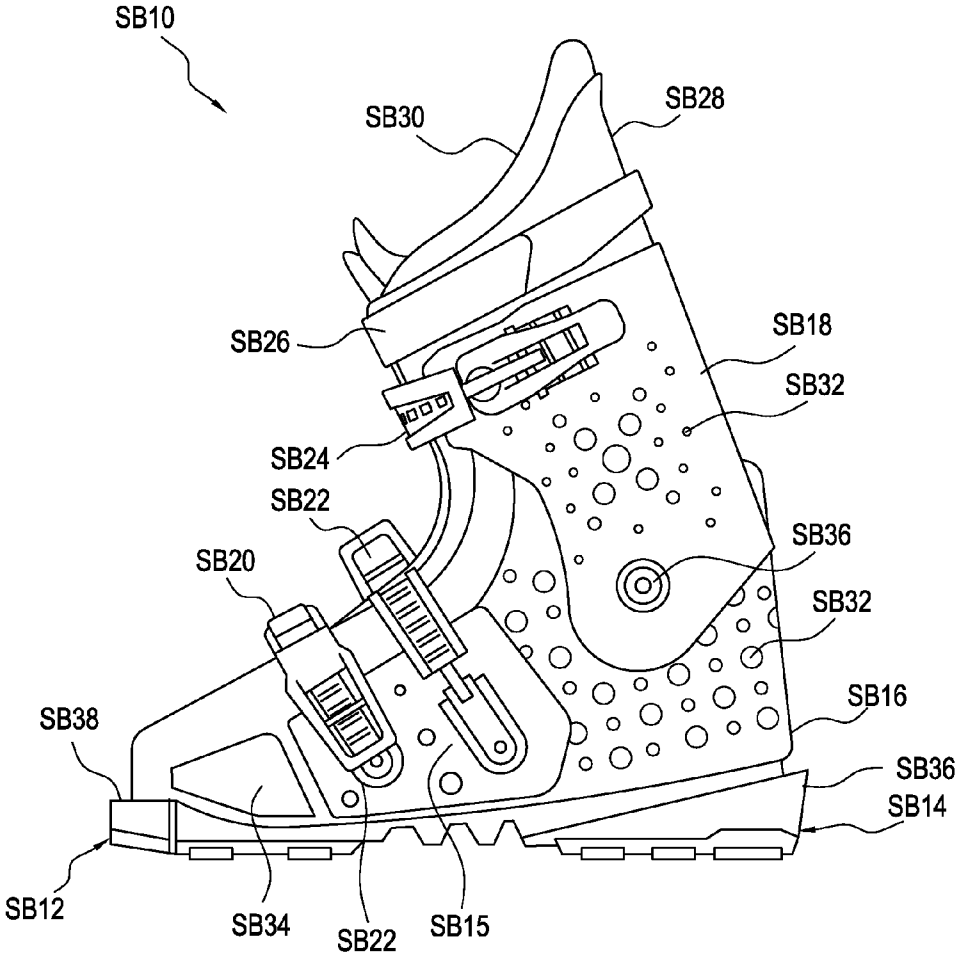
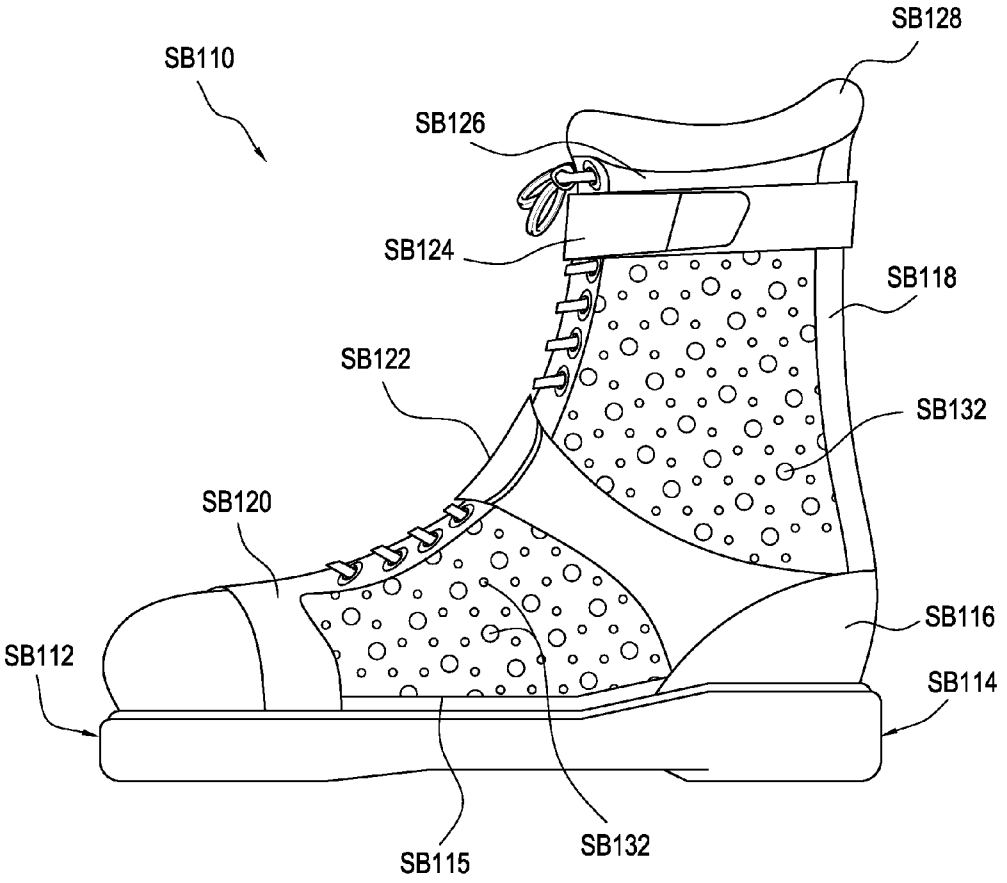

SB10
SB30
SB28
SB26
SB18
SB32
SB24
SB22
SB36
SB20
SB32
SB16
SB38
SB36
SB14
SB12
SB34
SB22
SB15

FIG. 58


SB110
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SB126
SB124
SB118
SB122
SB132
SB120
SB116
SB112
SB114
SB115
SB132

FIG. 59

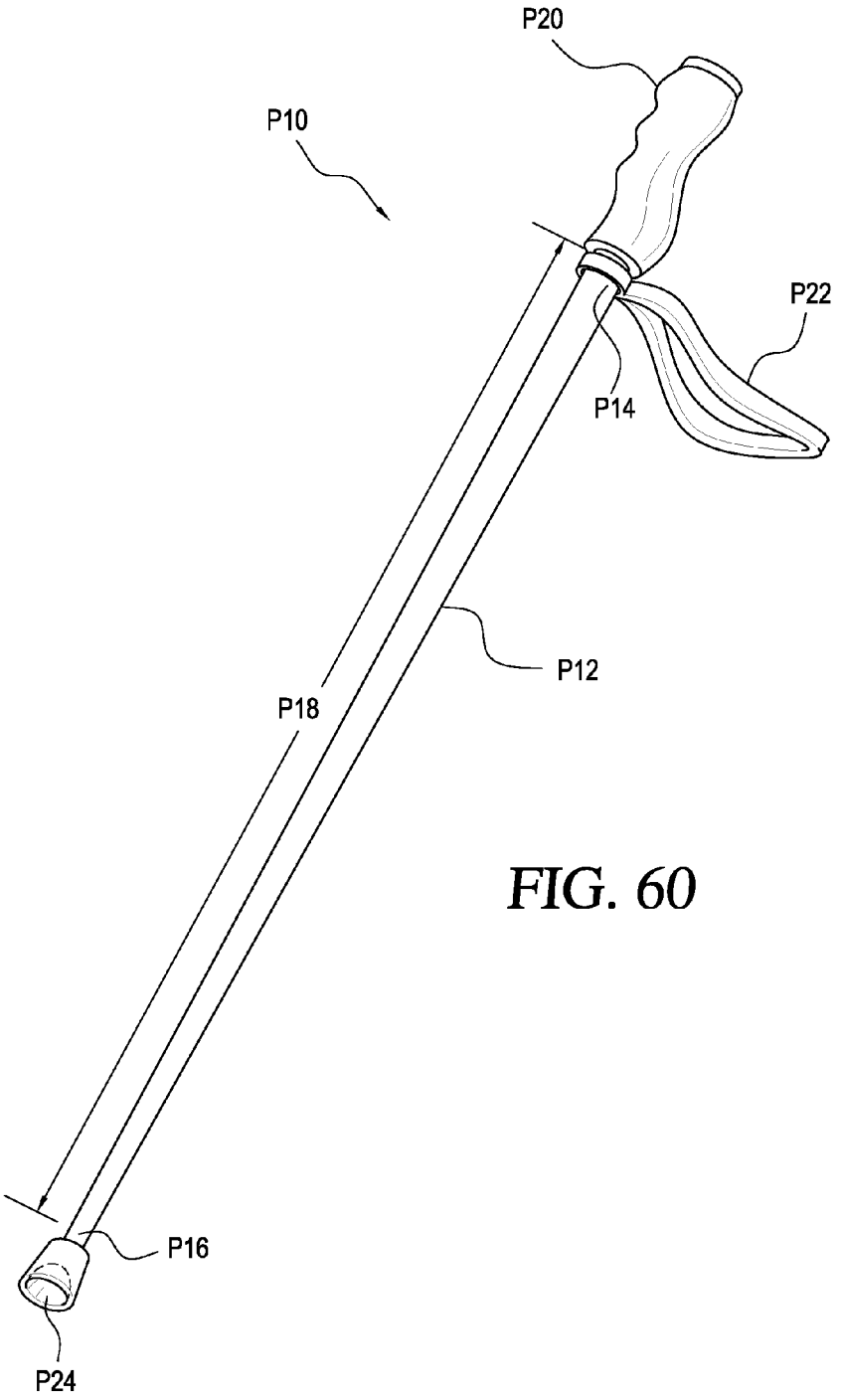

FIG. 60

HYDROPLANE SPORTING ENVIRONMENT AND DEVICES AND METHODS THEREFOR

CROSS REFERENCE TO RELATED APPLICATION

[0001] This nonprovisional application claims the benefit of Provisional Application Nos. 60/931,554, 60/932,418, and 60/932,863 filed on May 23, 2007, May 30, 2007 and Jun. 1, 2007 respectively, each of which are incorporated herein by reference in their respective entireties and to which priority is claimed.

BACKGROUND OF THE INVENTION

[0002] 1. Field of Invention

[0003] The present invention is related to the field of extreme action sports and more particularly hydroplaning water activity wherein a user or participant performs or executes extreme action sport maneuvers while skimming on a liquid and the equipment used therein.

[0004] 2. Description of Related Art

[0005] In the world of action or "extreme" sports, as featured in the Olympics, Winter X-Games, Summer X-Games, Gravity Games, Honda Ski Tour and AST Dew Action Sports Tour, athletes perform various tricks, stunts, maneuvers, and athletic abilities using various types of sporting equipment such as ramps, quarter pipes, half-pipes, boxes, jumps, rails, etc. The conventional environments for these action sports are performed on either dry surface area with wheeled sporting devices, in water environments such as ocean or lakes on wakeboards or wake skates, or on ski slopes in alpine skiing conditions with skis and snowboards. Conventional action or "extreme" sports lack the ability for users to perform action, big action, air, and substantially elevated air maneuvers on a surface with a continuous hydroplaning environment, and the equipment to perform these maneuvers. Further, conventional sports, devices and methods fail to provide equipment and an environment where a user can perform substantially elevated air and big air action sport skimming maneuvers on board and ski skimming devices wherein an artificial skimming surface is continuously provided, such as performed in skateboarding, snowboarding, and snow skiing big air, quarter pipe, half-pipe, and slope style activity. The present invention overcomes these limitations and drawbacks.

[0006] Conventional devises that provide a liquid type environment or water sport environment do exist in the form of waterslides and water chutes. In these conventional devices, a user is sliding down a tube or ramp device on their buttocks or on a riding device such as a mat, or an inflatable tube of some sort. With these conventional slides, the user slides down with the water pushing the user or the riding device down the ramp or chute. These conventional water slide devices fail to provide the proper substantially continuous hydroplane water environment for a user to perform action and big air maneuvers. Further, these conventional water devices fail to provide appropriate equipment enabling a user to ride in a substantially upright position so as to be able to properly perform action sport maneuvers in a hydroplane environment.

[0007] Current water sports include various activities wherein a user rides, stands or kneels upright on a piece of equipment to perform various athletic maneuvers. Such sports include for example water skiing, wake boarding, wake skating, surfing, ocean skim boarding and flatland skim boarding. These types of activities require wind, engine or wind powered marine vessels, waves, physical energy from users, generally on open bodies of water such as oceans, lakes or rivers. None of these activities provide an artificial environment wherein a hydroplaning surface is substantially provided on a continuous basis on devices and with equipment that enable a user to perform action, substantially elevated air, and big air, grinding, and sliding maneuvers. The present invention does provide such an artificial environment and equipment. Further, the present invention provides an artificial environment which provides kinetic energy (from gravity and users) that can be deployed on land, floating on water, which can be used in conjunction with open water, natural, artificial, man-made, or any combination thereof without the need for open bodies of water, waves or powered marine vessels.

[0008] Other conventional devices have tried to provide action sports and board riding experience on devices with an artificial environment. One example device is one that mimics the snow ski environment, as disclosed in U.S. Pat. No. 5,503,597 to Livermore. The Livermore patent discloses an artificial ski mat placed over a surface area, where snow skiing and snowboarding activities can be performed. The ski or snowboard comes in direct contact with the ski mat. Water is used as a lubricator for the mat surface. This conventional device fails to provide a substantially continuous hydroplane environment and equipment for users to perform action, substantially elevated air, and big air maneuvers.

[0009] Another example is U.S. Pat. No. 5,564,859 and 5393170 to Thomas J. Lochtefeld, —Method and apparatus for improving sheet flow water rides. The Lochtefeld patent discloses a device which creates a flow of water generated from propulsion pumps which allow for single and multiple participants. The participants perform various maneuvers on a flow of water much like ocean surfing, wherein the participant stays within a confined area of device, and in event of a fall, is pushed over back of device by propulsion of water flow. The Lochtefeld device forces a flow of water over a horizontal surface and then up an incline to provide a wave type environment for the participants. The Lochtefeld device requires a super-critical velocity propelled at the participant to maintain the balance of the participant. The device disclosed by Lochtefeld fails to provide an environment wherein gravity is the primary force that propels the riders through the device while hydroplaning.

[0010] To participate in conventional action "extreme" sports at the highest ability level requires year round training. Some conventional devices, like the Livermore device mentioned above, have attempted to provide an environment where athletes can practice year round. Athletes can travel to different parts of the world that have the right weather, temperature and other conditions to train. However, a lot of local athletes lack the funds to travel the world and conventional devices fail to provide the dynamic environment required to train for all the maneuvers required. The present invention overcomes these limitations.

[0011] Another aspect of the conventional art is the wake boarder and amateur skim boarder. These people use conventional ocean skim boards, conventional flatland skim boards, conventional wake boards and other similar devices on shallow rivers or standing water. The users run and then jump on the conventional equipment to ride or skim across the surface of the shallow or standing water or are pulled behind a powered marine vessel. This type of amateur conventional activity

fails to provide the required potential and kinetic energy required to execute extreme action sport maneuvers and substantially elevated air maneuvers on a hydroplane environment without the use of powered marine vessel or being pulled by a winch.

SUMMARY OF THE INVENTION

[0012] It is an object of the present invention to overcome the drawbacks and shortcomings of conventional action extreme sport devices and environments. This present invention provides for the devices and equipment for a person or extreme sport athlete to participate in water hydroplane action sport activities and maneuvers on a substantially continuous hydroplane surface, wherein the device does not require open bodies of water or for a user to be pulled by a power source such as a powered marine vessel or winch. It should be appreciated that the present invention can be used with or in conjunction with natural and artificial man-made open and closed bodies of water, such as pools, lakes, streams, rivers, ponds, and ocean, indoor and outdoor.

[0013] The present invention provides the environment and the potential and kinetic energy to participate in extreme action sport maneuvers on a liquid hydroplane environment on a surface disposed on land, floating on water, or in conjunction with open and closed bodies of water, natural and artificial.

[0014] The present invention provides the equipment for users to utilize so as to stand or kneel in an upright position to perform skimming, action, substantially elevated air, and big air maneuvers in a liquid hydroplane environment.

[0015] Further, an objective of the present invention is to provide an environment for extreme action sport athletes and users to participate, practice and train year round in a continuous hydroplane environment.

[0016] Additionally, the present invention provides a device that can be used in a variety of locations, including for example indoors, outdoors, backyards, arenas, stadiums, parks, and resorts, urban, suburban and rural, beach and mountain areas.

[0017] Further, the liquid hydroplane environment as disclosed in this invention, provides a method for the generation of revenue at designated locations in a new "branded" environment, such as a theme-park, sports complex, facility, or venue, or in already existing locations temporarily or permanently converted over to create liquid hydroplane environment for private personal use, commercial use, charitable events, entertainment, amusement, games and sporting events, participated in year round.

[0018] Another object of the present invention is to provide a liquid hydroplane environment device that is mobile and can be transported from one location to another with ease of transportability. In one such embodiment, the hydroplane environment is transported by a towing vehicle and trailer which has this hydroplane environment device temporarily attached for transportation to desired location. The hydroplane environment device is set-up for use by the participants. It should be appreciated that this invention also allows for a liquid hydroplane environment to be permanently attached to a mobile primary vehicle, towing vehicle, or trailer, or any combination thereof which is then transported to a location and set-up for use by participants. It should also be appreciated that the mobile unit can be used in conjunction with various liquid hydroplane environment devices as disclosed in this invention which are placed permanently, temporarily, or both, with use in natural, artificial or combination bodies of water.

[0019] Another object of the present invention is to provide liquid hydroplane environment modular units that provide a liquid hydroplane environment, which user, athlete, or rider utilizes as described in this invention to perform various "extreme" action sport maneuvers, air, substantially elevated air, and big air maneuvers. The liquid hydroplane environment modular units can be of a multi-piece construction or unitary injection molded, which has either an internal or external plumbing system. The liquid hydroplane environment modular unit can be used in singular or plural, which are mated together in various configurations such as "tile" or "end-to-end" formations. Liquid hydroplane environment modular units can be support with conventional support systems and structures made from wood, metal, concrete, scaffolding, or laid over other sufficient support such as land, concrete, or already existing conventional action sport devices such as used for skateboarding, snowboarding, and snow skiing. Further, liquid hydroplane environment modular units can be constructed or injection molded in various shapes and sizes to provide liquid hydroplane environment embodiments such as halfpipe, quarterpipe, big air, slopestyle, stair-step cascading, jump, slope, or ramp where user can perform various "extreme" action sport maneuvers.

[0020] The present invention also provides various articles of equipment for use in the liquid hydroplane environment. The hydroplane equipment includes skim skis, boards, bindings, boots, and poles, helmets, upper body protection, lower body protection, foot wear, hand wear, and eye wear.

[0021] The present invention further provides a hydroplaning device for a rider on hydroplane equipment to perform liquid sport athletic maneuvers, comprising: a support member having a height relative to the ground and a slope; a surface member disposed on the support member along the slope, wherein the surface member forms at least an angled surface and a catchment area; a liquid circulation system, having a liquid source having a liquid, at least one feed line and at least one return line, the liquid source being in fluid communication with the at least one feed line and the at least one return line being in fluid communication with at least one of the liquid source and a disposal location; at least one liquid dispenser disposed adjacent to at least one of the support member and the surface member, the at least one liquid dispenser being in fluid communication with the at least one feed line; at least one drain disposed at least one of adjacent to and within the catchment area of the surface member and being in fluid communication with the at least one return line; and, wherein when the device is in use the liquid from the liquid source will flow through the at least one feed line, out the at least one liquid dispenser, down the angled surface at a sufficient rate so as to create a hydroplane layer of liquid on the angled surface to the catchment area, through the at least one drain and to the at least one return line, and wherein the rider while on the hydroplane equipment will hydroplane on the hydroplane layer as gravity pulls the rider down the angled surface.

[0022] The present invention yet further provides a device for creating a hydroplane skim surface for allowing a rider to hydroplane on hydroplane equipment, comprising: a surface member having an angle relative to the ground; at least one liquid dispenser adjacent on the surface member; and a liquid feed being in fluid communication with the at least one liquid

dispenser, wherein when the hydroplane surface device is in use, liquid from the liquid feed will flow through the at least one liquid dispenser, down the surface member at a sufficient rate so as to create a hydroplane layer of liquid on the surface member, and wherein the rider while on the hydroplane equipment will skim on the hydroplane layer as gravity pulls the rider down the surface member.

[0023] The present invention still further provides an extreme action sport method comprising the steps: acquiring a hydroplane environment device having at least an angled surface; flowing a liquid over the angled surface of the hydroplane environment device to create a continuous hydroplane surface acquiring hydroplane sports equipment for use on the hydroplane environment device; fitting a rider with the hydroplane sports equipment; and, disposing the rider at an elevated portion of the angled surface of the hydroplane environment devices and allowing gravity to pull the rider down the hydroplane environment device such that the rider hydroplanes on top of the continuous hydroplane surface with the hydroplane sports equipment.

[0024] The present invention provides a hydroplane board comprising: a board member having a first end, a second end defining a length, a thickness, a first surface and a second surface, wherein the first end and the second end have a bend in the direction from the second surface towards the first surface; and, a plurality of flexibility grooves disposed on the first surface, near the first end and generally perpendicular to the length.

[0025] The present invention further provides a hydroplaning riding device for a rider to hydroplane upon a liquid surface, comprising: an elongated member having a first end, a second end defining a length, a thickness, a first surface and a second surface, wherein the first end and the second end have a bend in the direction from the second surface towards the first surface, wherein the second surface when in use is operably configured to hydroplane upon the liquid surface; and, a plurality of grooves disposed on the second surface and being generally parallel to the length of the elongated member. The riding device can be a ski or a board.

[0026] The present invention also provides a binding device for use on a board to secure a rider to the board for use in a water hydroplane environment, comprising: a sole portion having a first end and a second end, which includes a plurality of fastener orifices; two side portions attached to the sole portion; a heel portion attached to the second end and the two side portions; a calf portion rotatably attached to the heel portion; a first securing member attached to the two side portions near the first end; a second securing member attached to the two side portions near the heel portion; a third securing member attached to the calf portion; and, wherein the sole portion, two side portions, heel portion and calf portion include a plurality of orifices to reduce weight and when in use to allow the water to drain through out of the binding device.

[0027] The present invention still further provides a ski boot for in use in a water hydroplane environment, for locking into a ski binding, comprising: a shell member; an insert to removably fit inside the shell member; a toe end and a heel end, operably configured to engage the ski binding; wherein the shell member includes a plurality of orifices to reduce weight and when in use allow the drainage of the water.

[0028] These and other features and advantages of this invention are described in, or are apparent from, the following detailed description of various exemplary embodiments of the devices and methods according to this invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] Various exemplary embodiments of this invention will be described in detail, with reference to the following figures, wherein;

[0030] FIG. **1**A is a perspective view of a hydroplane environment device made in accordance with this invention;

[0031] FIG. **1**B is a schematic outline of the hydroplane surface of the hydroplane environment device made in accordance with the present invention of FIG. **1**A;

[0032] FIG. **2** is a side view of the device of FIG. **1**A;

[0033] FIG. **3** is a cross-sectional view of a surface area of the device in FIG. **1**A taken along line **3-3** in FIG. **1**A;

[0034] FIG. **4** is cross-sectional view of the surface area of the device in FIG. **1**A taken along line **4-4** in FIG. **3**;

[0035] FIG. **5** is cross-sectional view of an alternative embodiment of the surface area shown in FIG. **3**;

[0036] FIG. **6** is a cross-sectional view of the surface area shown in FIG. **5** taken along line **6-6** in FIG. **5**;

[0037] FIG. **7** is a cross-sectional view of another alternative embodiment of the surface area shown in FIG. **3**;

[0038] FIG. **8** is a cross-sectional view of the surface area shown in FIG. **7** taken along line **8-8** in FIG. **7**;

[0039] FIG. **9**A is a detailed front view of the surface area of the device in FIG. **1**A;

[0040] FIG. **9**B is a detailed back view of the detailed front view of the surface area of FIG. **9**A of the device in FIG. **1**A;

[0041] FIG. **10** is a detail of the circle A in FIG. **9**A presenting detail of the surface area of the device in FIG. **1**A;

[0042] FIG. **11** is a detailed of the ellipse B in FIG. **9**A, presenting a side view of a dispensing portion of the devise in FIG. **1**A;

[0043] FIG. **12** is a cross-sectional view of the dispensing portion of FIG. **11** taken along line **12-12** in FIG. **11**;

[0044] FIG. **13** is a detailed of the circle C in FIG. **1**A, presenting a perspective detailed view of the dispensing portion of the devise in FIG. **1**A;

[0045] FIG. **14** is a perspective view of a jump module hydroplane environment device made in accordance with this invention;

[0046] FIG. **15** is a detailed of the circle D in FIG. **14**, presenting a perspective detailed view of a dispensing portion of the device in FIG. **14**;

[0047] FIG. **16** is a perspective view of a landing module hydroplane environment device made in accordance with this invention;

[0048] FIG. **17** is a perspective view of a box module hydroplane environment device made in accordance with this invention;

[0049] FIG. **18** is a perspective view of a half-pipe hydroplane environment device made in accordance with this invention;

[0050] FIG. **19** is a side view of the half-pipe hydroplane environment device of FIG. **18**;

[0051] FIG. **20** is a perspective view of a quarter pipe hydroplane environment device made in accordance with this invention;

[0052] FIG. **21** is a side view of the quarter pipe hydroplane environment device of FIG. **20**;

[0053] FIG. **22** is a perspective view of a half-frustum conical hydroplane environment device made in accordance with this invention;

[0054] FIG. **23** is a side view of the half-frustum conical hydroplane environment device of FIG. **22**;

[0055] FIG. **24** is a side view of an alternative embodiment of the a hydroplane environment device made in accordance with this invention;

[0056] FIG. **25** is a side view of an another alternative embodiment of a hydroplane environment device made in accordance with this invention;

[0057] FIG. **26** is a perspective view of a skim board device made in accordance with this invention for use on hydroplaning devices made in accordance with this invention;

[0058] FIG. **27** is a side view of the skim board device of FIG. **26**;

[0059] FIG. **28** is a bottom view of the skim board device of FIG. **26**;

[0060] FIG. **29** is a cross-section view of the skim board device of FIG. **26**, taken along line **29-29** in FIG. **28**;

[0061] FIG. **30** is a bottom view of an alternative embodiment of a skim board device made in accordance;

[0062] FIG. **31** is a cross-section view of the skim board device of FIG. **30**, taken along line **31-31** in FIG. **30**;

[0063] FIG. **32** is a perspective view an another alternative embodiment of a skim board device made in accordance with this invention;

[0064] FIG. **33** is a bottom view of the skim board device of FIG. **32**;

[0065] FIG. **34** is a cross-section view of the skim board device of FIG. **32**, taken along line **34-34** in FIG. **33**;

[0066] FIG. **35** is a perspective view of still another alternative embodiment of a skim board device made in accordance with this invention;

[0067] FIG. **36** is a top view of the skim board device of FIG. **35**;

[0068] FIG. **37** is a bottom view of the skim board device of FIG. **35**;

[0069] FIG. **38** is a cross-section view of the skim board device of FIG. **35**, taken along line **38-38** in FIG. **37**;

[0070] FIG. **39** is a perspective view of still another alternative embodiment of a skim board device made in accordance with this invention;

[0071] FIG. **40** is a top view of the skim board device of FIG. **39**;

[0072] FIG. **41** is a bottom view of the skim board device of FIG. **39**;

[0073] FIG. **42** is a cross-section view of the skim board device of FIG. **39**, taken along line **42-42** in FIG. **41**;

[0074] FIG. **43** is a perspective view of a binding device for use on the skim board of FIG. **26**, made in accordance with this invention;

[0075] FIG. **44** is a perspective view of a skim ski device made in accordance with this invention for use on the device **10** of FIG. **1**A;

[0076] FIG. **45** is a bottom view of the skim ski device of FIG. **44**;

[0077] FIG. **46** is a side view of the skim ski device of FIG. **44**;

[0078] FIG. **47** is a cross-section view of the skim ski device of FIG. **44**, taken along line **47-43** in FIG. **45**;

[0079] FIG. **48** is a perspective view of an alternative embodiment of a skim ski device made in accordance with this invention;

[0080] FIG. **49** is a bottom view of the skim ski device of FIG. **48**;

[0081] FIG. **50** is a side view of the skim ski device of FIG. **48**;

[0082] FIG. **51** is a cross-section view of the skim ski device of FIG. **48**, taken along line **51-51** in FIG. **49**;

[0083] FIG. **52** is a perspective view of an alternative embodiment of a skim ski device made in accordance with this invention;

[0084] FIG. **53** is a bottom view of the skim ski device of FIG. **52**;

[0085] FIG. **54** is a side view of the skim ski device of FIG. **52**;

[0086] FIG. **55** is a cross-section view of the skim ski device of FIG. **52**, taken along line **55-55** in FIG. **53**;

[0087] FIG. **56** is a side view of an alternative embodiment of a binding device for use on the skim ski of FIG. **44**, made in accordance with this invention;

[0088] FIG. **57** is a top view of the binding device of FIG. **56**;

[0089] FIG. **58** is a side view of a boot device for use in the binding device of FIG. **56**, made in accordance with this invention;

[0090] FIG. **59** is a side view of an alternative embodiment of a boot device for use in the binding device of FIG. **43**, made in accordance with this invention; and,

[0091] FIG. **60** is a perspective view of a balance pole for use in the hydroplane environment made in accordance with this invention.

DETAILED DESCRIPTION

[0092] When one thinks of extreme actions sports with users standing and performing maneuvers on a board or ski, some sports such as skateboarding, snowboarding, snow or water skiing, or flatland skim boarding come to mind. Other terms or features may also come to mind like, ramps, half-pipes, quarter pipes, bowls, jumps, rails, and such. The above mentioned conventional extreme action sports all require their own environment. A skateboard at a concrete or wooden skate park, snowboarders and snow skiers, a snow covered mountain, wake boarders and water skiers require a lake.

[0093] The present invention creates an entirely new sport having an entirely new environment and equipment. This new environment is a hydroplane environment, wherein a liquid, flows over a surface area at a controlled rate and depth. A user or rider, dons equipment, such as skis or a board, including equipment made in accordance with the present invention and described below. The user skims or hydroplanes on a surface of the present invention, wherein the user is generally skimming on a thin layer of liquid.

[0094] FIG. **1**A is a perspective view of an embodiment for an extreme action hydroplaning device **10**, made in accordance with the present invention. As shown in FIGS. **1**A and **2**, the extreme action hydroplaning device **10** comprises a support member or structure **15**, a surface member **40**, and a liquid **5** circulation system **80**. The support structure **15** in the present embodiment is a conventionally constructed support structure to provide height or potential energy to a user or rider **1**. The support structure **15** is a connection of a plurality of support braces **16** and posts **17** using conventional construction techniques. The support structure **15** further includes a ladder **18**, platform **19** and safety rail **20**. While the ladder **18** in the present embodiment provide access for the rider **1** to the platform **19**, it should be appreciated that in other various exemplary embodiments, platform access can be

achieved by various means such as steps, stairs, elevators, lifts systems, the ground and the like.

[0095] The support structure **15** in the present embodiment is constructed out of wood. However, it should be appreciated that in other various exemplary embodiments, the support member could be constructed out of metal, plastics, concrete or composites, or any combination thereof, as is common in the art. Further, in other various exemplary embodiments, the support member could be a downhill gradient of earth, such as a ski slope, or already existing conventional action sports device used for skateboarding or bicycle motocross (BMX). It should also be appreciated that the support structure in other embodiments is other types of support, such as scaffolding or the like. Further, in other exemplary embodiments, the support structure is mounted to mobile vehicles, such as trucks and trailers. In these mobile embodiments, the other components of the action hydroplaning device would be included on or transported by the mobile vehicles.

[0096] The support structure **15** in the present embodiment, is a downhill ramp that includes a height **21**. It should be appreciated that in various other exemplary embodiments, the support structure could present other configurations, such as a half-pipe, quarter pipe, a bowl, jumps or landing ramp, for example, some of which will be discussed latter. The support structure can include various modules, such as ramps, half-pipes, quarter pipes, bowls, jumps, flat surfaces, etc., that are combined together to form more complex arrangements of structures. It should also be appreciated that in other various exemplary embodiments the device **10** and support structure **15** can be configured in various heights, combinations, and configurations above ground, in ground, or any combination thereof, and also in accordance with user preference, extreme hydroplane sport discipline, or other preference. It should be appreciated that invention embodiments can be made in smaller sizes to be used as toys or decorations utilizing figurines or dolls.

[0097] The support structure **15** provides the potential energy for the rider **1** by way of the height **21**. The rider **1** translates the potential energy into kinetic energy by hydroplaning down the surface member **40** and uses the kinetic energy to execute extreme action sport maneuvers, as will be discussed below.

[0098] The liquid circulation system **80** includes pumps **81**, a liquid supply **82**, plumbing supply lines **83**, plumbing return lines **84**, a plurality of drains **85** and a plurality of liquid feeds **86**. In the present embodiment, the supplies lines **83** and return lines **84** are conventional polyvinyl chloride (PVC) material. However, it should be appreciated that in other various exemplary embodiments the supply and return lines could be of other material as is common in the art. The pump **81** takes the liquid **5** from the liquid supply **82** and via the supply lines **83** feeds the liquid **5** to the plurality of liquid feeds **86** disposed on the surface member **40**. In this embodiment, two pumps **81** are shown, one on the supply side of the liquid circulation system and one on the return side. It should be appreciated that the return side pump is optional, but is preferred to be used if the supply source is level or higher than the catchment area and drains. The liquid circulation system **80** provides the liquid **5** to the surface member **40** to maintain a hydroplane environment on the surface member **40**.

[0099] The liquid **5** is supplied to the surface member **40** by the plurality of liquid feeds **86** and flows down the surface member **40** by the force of gravity. The liquid **5** will tend to pool at the bottom of the ramp structure and drain from the surface member **40** via the plurality of drains **85**. The drains **85** are in fluid communication with the return lines **84**. The liquid **5** travels from the drains **85** to the return lines **84** and return to the liquid supply **82**.

[0100] In the present embodiment, the liquid **5** in use is water. However it should be appreciated that in other various exemplary embodiments, the liquid could be of other forms or compounds that have a high viscosity, such as, but not limited to glycol for example. Additionally, it is contemplated by this invention that additives, common in the art may be included with the water **5** as required to increase the viscosity of the water. Still further, non-conventional liquids may be use in the device **10** such as juice, soda, alcohol (wine, beer, or Champaign) if so desired by the rider **1** or user.

[0101] The liquid supply **82** in the present embodiment is a tank. However, it should be appreciated that in other various exemplary embodiments, the tank could be replaced or combined with any natural or man-made water source, such as, for example, a lake, river, pool or city water supply. Additionally, if a natural source of water is being used, it is contemplated by this invention, that the water could drain back into the natural supply instead of being pumped to the tank.

[0102] In the present embodiment, at least one half inch of water **5** is desired on the surface member **40**, as depicted in FIG. **3**. However, it should be appreciated that in other various exemplary embodiments the amount of liquid **5** on the surface member to maintain the hydroplane environment will vary according to several factors, such as, the steepness of the structure, the weight of the rider, and the desired equipment to be used by the rider are among the few to be considered. The formulation of how to provide this flow rate is calculated using conventional hydraulic methods for determining pressures, flow rates and the height the liquid **5** must be pumped, as is common in the art. An exemplary example in determining the flow rate is as follows: 900 Gallons Per Hour (or 15 Gallons Per Minute) multiplied per one lineal foot of weir (or liquid flow) across the fluid dispenser (or coping). The minimum amount of liquid supply in gallons is calculated by multiplying the length×width×depth×7.5×3 will provide the amount of gallons of liquid needed to supply the hydroplane surface liquid at ½ inch level. It should be appreciated that one skilled in the art of hydro-physics can determine the minimum ½ inch level of water liquid needed relative to size of hydroplane embodiment module by using calculation values known by those skilled in the art.

[0103] The surface member **40** is supported by the support structure **15**. In other exemplary embodiments, it is optional to have the surface member **40** removably attached to the support structure **15**. In the present embodiment, as shown in FIGS. **3** and **4** the surface member **40** comprises a first layer or support layer **41**, a second layer or barrier **42**, and a third layer or skim surface **43**, which provides the hydroplane environment. It should be appreciated that the surface member may be constructed from various layers as contemplated by this embodiment or from a unitary type construction, such as injection molding wherein the layers are not necessarily distinct separate layers as will be discussed further below. Further, the surface member can be unitary or be made up of distinct pieces that are placed adjacent to one another to form the entire width and length of the surface member **40**.

[0104] The surface member **40** has a width **51**. The width is defined by a plurality of portions or side walls **44**. It should be appreciated that the width of the surface member **40** may be different for different applications. Some additional exem-

plary embodiments with other width dimensions will be discussed further below. The plurality of portions **44** in the present embodiment are side walls or gunwales that define the boundary of the skim surface or hydroplane region **40**. It should be appreciated that the gunwales in other exemplary embodiments are adjustable in height to control liquid depth level. The height adjustment in those embodiments can be controlled manually, electronically, hydraulically or the like.

[0105] The surface member **40** further includes a length, a first end **58** and a second end **59**, which extends from where the surface member **40** joins the top of the support structure **15** at the loading platform **19** to the second end **59** of the surface member **40**. The second end **59** is removable to facilitate the addition of other components or modules, as will be discussed below.

[0106] The plurality of liquid feeds **86** disposed on the surface member **40** further includes a plurality of dispensing portions **45**, a plurality of dispensing portions **46**, and a horizontal or coping dispenser **55**. While the present embodiment depicts all of the plurality of feeds employed on the device **10**, it should be appreciated that in other various exemplary embodiments the device may have any combination of the plurality of feed attached or in use.

[0107] The present embodiment includes two dispensing portions **45**A and **45**B, which are disposed adjacent the third layer **43**. More preferably, the dispensing portions **45**A and **45**B are disposed on top of the third layer **43**. The dispensing portions **45**A and **45**B are further preferred to be disposed against the gunwales **44**. It should be appreciated that the dispensing portions in other various exemplary embodiments can be disposed in different locations from one another relative to the third layer **43**. The dispensing portions **45**A and **45**B extend along at least a portion of the length of the surface member **40**. It is further preferred that the dispensing portions **45**A and **45**B be disposed along substantially the entire length of the surface member **40**, as can be seen in FIG. **1**A. It should be appreciated that dispensing portions can, in other exemplary embodiments, be disposed along at least one portion of the length of the surface member. The dispensing portions **45**A and **45**B are in fluid communication with the supply lines **83**.

[0108] The dispensing portions **45**A and **45**B include a plurality of elongated openings **63**, which can be seen in FIGS. **3**, **4**, **9**A and **11** through which the supplied liquid **5** may egress from the dispensing portion to the surface member **40**. The plurality of dispensing portions **45** preferably terminate at the end **59** of the surface member **40**.

[0109] FIGS. **11** and **12** display a detail of the plurality of dispensing portions **45**. The plurality of dispensing portions **45** includes an outer member **61**, an inner member **62** and an axis **65**. The inner member **62** is disposed within the outer member **61**. This arrangement can be thought of as a pipe within a pipe arrangement. It is preferred that the inner member **62** be coaxially aligned with the outer member **61** along the axis **65**. The inner member **62** is in fluid communication with the supply lines **83** via conventional plumbing techniques, mechanisms and hardware that are common in the art. The liquid **5** is supplied to the inner member **62** as shown by the arrow D in FIG. **15**. A plurality of orifices **64** are disposed along the length of the inner member **62**. The orifices **64** are preferred to be circular in shape. The outer member **61** includes the plurality openings **63**. The openings **63** are preferred to be rectangle, with rounded corners, or elongated oval in shape. The openings **63** are disposed along the outer member **61**. It can be appreciated that in other embodiments the plurality of openings **63** may be circular in shape with an increased quantity disposed along the dispensing portions **45** as shown in FIGS. **14**, **17**, and **19** for example. The plurality of orifices **64** in the present embodiment are preferably about one quarter inch orifices. However, it should be appreciated that in other various embodiments, other orifice could be or other sizes or mechanical nozzles to provide the proper flow rate to the surface member **40**. Further, it should be appreciated that in other various exemplary embodiments, the orifices on the respective inner and outer members are shapes other than circles and ovals. Additionally, in other embodiments, the orifices of the inner and outer members have the same shape. Additionally, in other embodiments, the inner member **62** and outer member **61** can be aligned along the axis in various positions according to user preference.

[0110] In the present embodiment the inner member **62** is a one inch polyvinyl chloride (PVC) pipe and the outer member **61** is a two inch PVC pipe. However, it should be appreciated that in other various embodiments, other materials and sizes common in the art may be used. It should be appreciated that the diameter difference between outer member **61** and inner member **62** can vary depending upon the selection of the user for a particular application from about ¼ inch up to about 1 inch for most applications and from about 1 inch to greater than 3 inches for larger applications. Further, it should be appreciated that the diameter difference between outer member **61** and inner member **62** in extremely large embodiments can be greater than 3 inches.

[0111] For the purpose of orientation in reference to FIG. **12**, the terms left, right, up and down will be used. This orientation is not intended to be limiting in the application of the plurality of dispensing portions **45**. The plurality of orifices **64** enable the liquid **5**, flowing through the inner member **62** from the supply lines **83**, to exit the inner member **62** towards the right in the direction of the arrow A. The plurality elongated openings **63** enables the liquid **5**, flowing out of the inner member **62**, to exit the outer member **61** towards the left (or towards the skim surface **43** in this exemplary embodiment) and downward in the direction of the arrow B. With this arrangement of the respective orifices, the liquid **5** spills over the bottom edge of each of the openings **63** and onto the skim surface **43**. The orifices **64**, are preferred to be positioned such that its axis is substantially even with the axis **65** as to the up and down relative position of the axis **65**. The openings **63** are preferred to be positioned such that each respective opening **65** is positioned below or more down than the axis **65**. In the present embodiment, the ratio of orifices **64** to orifices of the elongated openings **63** along the length of dispensing portion **45** is preferred to be 3 to 1. However, it should be appreciated that in other various embodiments, other ratios may be utilized to accomplish desired flow rates of the liquid **5** exiting the elongated openings.

[0112] The plurality of dispensers **45** of the surface member **40** include a female end **53**, as shown in FIG. **13**, disposed at the portion of the plurality of dispensers **45** near the end **59**, which is operably configured to receive a sealable male fitting, which is common in the art. In FIG. **13**, a portion of the end **59** has been removed to expose the female end **53** for coupling up to another device, as will be discussed below. It should be appreciated that in other various embodiments the connection of plumbing lines together can use various connection fittings as those used common in the art.

[0113] The plurality of dispensing portions **46** are disposed throughout the area of the surface member **40**, as shown in FIG. **9**A. The plurality of dispensing portions **46** are dispersed in a pattern about the skim surface **43**. The pattern of the plurality of dispensing portions **46** is uniform on the surface member **40** with more dispensers **46** in the steeper sections and less dispensers **46** in more horizontal sections. The plurality of dispensing portions **46** penetrate the first and second layers **41** and **42**, as shown in FIG. **4**. The portions **46** are preferred to be a conduit having a surface end and a non-surface end. The surface end being designed to be flush with the skim surface **43** of the surface member **40**. The non-surface end of each of the plurality of dispensing portions **46** is connected to a nozzle **47**. A supply line **48** is connected to the nozzle **47**. The supply line **48** is in fluid communication with at least one of the supply lines **83**. The nozzle **47** is preferred to be an adjustable nozzle to provide a variable flow rate based on a variety of factors. Such factors include, for example, the type of liquid **5** being used as the skimming fluid, the location of the nozzle on the surface member, the desired depth of skimming fluid. The nozzles **47** will assist in controlling the amount of liquid **5** being dispensed on the surface member **40**. Further, it should be appreciated that the nozzles **47** can be manual or automatically controlled, such as by a computer or computer program, to adjust the flow rate of the liquid **5**. It should be appreciated that in various embodiments dispensers **46** can be increased or decreased in quantity at various locations of the embodiment to affect liquid depth and flow rate according to user or rider preference, steepness of embodiment surface, and types of maneuvers being performed.

[0114] Additionally, it should be appreciated that the control of the nozzles can be dependent upon sensors, not shown, positioned about the surface member. The sensors, in some exemplary embodiments would detect the depth and/or the speed of the water at various locations, and/or location and speed of user or rider on hydroplane environment skim surface and alter the flow from particular nozzles upstream from the particular sensor to achieve a desired depth and flow rate of the skimming liquid **5**. It should further be appreciated that the plurality of dispensing portions **45**, the plurality of dispensing portions **46**, and the horizontal or coping dispenser **55** and any pumps and nozzles associated therewith could be similarly be manually or automatically controlled. Moreover, the control of the plurality of dispensing portions **45**, the plurality of dispensing portions **46**, and the horizontal or coping dispenser **55** and any pumps and nozzles associated therewith, could be dependent upon sensors as discussed above for nozzles **47**.

[0115] The surface end of the each of the plurality of dispensing portions **46** have a cross-sectional shape at the surface of the surface member **40**. The cross-sectional shapes are preferably not the same for all of the dispensing portions **46**. The dispensing portions preferably have two different cross-sectional shaped openings, some being rectangular in shape and some are circular in shape as can be seen in FIG. **9**A. Preferably, the rectangular shaped openings of the plurality of dispensing portions **46** are generally disposed near the steeper sections of the surface member **40** and reduce in number as the surface member levels out. The plurality of dispensing portions **46** that are circular in shape generally increase in number as the surface member **40** starts to transition to the horizontal. The combination of rectangular shaped and circular shaped plurality of dispensing portions **46** is adjusted depending on the steepness of the device **10**, the quickness with which the surface member levels towards the horizontal in order to maintain the hydroplane environment. It should be appreciated that some embodiments, such as halfpipe, quarterpipe, big air, ramp-to-ramp, and half-frustum conical, the liquid dispensers can be reduced in quantity in steeper and/or vertical sections of hydroplane environment skim surface according to user or rider preference for type of maneuvers being performed.

[0116] The coping dispenser **55**, is similar in design as the plurality of dispensing portions **45**. The coping dispenser **55** is disposed along the first end **58** of the surface member **40**. It is preferred that the coping dispenser **55** extend along substantially the entire width of the first end **58**, as shown in FIGS. **1** and **9**A. The coping dispenser **55** is the same construction as the plurality of dispensing portions **45**.

[0117] FIG. **9**B rear view of the surface member **40**, or the backside of the features in FIG. **9**A. Supply lines **83** supplies liquid **5** to supply tubes **48**, which in turn supply liquid **5** to the nozzles **47**. As shown in FIG. **9**B, the supply of liquid **5** is set up as a manifold. It should be appreciated that the supply lines **83** could be arranged in other configurations to supply the liquid **5** to the supply lines **48** as is common in the art. The manifold liquid supply in this exemplary embodiment is preset to a predetermined supply amount based upon the diameter of the lines used and the volume of water being supplied. It should be appreciated that in other exemplary embodiments, the manifold liquid supply is controlled manually, electronically or a combination of both. Further, the liquid dispensers may also be linked directly to the liquid supply and bypass the manifold or the manifold may be removed all together in other exemplary embodiments.

[0118] The third layer or skim surface **43** forms the exterior surface of the surface member **40** upon which the skimming liquid **5** will flow. In the present embodiment the skim surface **43** is made from a fiberglass material. It should be appreciated that in other various exemplary embodiments, the skim surface could be of other materials, such as, for example, polymer composites, rubber coated materials, etc. The skim surface **43** is the area that the user or rider **1** uses with special equipment (to be discussed further below) to hydroplane upon a skimming liquid **5** along the surface member **40**.

[0119] The third layer or skim surface **43**, includes smooth areas and areas that include a plurality of rises or bumps **57**, as shown in FIGS. **9**A and **10**. The rises **57** preferably have a cross-section that is circular in shape. It should be appreciated that shapes other than circles may be utilized in other various exemplary embodiments, such as triangles, diamonds, ovals, etc. The plurality of rises **57** aid the rider **1** in reestablishing the hydroplane environment after leaving the skim surface **43** while doing an athletic maneuver. Particularly, as a rider **1** lands on the ramp device **10** after performing a maneuver the extra force from landing on the ramp **10** will tend to displace the liquid **5** under the rider **1**. However, the rider **1** will land on the top of the rises and since the rises have a height above the skim surface **43**, the liquid **5** will still be flowing under the rider **1** aiding the rapid return of the hydroplaning environment for the rider **1**. It should be appreciated that in other exemplary embodiments the skim surface is partially or entirely smooth. It is an option of this invention to have the plurality of rises or bumps **57** disposed only on steeper or transitional portions of the surface member **40**, because in the flatter regions there will tend to be deeper levels of skimming liquid **5** and the rider is unlikely to displace all of the liquid **5**

in the deeper areas. Flatter regions preferably will range in depth from ½ inches to 6 inches or more, depending on user preference, hydroplane sport discipline and maneuvers being performed by user, and use of hydroplane embodiment relative to artificial, natural, or combination thereof liquid supply or embodiment. It can be appreciated that when hydroplane embodiment is used in conjunction with natural liquid supply such as ocean, lake, or river, or with artificial liquid supply such as with pool or tank, the liquid depth level may increase greater than 6 inches while still providing for efficient hydroplane environment to users. Further, it should be appreciated depth of liquid could be reduced progressively from flatter or horizontal regions transitioning through the radius and angled or vertical regions depending upon user preference, hydroplane sport discipline and maneuvers being performed by user or rider. The progressive reduction in depth of the liquid going up a ramp type device is facilitated by the notion that gravity is pulling rider down the device and less liquid is needed to sustain a hydroplane environment. Accordingly, in the steeper regions of a hydroplaning device, made in accordance with the present invention, gravity combined with the angle of the ramp/device allows the rider to fall more rapidly than less steeper regions and thus less liquid depth is needed.

[0120] In the embodiment shown in FIG. **10**, each of the plurality of rises **57** has a diameter **58** and a height above the skim surface **43**. The diameter **58** may have a range of one eighth to one half inch. The height may have a range of one eighth to three eighths of an inch. In this embodiment the preferred diameter **58** is one quarter of an inch and the preferred height is one thirty-second of an inch. It should be appreciated that in other various exemplary embodiments, the height and diameter could be varied according to user preferences, type and size of hydroplane embodiment used, type of maneuvers being performed, and type of hydroplane device being used. It should be appreciated in one exemplary example, height and diameter used in the transition region of a quarterpipe with a platform **219** height of twenty feet would be greater height and diameter than what would be used in transition region of a quarterpipe with a platform **219** height of twelve feet. Further, it should be appreciated height and diameter in various hydroplane embodiments such as half-pipe, quarterpipe, and half-frustum conical would be of greater height and diameter in radius transition region of embodiment and decrease in height and diameter size as radius transitioned into vertical region of hydroplane surface.

[0121] The first layer **41** provides support to the third layer or skim surface **43**. In the present embodiment, the first layer **41** is preferred to be made of plywood. However, it should be appreciated that in other various exemplary embodiments, the first layer could be of other materials such as metal, concrete, fiberglass, rubber, plastic, polymers, PVC, P-Tex, composites, etc., and injection molded, poured, or formed,

[0122] The second layer **42** is a protective barrier between the first and third layers. In the present embodiment, the first layer **41** is a flexible liquid impermeable polymer. However, it should be appreciated that in other various exemplary embodiments, the second layer could be of other materials such as metal, fiberglass, resin, plastic, rubber, polymers and composite materials, or combinations thereof.

[0123] The surface member **40**, as shown in FIGS. **1** and **2** has a ramp or downhill slope configuration. The surface member **40** extends from where the surface member **40** joins the top of the support structure **15** at the platform **19** to the end **59** of the surface member **40**. In this configuration, the surface member **40** includes a catchment area **50**, as shown in FIG. **1**A. It should be appreciated that in other various exemplary embodiments, the surface member may have additional gunwales disposed on the skim surface to create a lane, run, or course so that multiple riders **1** may use the device. It should further be appreciated that in other exemplary embodiments other preexisting structures can serve as the platform such as a deck, landing, roof, bridge, scaffolding or the like.

[0124] It is should be appreciated that in other exemplary embodiments of this invention the surface member that supports the skim liquid and skim surface could be of one piece construction, instead of the three layers as described above. FIG. **5** presents a cross-section of an alternative embodiment of the surface member **40**X. The surface member **40**X is similar to the surface member **40**. The surface member **40**X includes a skim surface **43**X, a plurality of side portions **44**X, dispensing portions **45**AX and **45**BX, dispensing portions **46**X. The surface member **40**X also includes nozzles **47**X and supply lines **48**X. It should be appreciated that the one piece embodiments can be injection molded from various materials common in the art of injection molding. It should be appreciated that the injection molded embodiments can be used in singular or plural in "tile" or end-to-end configuration forms. Further, it should be appreciated that embodiment can be supported with conventional support systems and structures made from wood, metal, concrete, scaffolding, or laid over other sufficient support such as land, concrete, or already existing conventional action sport devices, such as used for skateboarding, snowboarding, and snow skiing. It should be appreciated that the injection modular units can be molded with or without plumbing within the unit.

[0125] Surface member **40**X is different from surface member **40** in that surface member **40**X is of a one piece or unitary construction. In this embodiment the surface member is preferably made by injected molding methods. FIG. **6** shows a lateral cross-section of the surface member **40**X taken along line **6-6** in FIG. **5**. As can be seen in FIGS. **5** and **6**, the surface member **40**X does not include the three separate layers as in the surface member **40**. Rather these layers are combined in a one-piece construction. It should be appreciated that some of the plumbing features associated with the surface member **40**X are external to the unitary one-piece construction, such as the dispensing portions **45**AX and **45**BX, nozzles **47**X and supply lines **48**X, while the dispensing portions **46**X are embedded within and preferably also extend from the construction and connect with the nozzles **47**X.

[0126] FIG. **7** presents a cross-section view of another alternative embodiment of a surface member **40**Y. The surface member **40**Y is similar to the surface member **40** and **40**X. The surface member **40**Y includes a skim surface **43**Y, a plurality of side portions **44**Y, dispensing portions **45**AY and **45**BY, and dispensing portions **46**Y. The surface member **40**Y also includes supply lines **48**Y. It should be appreciated that any of the surface members made in accordance with the present invention can be injection molded from various materials common in the art of injection molding. Further, it should be appreciated the injection molded embodiments can be used in singular or plural, in "tile" or end-to-end configuration forms. It should be appreciated the injection molded embodiments can be used in singular or plural, in "tile" or end-to-end configuration forms. Further, it should be appreciated embodiment can be supported with conventional support systems and structures made from wood, metal, concrete, scaffolding, or laid over other systems and structures made

from wood, metal, concrete, scaffolding, or laid over other sufficient support such as land concrete, or already existing conventional action sport devices such as used for skateboarding, snowboarding, and snow skiing.

[0127] Surface member **40**Y is different from surface member **40** in that the surface member **40**Y is constructed of injection molding, wherein all the dispensers **45**AY, **45**BY, and **46**Y, as well as the valves **47**Y and portions of the supply lines **48**Y are molded within the surface member **40**Y. Additionally, the side portions **44***y* are preferably integral to the surface member **40**Y. FIG. **8** shows a lateral cross-section of the surface member **40**Y taken along line **8-8** in FIG. **7**. As can be seen in FIGS. **7** and **8**, the surface member **40**Y includes all the components internal to the molded surface member **40**Y.

[0128] Additionally it should also be appreciated that the surface members **40**X and **40**Y could be constructed of multiple modular sections that are connected together to form the respective surface members as discussed below for member **40"**, for example, in connection with FIG. **16**. While these are not shown, the surface members **40**, **40**X and **40**Y could be similar to puzzle pieces that fit together to assemble the surface member **40**, **40**× and **40**Y on the support structure **15** as required. It should be appreciated that the injection molded constructions of the embodiments of FIGS. **5-8** enables for convenient application of using such multiple modular sections being pieced together. Further it should be appreciated that when modular sections are used, the injection molded embodiments will include plumbing fittings on the sides and top and bottom of each module unit for mating with adjacent modules. These plumbing fittings will be external to the injected molded construction in embodiments like that shown in FIGS. **5** and **6** and the plumbing fittings would be internal and extend from the injected molded construction in embodiments like that shown in FIGS. **7-8**. It should further be appreciated that the surface of the surface member may more easily be modified with injection molded embodiments. For example, the surface of the surface members of any embodiment of devices made in accordance with the present invention may undulate or be substantially flat. Further the overall shape of the surface member may be of a variety of shapes.

[0129] The catchment area **50** has a length. The catchment area **50** is a transition area wherein the rider **1** is transitioning from the slope section of the surface member **40** to a more horizontal section. The liquid **5** flowing down the surface member **40** will tend to pool in the catchment area. The catchment area is a section where the rider **1** can, if desired, dissipates energy after riding down the slope of the skim surface **43**. The length is preferably determined or calculated according to the hydroplane environment sport activity discipline for which the device is to be utilized, the maneuvers to be performed by rider, the rider preference, and ability of rider. The length dimension does not have to be limited to the noted factors and can be as long as desired by the user. Further in other exemplary embodiments the catchment area even extends so as to mate or flow into a natural body of liquid, such as a river or ocean. Further it should be appreciated that the catchment area is not limited to straight sections and in some other embodiments is actually shaped in non-linear shapes. The catchment area **50** includes the plurality of drains **85**, which return the liquid **5** to the liquid supply **82**. The catchment area **50** also has some of the plurality of dispensers **45** and **46**. Further, the liquid **5**, for this exemplary embodiment, is allowed to flow in to the catchment area **50** to a depth from one half inch to about six inches, depending on the preferences of the user. The level of the liquid **5** may increase beyond six inches if so desired by the user **1**. While the present embodiment has the plurality of drains **85** are disposed near the end **59** of the surface member **40**, it should be appreciated that in other various exemplary embodiments, the liquid **5** can be returned to the supply tank **82** though other methods common in the art, such as but not limited to chutes, troughs, channels, and gutters and in fluid communication with return flow. Further, it should be appreciated that drains can be placed at various locations of hydroplane surface and in fluid communication with return lines.

[0130] Further, it is contemplated by this invention that the flow rate of the liquid or fluid **5** to the surface member **40** be controlled either manually or automatically through the use of computer programs common in the art. Additionally, the flow rate of fluid could be controlled in real time by the inclusion of electronic triggers and sensors common in the art that are activated as the rider **1** passed specified locations along the surface member **40**. The activated sensors would in turn increase or decrease the rate of fluid flow downstream of the rider **1** based on preset parameters according to the rider **1** preferences.

[0131] The flow rate of the liquid, which is water for the present embodiment, is controlled such that the water maintains a depth of at least one half inch long the skim surface **43** until the catchment area **50**. The desired flow rate should take in to account variables such as the weight of the rider, the type and surface area of the riding equipment being used, the steepness of the surface member **40**, the density of the liquid being used and the expertise of the rider. The heavier the rider, the more liquid flow that will be needed. The steeper the ramp the less flow that is needed to maintain the hydroplane environment. The denser the liquid the less flow that is needed, the more experienced the rider, the less flow that is needed and the great the surface area of the riding equipment the less flow that is need to maintain the hydroplane environment.

[0132] The device **10** may be used with a plurality of similar devices made in accordance with the present invention to provide a skimming surface. The other devices can be thought of as modular additions that can be used in a variety of combinations with one another and the device **10**.

[0133] Referring to FIG. **1**B, wherein a schematic representation or outline of the top surface is shown. An angle **90** is defined between the platform **19** and a horizontal reference. The preferred angle for angle **90** is about 3 to 7 degrees. The angle **90** enables riders to ease into the steep part of the ramp as opposed to abrupt drop. However, it should be appreciated that in other exemplary embodiments, 0 degrees may be employed for angle **90**. An angle **94** is defined between the surface member **40** and a horizontal reference. The angle **94** is preferred to be about 15 to 85 degrees. The angle **94** is even more preferred to be about 23 to 70 degrees. The angle **94** allows gravity to act upon the rider so that the rider hydroplanes upon the liquid flowing on top of the surface member **40**. It should be appreciated that the angle **94** can also be 0 degrees. The rider will travel down the device faster than the rate of the flowing liquid. This invention utilizes gravity as the force to enable the rider to traverse the device on hydroplaning riding equipment and uses liquid upon the surface member **40** to enable that traversing to be via hydroplaning.

[0134] The section between the steep incline of the device **10** and the catchment area is referred to as the transition section **94**. The transition section has a radius **96**. The transition radius **96** is preferred to be about 14 feet when a height **98**

of the platform **19** is about 23 feet. The height **98** is measured from about the vertical level of the bottom of the platform to the vertical level of the catchment area. Further preferred height **98** to transition radius **96** are as follows (height-radius): about 3 to 7 feet in height—about 7 foot radius; about 7 to 12 feet in height—about 10 foot radius; about 12 to 20 feet in height—about 14 foot radius; about 21 to 60 feet in height—about 15 to 23 foot radius; and about 61 to >100 plus feet in height—about 30% to 33% of height. The radius can be designed to rider level of ability, strength, maneuvers/tricks to be performed and hydroplane embodiment type or style. Decreasing the radius will exert more forces upon the rider.

[0135] Referring to FIGS. **14** and **16**, exemplary embodiments of a jump module **11** and a landing module **12** are shown. The jump module **11** and landing module **12** are optional. These modules may also be used for drop-ins, slopes or just ramps. The jump **11** includes a support structure **15'** and a surface member **40'**. The support structure **15'** is similar in construction to support structure **15**. The support structure **15'** includes braces and posts as in support structure **15**, which are not shown. The support member **15'** has a height **21'**, which is less than the height **21** of the support structure **15**. It should be appreciated that the height of the jump compared to the ramp is adjusted according to user or rider preference, maneuvers being performed by user or rider, location of embodiment, ability of user or rider. Further, it should be appreciated the height of the jump compared to the height of the ramp can be sufficient to allow for user or rider preference of achieving air, substantially elevated air, or "big air" in performing various action extreme hydroplane skim maneuvers and which those skilled in the art can determine. In various embodiments the ratio of jump height to landing module height is approximately jump height at sixty to eighty percent of ramp height. In some embodiments jump height and ramp can be even in height. Further, in various embodiments of smaller size, or when user or athlete is at a beginner level of ability, the landing module could be lower in height than jump height. The support structure **15'** includes side panels **22'**, only one is shown in FIG. **14**, an equivalent side panel is on the opposing side.

[0136] The surface member **40'** of the jump **11** includes all the features of the surface member **40** so as to provide a skim surface **43'** for which a liquid **5** will flow over it enabling a rider **1** to skim on the liquid **5**. In the present embodiment the surface member **40'** comprises a first layer or support layer, a second layer or barrier, and the third layer or skim surface **43'**, similar to surface member **40** as shown in FIGS. **3**, **4** and **9**A. The surface member **40'** has a width **51'**. The width is defined by a plurality of side walls **44'**. The plurality of side walls **44'** in the present embodiment are gunwales that define the boundary of the skim surface or hydroplane region **40'**. The surface member **40'** further includes a length, which extends from where the surface member **40'** joins the top of the support structure **15'** to an end **59'** of the surface member **40'**. It should be appreciated that gunwales or liquid barrier partitions can be placed in field surface area of embodiment to create a lane, run, or course while still providing for and enabling use of hydroplane embodiment.

[0137] Additionally, the surface member **40'** further includes a plurality of dispensing portions **45'** and a plurality of dispensing portions **46'**. These features are similar to those of the surface member **40** discussed above. It should be appreciated that dispensing portions **45** & **46** can be reduced or eliminated according to user or rider preference, type of hydroplane sport discipline or activity, and maneuvers being performed by user or rider.

[0138] The plurality of dispensers **45'** of the surface member **40'**, as shown in FIG. **15**, includes a male end **49'**, which is operably configured to engage the female end **53** of the surface member **40**, shown in FIG. **13**, plurality of dispensers **45** of the surface member **40**. In the present embodiment, the male end **49'** is a bayonet type fitting. However, it should be appreciated that in other various exemplary embodiments, other sealable fittings common in the art may be used.

[0139] The fitting **49'** is inserted in to the end **53** to allow the fluid communication between the ramp **10** and the jump **11**. The fitting **49'** is removeably connected to the female end **53**. The liquid circulation system **80** supplies liquid **5** to the jump **11** creating a hydroplane environment on the skim surface **43'** of the jump **11**. It is contemplated by this invention, that the jump **11** and landing ramp **12** could each have an independent liquid circulation member and not be connected to the liquid circulation system **80** of the device **10**. It should be appreciated that jump **11** hydroplane module can also be used as ramp, landing ramp, or reduced quarterpipe for users or riders preference.

[0140] The landing module **12** is similar to the jump module **11** and the device **10**. It should be appreciated that landing module **12** can also be used as ramp, jump, drop-in, according to user or rider preference, hydroplane course set-up, maneuvers being performed by user or rider, or any combination thereof. Referring to FIG. **16**, an exemplary embodiment of the landing module **12** is shown. The landing module **12** includes a support structure **15"** and a surface member **40"**. The support structure **15"** is similar in construction to support structure **15**. The support structure **15"** includes braces and posts as in support structure **15**, which are not shown. The support member has a height **21"**, which is preferably less than the height **21'** of the support structure **15'**. Height of module **12** when used as landing ramp hydroplane module can be lower, even, or higher in elevation than jump **11** module depending on user or rider preference, hydroplane sport discipline participating in, type of maneuvers being performed, ability of user or rider, and any combination thereof. The height of the landing ramp module is calculated by those skilled in the art factoring in aspects previously disclosed, and hydroplane flow discussed herein. The support structure **15"** includes side panels **22"**, only one is shown in FIG. **16**, an equivalent side panel is on the opposing side.

[0141] The surface member **40"** of the landing module **12** includes all the features of the surface member **40**. In the present embodiment, as shown in FIG. **11**, the surface member **40"** comprises, a third layer or skim surface **43"** gunwales **44"** a plurality of dispensers **45"** and a plurality of dispenser **46"**. A first layer or support layer and a second layer or barrier are also included, but not shown in the figures. The surface member **40"** has a width **51"**. The width **51"** is defined by gunwales **44"**. The gunwales **44"** define the boundary of the skim surface or hydroplane region **43"**. The surface member **40"** further includes a length, which extends from where the surface member **40"** joins the top of the support structure **15"** to an end **59"** of the surface member **40"**. It should be appreciated gunwales **44"** located on upper portion of module **12** can be adjusted up or down to assist in control of liquid depth on hydroplane surface.

[0142] Additionally the surface member **40"** also includes a plurality of dispensing portions **45"**, a plurality of dispensing

portions **46"**, and a catchment area **50"**. These features are similar to those of the surface member **40** discussed above. It should be appreciated option of invention module **12** can use liquid dispenser FIG. **10** across upper horizontal portion of embodiment module **12**.

[0143] The landing module **12** also includes a plurality of drains **85"**, liquid supply lines **83"** and liquid return lines **84"**. The supply lines **83"** are in fluid communication with the supply lines **83** of the device **10**. The drains **85"** are disposed in the catchment area **50"** and are in fluid communication with the return lines **84"**, which are themselves in fluid communication with the return lines **84** of the device **10**. The catchment area **50"** has a length sufficient to disperse the energy of the rider. It should be appreciated that catchment area **50** can also be used in conjunction with other hydroplane modules. Further, it can be appreciated that catchment area **50** can also be used with opening on end in use with natural liquid supplies such as lake, river, ocean, stream, or reservoir or artificial liquid supplies such as pools, tanks, ponds, etc., and connect to other embodiments.

[0144] The liquid on the surface of devices **11** and **12** will vary depending upon the intended use of the devices. More water will be need at the top or higher portions of the devices if they are to be used as landings and less water at the top portions if they are to be used as jumps. The upper flatter portions of these devices are preferred to have about 3 to 5 inches of liquid on the surface. The transitional "upper" radius into angled surface area liquid depth is preferred to be about 2 to 3 inches. The transitional "lower" radius into the horizontal (catchment) area liquid depth is preferred to be about 2 inches. The horizontal catchment area liquid depth is preferred to be about 3 to 5 inches. The liquid dispenser and pump flow rates are adjusted according to achieve desired liquid depths in the different sections. The transitional "upper" radius and degree of angle surface area are designed to arch, (height, distance, and landing angle) of user when landing on embodiment from a jump. The alternative side drain system as disclosed below with reference to FIG. **20** may be utilized with these devises as well and even at the upper sections.

[0145] Referring again to FIG. **16**, the device **12** further includes a plurality of module units or tiles **99"**. The module units **99"** fit together to form the surface of the surface member **40"**. The module units **99"** have a generally rectangular shape. It should be appreciated that the module units in other exemplary embodiments have other various shapes and size. The module units preferably have a rigid supporting frame to support the liquid fluid skim surface. The supporting frame members are preferably constructed out of metal, wood or plastic. The supporting frames also preferably have attachment points to allow for connection to other adjacent modular units using fasteners. The modular units can be arranged in a variety of ways and can be connected at ends, sides or both depending on the desired application and arrangement. The modular units preferably have attachment points for the plumbing system, seals, the liquid fluid barrier and the skim surface. The modular units preferably include plumbing fittings and valves, such as male and female connections, that allow the plumbing system of each module unit to mate with the plumbing system of adjacent modules. The plumbing systems of some of the modules are connectable to the supply lines from the plumbing system of the entire device. The module units also preferably include attachment points on the bottom surfaces for attaching the modules to the supporting structures. These types of module units or tiles can be utilized with any of the various action hydroplaning devices made in accordance with the present invention.

[0146] Referring to FIG. **17**, a box module **13** for the device **10** is shown. The box module **13** includes a support structure **15'"** and a surface member **40'"**. The support structure **15'"** includes similar features as the support structure **15** described above and for example includes braces **16'"** and posts **17'"**, a height **21'"** and a side member **22'"**. It should be appreciated that the liquid dispensers **45'"** can, in other exemplary embodiments be secured to side of box module **13** which still provides for liquid supplied to surface area **43'"**. Being mounted on the side will allow a rider to hydroplane across the device without rubbing against the dispensers when the box has a narrow width and the rider is riding with skis or a board that is aligned perpendicular to the length of the device. The surface member **40'"**includes similar features as the support structure **40** described above and includes for example a skim surface **43'"**, a width **51'"** a length **52'"** and a plurality of dispensers **45'"**. The surface member **40'"** may in other exemplary embodiment include surface dispensers like the plurality of dispensers **46** of the device **10**. It should be appreciated that box module **13** could feature singular or plurality of dispensers **46** if user or rider prefers. Further, it should be appreciated that in other exemplary embodiments the drains **85'"** are optional and the liquid may simple flow over the side of the device or flow over the sides and be caught in a trough, not shown, and returned to the supply lines.

[0147] The box module **13** in the present embodiment has a generally rectangular shape and further includes a supply line **83'"** return lines **84'"** and drains **85'"**. The supply line **83'"** is in fluid communication with the supply line **83** and the return line **84'"** is in fluid communication with the return line **84** of the ramp **10**.

[0148] The box module **13** can be used in various configurations and combinations with other hydroplane embodiments according to hydroplane course set-up, user or rider preference, type of hydroplane sport discipline and which is being performed by user or rider such as cascade stair-step slopestyle, street, park, or any combination thereof. It should be appreciated that in one example, box module would be placed in catchment area **50** of device **10** described above. Further, it should be appreciated in another example, box module **13** could be placed or featured in horizontal cascade step of FIG. **21**. Further, it should be appreciated in another example box module **13** could be featured between jump module **11** FIG. **10** and landing module **12** FIG. **12** according to user or rider preference.

[0149] Further, skill devices that are common in snowboarding and skateboarding, such as for example, but not limited to a flat rails, boxes, rainbow rails and logslides, not shown, may be used in conjunction or integrated with the device **10** and the modules discussed above.

[0150] FIG. **18** displays perspective view of a hydroplane extreme action sport device **100**. The device **100** resembles in shape to what conventionally is known as a half-pipe. The device **100** is an alternative embodiment of action hydroplaning device, made in accordance with the present invention. The device **100** is similar to the device **10** described above. The device **100** includes a support member **115**, a surface member **140**, a liquid circulation member **180**, and a catchment area **150**.

[0151] The support member **115** includes a plurality of braces **116**, a plurality of posts **117**, a platform **119**, a safety

rail **120** and a height **121**. The surface member **140** includes a first layer (not shown) a second or barrier layer (not shown) and a third layer or skim surface **143**. Additionally, the surface member **140** includes a plurality of dispensers **145** and **146**, rises **157** and a width **151**, similar to the device **10**. The liquid circulation member **180** includes pumps **181**, a liquid supply **182** and various plumbing supply lines **183**, plumbing return lines **184** and a plurality of drains **185**, as in the device **10** described above. The device **100** also includes a plurality of supply tubes **148** in fluid communication between the supply lines **183** and the plurality of dispenser **146** as in the device **10**.

[0152] One difference in the device **100** from that of the device **10**, for example, is the support member **115** includes an opposing ramp to make up one side of the "half-pipe." The opposing ramp has a height **123**. The device **100** also includes an additional platform **124** and an additional safety rail **125** for the opposing ramp, as shown in FIGS. **18** and **19**. Further, the support member **115** is not configured in a ramp or slope shape. Instead the support member **115** is a bowl shape, or manner which supports half-pipe embodiment commonly referred to as a half-pipe design, having two opposing sides each in the shape of a partial arch and having radii **126** and **127**.

[0153] Referring to FIGS. **18** and **19**, the height **121** and **123** of the half-pipe device **100** are the same. However, it should be appreciated that in other various exemplary embodiments, the height **123** could be less than the height **121**, according to the preferences of the user **1**. Additionally, the radii **126** and **127** in the present embodiment shown in FIG. **19** are the same. It should be appreciated that in other various exemplary embodiments, the radius **127** could be less than the radius **126** according to the preferences of the user.

[0154] The catchment area **150** in the device **100** provides a transition for the rider from one side of the half-pipe to the other. Additionally, the catchment area **150** includes the plurality of drains **185**. The catchment area **150** also includes a length. In the present embodiment, the length of the catchment area **150** is shorter in length to allow for user to maintain highest level and speed of kinetic energy so user can hydroplane across catchment area through radius transition area to vertical hydroplane surface area of embodiment so user can perform various maneuvers. It should be appreciated that the catchment area can be adjusted in shorter or longer lengths according to user or rider preference, maneuvers being performed by user or rider, the combination of other hydroplane modules being used if any, and ability of user or rider, or any combination thereof. However, it should be appreciated that in other various exemplary embodiments, the length of the catchment area could be lengthened or shortened, according to the preferences of the user. The height of the sides of the halfpipe must be of minimum height to provide for sufficient performance of maneuvers and according to preference of user or rider, ability level, and height of drop-in. Further, it should be appreciated the height of the sides of the catchment area can be adjusted in height manually or automatically to control depth of liquid according to user preference.

[0155] The liquid **5** in use in the device **100** is water. The liquid circulation member **180** provides flow rates of water **5** to provide a hydroplane environment on the surface member **140**. It is desired that at least one half inch of water be on the surface member **140**. In the catchment area **150**, the water will collect and empty into the plurality of drains **185**. The water in the catchment area **150** may have a level from one half inch to six inches depending on the preferences of the user. It should be appreciated that the level of water may vary according to conditions previously described above. Further, it should be appreciated that when using various hydroplane embodiments, water in catchment area or at end of embodiment can be deeper in level for example when using device **100** in conjunction with natural river, lake, stream, or ocean, or in use with artificial liquid pool or tank for example. The liquid flow rate and depths are calculated for both sides of the halfpipe. Each side is not required to have the same flow rate and depths. If should be appreciated the side walls or gunwales of halfpipe in various halfpipe embodiments can be adjusted up or down to adjust liquid depth. Further, it should be appreciated that multiple plumbing system or the same plumbing system may be utilized for both sides of the halfpipe.

[0156] FIG. **20** displays perspective view of a hydroplane extreme action sport device **200**. The device **200** is an alternative embodiment of an action hydroplaning device, made in accordance with the present invention. The device **200** is a quarter pipe type ramp. The device **200** is similar to and includes similar features as the devices **10** and **100** described above. The shape of device **200** is the primary difference with devices **10** and **100**. The device **200** includes a support member **215**, a surface member **240**, a liquid circulation member **280**, and a catchment area **250**. The device **200** also includes a plurality of supply tubes (not shown) in fluid communication between the supply lines **283**, the plurality of dispenser **246** and coping dispenser **255** as in the device **10**.

[0157] The support member **215** includes a plurality of braces **216**, a plurality of posts **217**, a platform **219**, a safety rail **220** and a height **221**. The surface member **240** includes a first layer (not shown) a second or barrier layer (not shown) and a third layer or skim surface **243**. Additionally, the surface member **240** includes a plurality of dispensers **245** and **246**, rises **257** and a width **251**, similar to the devices **10** and **100**. The liquid circulation member **280** includes a pump **281**, a liquid supply **282** and various plumbing supply lines **283**, plumbing return lines **284** and a plurality of drains **285**, as in the devices **10** and **100** described above. Like the device **100**, the device **200** has a radius **226**, as shown in FIG. **21**. It should be appreciated when liquid supply is equal or higher in height to height of drains a pump **281** is used to return liquid to liquid supply source. It should be appreciated the side walls or gunwales in various quarterpipe embodiments can be adjusted up or down manually or automatically to adjust liquid depth according to user preference. Further, it should be appreciated device **200** can be used in conjunction with other embodiments, including device **10**. Further, it should be appreciated device **10** could plumbing system could also supply device **200** with appropriate size pumps and plumbing system known to those skilled in the art. The quarterpipe device **200** is preferably intended to be used with device **10** so that user or rider goes DOWN the drop-in device **10** travels across catchment area and then goes UP the quarterpipe performing a maneuver or track and then travels back down into catchment area.

[0158] One difference in the device **200** from that of the device **100**, is the device **200** only has one radii or arch.

[0159] The catchment area **250** in the device **200** provides a transition for the rider from horizontal **250** to radius or vertical area back to the horizontal **250**. It should be appreciated in various uses of device **200** catchment area **250** provides a transition for the rider from platform **219** drop-in

through radius to the horizontal **250**. Additionally, the catchment area **250** includes the plurality of drains **285**. The catchment area **250** also includes a length. The length of the catchment area **250** is similar to the length of the catchment area **150** in the device **100**. It should be appreciated catchment area in some various uses of device **200** could be more similar to the catchment area **50** in device **10**. In the present embodiment, the length of the catchment area **250** is 8 to 12 feet depending on the height of drop-in if embodiment is being used and ability of user or rider. It is preferred that the minimum length of the catchment area, from beginning of each transition radius, in all halfpipe, quarterpipe, and half-frustum conical embodiments, be at least ¼ the height of the drop-in, slope or ramp. However, it should be appreciated that in other various exemplary embodiments, the length of the catchment area could be lengthened or shortened, according to the preferences of the user or rider, their ability, and the maneuvers being performed.

[0160] It is also contemplated by this invention the catchment area **250** could include some of the features described above such as the jump **11** and landing area **12** or the box **13**. Further, conventional rails, logslides, boxes, spines, jumps and the like commonly extreme action sports industry, could also be used or deployed within the catchment area **250**. The catchment area **252** includes drain troughs **286**. The drain troughs **286** are in fluid communication with the liquid return lines **284**. The drain troughs **286** provide additional draining of the liquid from the catchment area **250** other than just the drains **285**. The liquid will flow over the side of the device or flow over the sides and be caught in a trough, and returned to the supply lines. The side of the drain trough can be adjusted manually or automatically. This type of drain trough can be used with any of the various devices made in accordance with the present invention.

[0161] The liquid **5** in use in the device **200** is preferably water. The liquid circulation member **280** provides flow rates of water **5** to provide a hydroplane environment on the surface member **240**. It is desired that at least one half inch of water **5** be on the surface member **240**. In the catchment area **250**, the water **5** will collect and empty into the plurality of drains **285**. The water **5** in the catchment area **250** may have a level from one half inch to five inches depending on the preferences of the user. It should be appreciated that other types of liquid and ingredients mixed with water can be used in various uses of hydroplane embodiment as previously described. Further, it should be appreciated that the side walls or gunwales of the catchment area in other variations of embodiment **200** can be adjusted up or down to control depth of liquid.

[0162] FIGS. **22** and **23** display a hydroplane extreme action sport device **300**. The device **300** is an alternative embodiment of an action hydroplane device, made in accordance with the present invention. The device **300** is similar to the devices **10** and **100** described above. The device **300** includes a support member **315**, a surface member **340**, and a liquid circulation member **380**. Further, it should be appreciated device **300** can also feature a vertical side wall area from radius edge **355** increasing in vertical height to edge of platform **390** on either or both sides of device **300**. The vertical side wall height can be of various sizes depending on preference of user, ability of user, size of embodiment, and type of maneuvers being performed. The vertical side wall area when in use with device **300** embodiment is similar to vertical side walls of skateboard halfpipe and snowboard or snow skiing halfpipe or superpipe.

[0163] The support member **315** includes a plurality of braces **316**, a plurality of posts **317**, a ladder **318**, a platform **319**, a safety rail **320** and a height **321**. It should be appreciated that platform **19**, (landing, scaffolding, etc.) and drop-in, start, transition slope or ramp can be on left side, right side, or both, straight, angled, or both relative to half-frustum conical embodiment displayed in FIGS. **22** and **23**.

[0164] As opposed to the devices **10**, **100** and **200**, device **300** includes a second platform **390** is disposed along the length of the device **300**. The second platform provides additional locations for riders to drop-in to the half frustum conical device. The second platform **390** is preferred to be disposed on both sides of the device **300**. The platform **390** opposite from the side that the platform **19** is disposed along the entire length of device **300** and the platform on same side (not shown) as platform **19** is disposed along the length of device up to platform **19** drop-in, ramp, slope. It should be appreciated that either or both platforms are not required to be disposed along entire length of sides or for both platforms to be disposed at same time. Further, the second platform includes at least one rounded gap or drop-in section **392**. The gap **392** provides a gentler or more transitioned entry for the rider into the half frustum conical device. It should be appreciated that the second platform and its features can be incorporated on either or both sides of device **300** and in other action hydroplaning devices made in accordance with the present invention, such as ramps, slopes, quarter-pipes, half-pipes and the like. The surface member **340** includes a first layer (not shown) a second or barrier layer (not shown) and a third layer or skim surface **343**. Additionally, the surface member **340** includes a plurality of dispensers **345** and **346**, coping dispensers **355**, rises **357** and a width **351**, similar to the device **10**. The liquid circulation member **380** includes a pump **381**, a liquid supply **382** and various plumbing supply lines **383**, plumbing return lines **384** and a plurality of drains **385**, as in the device **10** described above. The device **300** also includes a plurality of supply tube **383** in fluid communication between the supply lines **83** and the plurality of dispenser **346** as in the device **10**.

[0165] The device **300** is also different from the previous devices **10**, **100** and **200** in that the device **300**, for example, instead of a catchment area, the surface member **340** has a half-frustum conical portion **360**, (half in that the cone shape cut in half along the length of the cone). The surface member **340** includes a first width **361** and a second width **362**. The first width **361** is larger than the second width **362**. The reduction in width from the first width **361** to the second width **362** is preferred to be a linear reduction in width along the length of the device **300**. Additionally, the half-frustum conical portion **360** includes a first height **363** and a second height **364**. The first height **363** is higher than the second height **364**. The reduction in height from the first height **363** to the second height **364** is also preferred to be linear along the length of the device **300**. It should be appreciated that in other exemplary embodiments with a substantial half-frustum conical shape, the catchment area between the lower start of the transitional radius section on both sides can be more horizontal or "flatter" than in the embodiment shown. It is preferred that with a flatter catchment area, the flatter area decrease along the length of the device progressively from end **365** to end **366**.

[0166] The surface member **340** is supported by the support member **315**. The surface member **340** has a cone shape that has the point of the cone cut off with the cone being bifurcated

and laid on its side, as shown in FIG. **22**. The first height **363** and first width **361** represent a larger opening or first end **365** of the cone and the second height **364** and second width **362** represent a smaller opening second end **366** of the frustum conical portion **360**. The first and second ends **365** and **366** each include a gunwale **344**. The first end **365** is at a higher elevation from the ground than the second end **366**. This provides a natural gradient for the liquid **5** to flow from the first end **365** to the second end **366**. The plurality of drains **385** are disposed in the half-frustum conical portion **360** near the second **366**. In the present embodiment, the difference in elevation of the first end **365** to the second end **366** is a minimum of 3" inches. However, it should be appreciated that in other various exemplary embodiments, the difference in elevation of the first end to the second end could be substantially different as when embodiment is used in natural or artificial mountain, and in park or resort use depending on user or rider ability and maneuvers being performed by user or rider. For example, in use by professional user or rider, elevation change could be 50 feet or greater over distance length of embodiment of 200 feet. Further, it should be appreciated these ratios can be adjusted for user or rider preference relative to ability and maneuvers being performed. It should be appreciated that other modules, including just a module designed to just be a catchment area could be disposed adjacent the second end **365** so that the riders have an area to dissipate any remaining energy that have coming out of the device **300**.

[0167] The liquid in use in the device **300** is preferred to be water. The liquid circulation member **380** provides flow rates of water to provide a hydroplane environment on the surface member **340**. It is desired that at least one half inch of water **5** be on the surface member **340**. In the half-frustum conical portion **360**, the water will collect and empty into the plurality of drains **185**. It should be appreciated that water or liquid in various use of embodiment can flow into chute, trough, pool, tank, gutter, or flume at end edge **366** of half-frustum conical and in fluid communication with liquid supply.

[0168] The height **321** is higher than the first height **363**. When in use, the rider **1** will drop-in, start or begin from the second platform **390** or from the platform area **319**, (which is at the height **321**), and enter into the half-frustum conical portion **360**. The rider **1** would go from one side to the other performing tricks and or stunts as the rider **1** progressed from the first end **365** to the second end **366**. The shape of the half-frustum conical portion **360** utilizes gravity to provide the rider **1** continuing momentum as the rider **1** moves along the length of the device **300**. A catchment area, not shown can selectively be placed at the end **366** for the rider to finish and disembark the device **300**. It should be appreciated that the second platform landing area may in other exemplary embodiments be disposed on both sides of the half-frustum conical device. The second platform **320** provides and area for spectators, for users or riders, and for use when performing maneuvers such as "hand-plants. The second platform **320** can be duplicated on opposite side of half-frustum conical. Further it should be appreciated the end of radius **345** sides transition to vertical sections in various applications of half-frustum conical depending on user or rider preference, maneuvers being performed, and ability of user or rider. Further, it should be appreciated that liquid dispensers and plumbing system is featured in various regions of embodiment according to course layout & set-up, rider & user preference, ability, and maneuvers and tricks performed by user or rider. Further, it should be appreciated that in other exemplary embodiments the radius area transitions to vertical in the half-frustum conical embodiment according to user preference.

[0169] FIGS. **24** and **25** represent exemplary embodiments of hydroplane action devices **400** and **500** made in accordance with the present invention. The devices **400** and **500** include combinations of the devices **10**, **100** and **200** described above. It should be appreciated that devices **400** and **500** can also included modules **11**, **12**, and **13** in addition to **10**, **100**, and **200**, and other combinations of modules such as rails, spines, or combinations thereof skilled in the art, in according to various use preferences, hydroplane course run set-up, user or rider preference, ability, and maneuvers performed by user or rider. As shown in FIG. **24**, the device **400** includes a configuration of a hydroplaning jump element and landing element. This configuration is also known as "Big Air," ramp-to-ramp, jump-to-ramp, module-to-module, device-to-device, or "gap" embodiments. As shown in FIG. **25**, the device **500** includes a configuration of a combination of parts to mimic a downhill extreme snow ski/board park, rather with the hydroplaning environment as contemplated by the present invention. It should be appreciated that in other exemplary embodiments, the downhill feature can be deployed in a natural mountain or land-earth environment, an artificial mountain shape extending 360 degrees around, or any combination thereof. With such an arrangement, riders **1** would be lifted up or walk up to the top and skim down in any direction encountering in various obstacles, jumps, rails and the like along the way. It should be appreciated that hydroplane extreme skim embodiments can be used singularly, or plurality so as to configure multiple lanes or runs similar to a bowling alley, skateboard park, or snowboard & snow ski resort, artificially made, naturally supported, or any combination thereof. Each of embodiments shown in FIGS. **24** and **25** includes support members, surface member and liquid circulation members in order to provide the hydroplane environment created by this invention. It is an intention of this invention to combine the devices **10**, **100**, **200**, **11**, **12**, **13**, **400** and **300** described above and employ them in a extreme action sport park type setting, similar to a skateboard park or ski slopes or amusement parks. A user of the systems and devices of the present invention may combine and configure the above listed devices, or any other devices utilizing the hydroplaning environment contemplated herein, in any order or configuration desired to create the extreme action hydroplane environment desired. It should be appreciated that hydroplane embodiment systems, modules, injection molded units, constructed or manufactured units, and mobile units, or any combination thereof, can be employed in a extreme action sport park or resort type setting, similar to skateboard parks, ski slopes, or amusement parks. Further, it should be appreciated that hydroplane embodiment systems can be employed on various means of transportation such as trains, ocean liners, boats, aircraft, and floating structures, or any combination thereof. Further, it should be appreciated that hydroplane embodiment systems can be temporarily and permanently employed over existing modules and devices of other similar action sports such as BMX and skateboard ramps, natural or artificial, bleachers in outdoor or indoor stadiums and arenas, and halfpipe, slopestyle, or mountains of snowboard and snow ski resorts. Further it should be appreciated hydroplane embodiment can be

employed over sufficient supportive modules and devices in already existing amusement parks temporarily or permanently as preferred.

[0170] FIGS. **26-29** display a hydroplaning board B**10** for use on the devices **10**, **100**, **200** and **300** above, made in accordance with the present invention. The board B**10** has a length B**11**, a thickness B**12**, a first end B**13** and a second end B**14**. Further, the board B**10** includes a first or top surface B**22**, a second or bottom surface B**23** and a first mounting area B**15** and a second mounting area B**16** disposed on the top surface B**22**. It should be appreciated that hydroplaning board device can be constructed, manufactured, injection molded, or any combination thereof from multiple layers of materials Further, it should be appreciated hydroplane board can be constructed by hand-laying materials in sandwich method construction of multiple layers. Each mounting area B**15** and B**16** include a plurality of mounting orifices or mounting pads B**17**. The thickness B**12** of the board B**10** is uniform along the length B**11**, with the exception that in the mounting areas B**15** and B**16**, the thickness B**12** increases. In the present embodiment, the thickness B**12** is preferred to be about ⅜ to ⅝ inches, and in the mounting areas the thickness B**12** is preferred to be about ⅛ to ¼ inches. However, it should be appreciated that the thickness of the B**12** can vary according to type of materials used, user or rider preference, maneuvers board is being used for, and ability of rider or user board is made for. Further, it should be appreciated the mounting areas can be flush with top surface of board, or thicker than ¼ inch according to user or rider preference, maneuvers board is being used for, ability of user or rider, and type and amount of materials being used in construction or manufacturing of board. Further, it should be appreciated hydroplane board is made from materials of wood, fiberglass, resin, glue, and composite materials. Further, it should be appreciated hydroplane board can be made from materials such as metal, carbon fiber, alloy, wood, fiberglass, plastics, P-tex, rubber, textiles, or any combination thereof.

[0171] At first glance the board B**10** appears like a conventional snow board. Like conventional snow boards, the board B**10** has the first and second ends B**13** and B**14** bowed up or have a radius in the direction from the bottom surface B**23** towards the top surface B**22**.

[0172] The board B**10** includes features that are not in conventional snow boards or skate boards. One such feature is a plurality of grooves B**18** near at least one of the first and second ends B**13** and B**14** on the top surface B**22**, as shown in FIG. **22**. It is preferred that the grooves be near both ends. The plurality of grooves B**18** are disposed generally perpendicularly to the length B**11** of the board. It is preferred that the grooves B**18** be formed as part of the top surface B**22**. However it should be appreciated that the grooves may be cut into the top surface B**22**. The grooves B**18** increase the flexibility of the board B**10** at the first and second ends B**13** and B**14**. This increased flexibility at the ends enables for better hydroplaning performance on the hydroplane skim surfaces contemplated by the present invention and described above. The plurality of grooves B**18** each preferably has a preferred depth of ⅕ of a tenth of the thickness of the board to $\frac{3}{10}^{ths}$ the thickness of the board. It should be appreciated that the length, depth, shape, and size of grooves can be changed and varied according to rider or user preference, ability of rider or user, types of maneuvers being performed, type of hydroplane sport discipline participating in, and type of hydroplane module used on, or any combination thereof.

[0173] Additionally, the board B**10** includes a plurality of grooves B**20** disposed on the bottom surface B**23**, as shown in FIGS. **28** and **29**. The grooves B**20** are disposed generally parallel to the length B**11** as shown in FIGS. **24** and **25**. It is preferred that the grooves B**20** be formed as part of the bottom surface B**23**. However it should be appreciated that the grooves may be cut into the bottom surface. The grooves B**20** in this embodiment preferably have a concaved shape. The board B**10** is preferably constructed out of wood, fiberglass, and composite material. However, it should be appreciated that in other various exemplary embodiments, the board could be constructed out of other material common in the art, such as fiberglass resins, wood, plastics, foam, rubber, metal, alloys, composites, carbon graphite, carbon fiber, Kevlar, P-Tex, etc. The plurality of grooves B**20** have a preferred depth of preference according to rider ability, preference, maneuvers performed, specific hydroplane sport discipline, and type of hydroplane module using. Initial depth is $\frac{1}{15}^{th}$ to $\frac{1}{5}^{th}$ thickness of board.

[0174] Further, the board B**10** includes a channel B**21** disposed on the bottom surface B**23**, as shown in FIG. **28**. The channel B**21** is preferably disposed along the center of the board B**10**. The channel B**21** has a depth B**25**. In the present embodiment the depth is preferably $\frac{1}{15}^{th}$ to $\frac{1}{10}^{th}$ to board thickness ratio. The channel B**21** in this embodiment is preferred to have a general concaved shape. It should be appreciated that the channel, tunnels or grooves in other embodiments may be made up of several concentric channels increasing in width and length. Further, the channel, tunnels or grooves may also be of a variety of different shapes, such as concave, parabolic, or hyper-parabolic, and the edges may be convex, concave, radius, beveled, square, or any combination thereof.

[0175] The channel B**21** and the plurality of grooves B**20** increase the hydroplaning capability of the board B**10**. The channels and grooves affect and effect control, trackability, skimming/hydroplaning, and overall performance of board. The more channels and grooves and the deeper they are within the preferred range of depth increases the board stability. It should be appreciated that in other exemplary embodiments the bottom surface of the board is free of channels and grooves.

[0176] The first and second mounting area B**15** and B**16** are disposed on the top surface B**22**. It should be appreciated that mounting area can be injection molded into board, fastened or attached to board using adhesives or fasteners or combination thereof. The first mounting area B**15** is disposed from the first end B at about one third the length B**11**. The second mounting area B**16** is disposed from the second end B**14** at about one third the length B**11**. It should be appreciated the second mounting position can be mounted at end B**14** according to user preference. The distance between the mounting areas will also vary according to the rider performance ability, the type of maneuvers being performed, the size of the rider, the type of hydroplane embodiment board being used on, and the particular hydroplane sport discipline. The mounting areas B**15** and B**16** provide a location to place a foot or attach bindings to the board B**10** as will be discussed below. While the board B**10** is shown to include mounting area B**15** and B**16**, in other exemplary embodiments the mounting area could be optional, thus making the board what is called a free foot board. It should also be appreciated that in other exemplary embodiments one of the binding mounting areas is disposed adjacent or at the end of the board so the user's rear

foot or boot can be placed closer to the rear of the board for additional control of the board.

[0177] The board B**10** also has a width B**26**. The width B**26** is not uniform along the length B**11**. The width B**26** widens near the ends B**13** and B**14** creating a parabolic ends for the board B**10**. The length B**11** and the width B**26** have a ratio which varies according to rider or user performance, type of maneuvers being performed, type of hydroplane embodiment board being used on, and the particular hydroplane sport discipline.

[0178] The board B**10** is different from conventional boards in that the plurality of grooves B**18** increases the flexibility of the board B**10**, whereas conventional boards desire stiffness. An additional difference is the bottom shape radius and overall flexibility of board B**10** specifically compliments use with hydroplane embodiment devices in this invention. An additional difference is also the inclusion of the plurality of grooves B**20** and the channel B**21** on the bottom surface B**23**. These features keep the liquid **5** between the board B**10** and the skimming surface to allow the rider **1** to hydroplane easier than conventional skimming devices and boards. Conventional boards have a smooth bottom surface for less friction on snow. Another key difference between the board B**10** and conventional boards is that the board B**10** has non-sharp edges B**24** as shown in FIG. **29**. The edges B**24** are preferred to have a generally concaved shape along the length of the board. A concaved shape proved for increased edge to edge control and turning. It should be appreciated the edges can have other shapes, such as rounded, beveled, radius, square, tapered, hyper-parabolic, or flat with a recessed surface or any combination thereof. Having a hyper-parabolic or a flat with a recessed surface shaped edge will provide for a more straight-line tracking and stability, but generally a board with such an edge will not turn or "roll" from edge-to-edge as well as a board with concaved shaped edges for example. The edging varies according to rider or user performance ability, type of maneuvers being performed, type of hydroplane embodiment board being used on, and the particular hydroplane sport discipline. In stark contrast, conventional boards use the sharp edges to cut into the snow. The board B**10** does not include the sharp edges as sharp edges may harm the skimming surface **43** or riders **1**.

[0179] FIGS. **30** and **31** show a board B**110**. The board B**110** is similar to the board B**10** and includes the features of the board B**10**. The board B**110** includes a length B**111**, width B**126**, a thickness B**112**, a first end B**113** and a second end B**114**. The board B**110** further includes a first or top surface B**122** and a second or bottom surface B**123**.

[0180] The board B**110** is different from the board B**10** in that the board B**110** includes a plurality of grooves B**120** disposed on the bottom surface B**123** as does the board B**10**; however, while some of the plurality of grooves B**120** some are generally parallel to the length B**110** as in the board B**10**, the plurality of grooves B**120** closest to the edge have a parabolic cut in relation to the length B**111**. Additionally, the board B**110** is different from the board B**10** in that the bottom surface B**123** does not include a channel. It should be appreciated that grooves, channels, edges, bottom surface area, or any combination of, and can be of various size, shape, and length, in parabolic, hyper-parabolic, concave, convex, or any combination form thereof, according to rider or user performance, type of maneuvers being performed, type of hydroplane embodiment board being used on, and the particular hydroplane sport discipline being engaged in by the rider.

[0181] FIGS. **32** through **34** show a board B**210**. The board B**210** is similar to the board B**10** and includes the features of the board B**10**. The board B**210** includes a length B**211**, width B**226**, a thickness B**212**, a first end B**213** and a second end B**214**. The board B**210** further includes a first or top surface B**222** and a second or bottom surface B**223**. It should be appreciated that board can use multiple layers of materials in various combinations such as wood, fiberglass, plastic, composites, metal, carbon fiber, carbon graphite, Kevlar, graphite, and rubber.

[0182] The board B**210** is different from the board B**10** in that the bottom surface B**223** does not include a channel. It should be appreciated that board can include a channel according to rider or user preference. An additional difference in board B**210** compared to board B**10** is that the board B**210** includes edges B**224** with channels B**229** along the extremities or edge of the width B**226**. This additional feature increases the amount of liquid **5** getting under the board B**210** to increase the hydroplaning effect, control and tracking for the rider **1**. This feature is contrary to conventional boards, which desire a sharp edge to allow the rider to cut into the snow.

[0183] While the embodiments discussed above include specific features of the board B**10**, B**110** and B**210**, it is contemplated by this invention that the features may be combined or adjusted as desired by the rider **1**. For example, the board B**10** may have parabolic ends like board B**110**, or the board B**210** may have a channel on the bottom like the board B**10**.

[0184] FIGS. **35** through **38** show another exemplary embodiment of another board B**310** for using on the device **10**. The board B**310** is similar to a conventional wake board, ocean skim board, or flatland skim board used in water sports on a lake or river. The board B**310** specifically has features which compliment the use of with hydroplane embodiment devices in this invention such as halfpipe, quarterpipe, big air, ramp-to-ramp, and half-frustum conical. This is contrary and is different from conventional boards previously mentioned and used in other water sports which the intended use and design of those conventional boards is not to be used with hydroplane embodiment devices in this invention. The board B**310** is similar to the board B**10** and includes the features of the board B**10**. The board B**310** includes a length B**311**, width B**326**, a thickness B**312**, a first end B**313** and a second end B**314**. The board B**310** further includes a first or top surface B**322** and a second or bottom surface B**323**. It should be appreciated that board can use multiple layers of materials in various combinations such as wood, fiberglass, plastic, composites, metal, carbon fiber, carbon graphite, Kevlar, graphite, and rubber.

[0185] The board B**310** also includes a plurality of grooves B**318** disposed on the top surface B**322** and a plurality of grooves B**320** disposed on the bottom surface B**323**. The plurality of grooves B**318** are generally perpendicular to the length B**311**, while the plurality of groove B**320** are both generally parallel and parabolic, concave, or hyper-parabolic in relation to the length B**311**. The plurality of grooves B**318** are contrary to conventional wake boards. The plurality of grooves B**318** increase the flexibility of the board **310**, while conventional wake board are designed for stiffness.

[0186] The board B**310** is different from the board B**10** in that the shape of the board B**310** is elliptical. The ratio of the length to width varies according to rider or user performance ability, type of maneuvers being performed, type of hydro-

plane embodiment board being used on, and the particular hydroplane sport discipline. Another difference in the board or elliptical skim board B**310** is that the board B**310** does not include mounting area. Instead the board B**310** has a first free foot area B**330** and a second free foot area B**331**. The first free foot area B**330** is disposed near the first end B**313** and the second free foot area is disposed near the second end B**314**. In the present embodiment the free foot areas B**330** and B**331** are traction material common in the art glued to the top surface B**322**. It should be appreciated that in other various exemplary embodiments, the free foot area could be areas of the top surface that have been roughed up by etching or laser cutting into the top surface, as is common in the art. It should be appreciated traction and gripping surface can be attached, fastened, or connected to board using adhesive, injection molding, fasteners, or any combination thereof.

[0187] FIGS. **39** through **42** show another exemplary embodiment of another board B**410** for using on the device **10**. The board B**410** is similar to the board B**310** and includes the features of the board B**310**. The board B**410** includes a length B**411**, width B**426**, a thickness B**412**, a first end B**413** and a second end B**414**. The board B**410** further includes a first or top surface B**422** and a second or bottom surface B**423**. The board B**410** specifically has features which compliment the use of with hydroplane embodiment devices in this invention such as drop-in, halfpipe, quarterpipe, big air, ramp-to-ramp, and half-frustum conical. This is contrary and is different from conventional boards previously mentioned and used in other water sports which the intended use and design of those conventional boards is not to be used with hydroplane embodiment devices in this invention. It should be appreciated that board can use multiple layers of materials in various combinations such as wood, fiberglass, plastic, composites, metal, carbon fiber, carbon graphite, Kevlar, graphite, and rubber.

[0188] The board B**410** also includes a plurality of grooves B**420** and a channel B**421** disposed on the bottom surface B**423**. The channel B**421**, like in the board B**310** is generally parallel to the length B**411**. The channel B**421** is similar to the channel B**21** in the board B**10** and provides the same effect of increasing the hydroplaning, control and tracking on the skim surface **43** of the device **10**.

[0189] The board B**410** is similar to the board B**310** in that the shape of the board B**410** is elliptical. The ratio of the length to width is similar to the boards discussed above. The board or elliptical skim board B**410** is different from the board B**310** in that the board B**410** includes mounting areas B**415** and B**416** disposed on the top surface B**422**. The first mounting area B**415** is disposed from the first end B**413** at about one third the length B**411**. The second mounting area B**416** is preferably disposed from the second end B**414** at about one third the length B**411**. The mounting areas B**415** and B**416** provide a location to attach bindings to the board B**410** as will be discussed below. The mounting area can be closer to end or at end according to user preference.

[0190] The board B**410** is different from the board B**310** in that the bottom surface includes a channel B**429** along the extremities or edges of the width B**426**. This additional feature increases the amount of liquid **5** flowing under the board B**410** to increase the hydroplaning, control and tracking effect for the rider. Additionally, the plurality of grooves B**420** are all generally parallel to the length B**411**.

[0191] FIG. **43** presents an exemplary embodiment of a binding device BD**10**, made in accordance with the present invention. The binding device BD**10** is for use on the boards B**10**, B**110**, B**210** and B**410** to hold the boards B**10**, B**110**, B**210** and B**410** to the rider **1** when the rider is using the devices **10**, **100**, **200**, and **300** for extreme action sports in a hydroplane environment, as discussed above.

[0192] The binding device BD**10** includes a sole portion BD**12**, two side portions BD**18**, a heel portion BD**14**, and a calf portion BD**16**. The side portions BD**18** are attached to the sole portion BD**12**. The heel portion BD**14** is attached to the side portions BD**18**. The calf portion BD**16** is flexibly attached to the sole and heel portions BD**12** and BD**14**. The sole portion BD**12** has a toe end BD**30**.

[0193] The binding device BD**1** also includes a first adjustable securing member or strap BD**22**, which is rotatably attached to the side portions BD**18** by pivot connection BD**23** and is disposed near the toe end BD**30** of the sole portion BD**12**. A second adjustable securing member or strap BD**24** is rotatably attached to the calf portion BD**16** by pivot connection BD**25** near the heel portion BD**14**. The straps BD**22** and BD**24** each include a padding (not shown) to protect the rider from friction of binding device BD**10**. The padding is typically foam, but the padding could be of other materials common in the art.

[0194] The binding device BD**10** includes a plurality of mounting fasteners BD**20**. The plurality of mounting fasteners BD**20** allow the binding device BD**10** to be rotatably mounted to the boards B**10**, B**110**, B**210** and B**410**. The binding device is preferably able to be rotated and secured in various positions or locations by means of slots and grooves in mounting plate of binding and with various fastening holes on boards. The binding device BD**1** in the present embodiment is constructed out of graphite; it should be appreciated however, that in other various exemplary embodiments, other materials common in the art may be used. To reduce weight of the binding device BD**10**, the side, heel and calf portions includes a plurality orifices BD**26** of various sizes. The bindings made in accordance with this invention are made from lighter materials than conventional bindings, contains drain holes to allow for less residence and greater flow-through of liquid, and are lighter duty due to less velocity energy on impact in hydroplane sport as compared to snowboard binding with snow. The bindings made in accordance with this invention are preferably made plastic, metal, carbon fiber, alloys, composites, carbon fiber, and carbon graphite, or combinations thereof. Further, it should be appreciated a boot made primarily of foam, neoprene, plastic, metal, or composites, and which stays mounted on board can also be used with this invention, which is similar to a wakeboard boot, but lighter in overall weight.

[0195] FIGS. **44** through **47** show a ski device SK**10**, made in accordance with the present invention for use on the devices **10**, **100**, **200** and **300** above. The ski device SK**10** has a length SK**11**, a thickness SK**12**, a first end SK**13** and a second end SK**14**. Further, the ski device SK**10**B includes a first or top surface SK**22**, a second middle core, and a bottom surface SK**23** and a first mounting area SK**15** and a second mounting area SK**16** disposed on the top surface SK**22**. Each mounting area SK**15** and SK**16** include a plurality of mounting orifices SK**17**. The thickness SK**12** of the ski device SK**10** is uniform along the length SK**11**, with the exception that in the mounting areas SK**15** and SK**16**, the thickness SK**12** increases. In the present embodiment, the thickness SK**12** is preferably about ½ to ⅝ inches, and in the mounting areas the thickness SK**12** is preferably about ⅛ to ¼ inches. It should

be appreciated the values and ratios will change according to rider or user preference, ability, and types of maneuvers being performed, and type of hydroplane module user or rider is on. Further, it should be appreciated that ratios will change depending on which combination of materials are used in multi-layer of material construction and manufacturing of ski such as wood, foam, fiberglass, metal, composites, plastics, carbon fiber, and carbon graphite.

[0196] At first glance the ski device SK**10** appears like a conventional snow ski. Like conventional snow skis, the first end SK**13** and the second end SK**14** of the ski device SK**10** is bowed upwards. The first end SK**13** includes a radius in the direction from the bottom surface SK**23** towards the top surface SK**22**. The ski device is preferably made from a multi-layer construction.

[0197] The ski device SK**10** includes features that are not in conventional snow or water skis. A difference is that the ski device SK**10** includes a plurality of grooves SK**18** disposed on the top surface SK**22** toward the first and second ends SK**13** and SK**14**. These plurality of grooves SK**18** are disposed generally perpendicularly to the length SK**11** and increase the flexibility of the ski device SK**10** at the first and second ends SK**13** and SK**14**. This increased degree of flexibility at both ends is not desired for conventional snow and not at all for water skis. The ski device differs greatly from a conventional water ski in that the flexibility is similar to a snow ski, is not rigid like a water ski, and is much lighter in weight than a water ski. The swing weight of the ski in this invention is much lighter than water ski also. The ski device in this invention differs greatly from a conventional snow ski in that the camber of the ski can be neutral, same, or opposite camber as compared to camber of a snow ski. The bottom of ski device is intended for specific use in hydroplane environment which differs greatly from conventional snow ski which is intended specifically for gliding or sliding over snow or ice.

[0198] The plurality of grooves SK**18** have a preferred depth of about $1/16^{th}$ to $1/8^{th}$ inch depending on rider or user preference, type of maneuvers being performed, and types of hydroplane embodiment ski device is being used on, as shown in FIG. **40**. It should be appreciated that grooves, channels, edges, bottom surface area, or any combination of, and can be of various size, shape, and length, in parabolic, hyper-parabolic, concave, convex, or any combination form thereof, according to rider or user performance ability, type of maneuvers being performed, type of hydroplane embodiment ski device is being used on, and the particular hydroplane sport discipline participating in. Additionally, the ski device SK**10** includes a plurality of grooves SK**20** disposed on the bottom surface SK**23**. The grooves SK**20** are preferably formed within the top surface SK**22**. However, it should be appreciated that the grooves could be injection molded into top surface, or cut, or routed out of the top surface. The grooves SK**20** are disposed generally parallel to the length SK**11** and preferably have a depth of about $1/10^{th}$ to $1/5^{th}$ the thickness of ski, as shown in FIGS. **41** and **43**. It should be appreciated that grooves, channels, edges, bottom surface area, or any combination of, and can be of various size, shape, and length, in parabolic, hyper-parabolic, concave, convex, beveled or any combination form thereof, according to rider or user performance, type of maneuvers being performed, type of hydroplane embodiment ski device is being used on, and the particular hydroplane sport discipline. Further, the ski device SK**10** includes a channel SK**21** disposed on the bottom surface SK**23**. The channel SK**21** is positioned along the center of the ski device SK**10** and has a depth SK**25**. The channel SK**21** and the plurality of grooves SK**20** increase the hydroplaning capability of the ski device SK**10** on a hydroplaning surface, such as the skim surface **43** of the device **10** described above. The depth of the channel is preferred to be about $1/10^{th}$ to $1/6^{th}$ the thickness of ski device. The ski device SK**10** is preferably constructed from wood or foam core materials, with a fiberglass or injection molded top, and a P-Tex or injection molded composite bottom material. Further, it should be appreciated that various other materials can be used in construction and manufacturing of ski device such as carbon fiber, carbon graphite, metal, plastic, and injection molded composites. Further, it should be appreciated ski device can be hand-made in layer form of multi-layer construction using various materials as previously described. However, it should be appreciated that in other various exemplary embodiments, the board could be constructed out of other material common in the art, such as fiberglass resins, wood, plastics, composites, metals, etc.

[0199] The first and second mounting area SK**15** and SK**16** are disposed on the top surface SK**22** and about the center of the length SK**11**. It should be appreciated that distance of mounting area can vary according to size of user or rider, size of ski device, type of maneuvers ski is being used for, type of hydroplane sport discipline performing such as for example "big air", street, cascade stair-step slopestyle, halfpipe, or quarterpipe. The mounting areas SK**15** and SK**16** provide a location to attach bindings to the ski device SK**10** as will be discussed below.

[0200] The ski device SK**10** also has a width SK**26**. The width SK**26** is uniform along the length SK**11**. The length SK**11** and the width SK**26** have a ratio varies according to size of user or rider, size of ski device, type of maneuvers ski is being used for, type of hydroplane sport discipline performing such as for example "big air", street, cascade stair-step slopestyle, halfpipe, or quarterpipe.

[0201] The ski device SK**10** is different from conventional skis in that the plurality of grooves SK**18** increases the flexibility of the ski device SK**10** at the ends, whereas conventional snow skis are generally designed with increased stiffness towards the ends and whereas conventional water skis are designed with stiffness throughout the length. The ski devices of the present invention, differ greatly from a conventional water ski in that the flexibility of the skis is much great and not rigid like a water ski, and the skis of the present invention are much lighter in weight than a conventional water ski. The swing weight of the ski in this invention is much lighter than water ski also. The ski device in this invention differs greatly from a conventional snow ski in that the camber of the ski can be neutral, same, or opposite camber as compared to camber of a snow ski. The bottom of ski device is intended for specific use in hydroplane environment which differs greatly from conventional snow ski which is intended specifically for gliding or sliding over snow or ice. An additional difference is also the inclusion of the plurality of grooves SK**20** and the channel SK**21** on the bottom surface SK**23**. These features keep the liquid **5** flowing between the ski device SK**10** and the skim surface **43** of device **10** to allow the rider **1** to hydroplane. These features also allow for greater rider **1** control of the ski device SK**10**. Conventional skis have a smooth bottom surface for less friction and feature camber. The ski devices in this invention can feature camber, no camber, or reverse camber, depending on user and rider preference, type of maneuvers ski is being used for, type of

hydroplane sport discipline performing such as for example "big air", street, cascade stair-step slopestyle, halfpipe, or quarterpipe. Further, it should be appreciated the edges of snow skis are sharp with metal edges to cut through snow and ice, whereas, the edges of ski device in this invention are not sharp. The ski device SK**10** includes edges SK**24**. The edges SK**24** are generally flat. It should be appreciated the edges can have other shapes, such as concaved, rounded, beveled, radius, square, tapered, hyper-parabolic, or flat with a recessed surface or any combination thereof. A concaved shape proved for increased edge to edge control and turning. Having a hyper-parabolic or a flat with a recessed surface shaped edge will provide for a more straight-line tracking and stability, but generally a board with such an edge will not turn or "roll" from edge-to-edge as well as a board with concaved shaped edges for example.

[0202] FIGS. **48** through **51** show an exemplary embodiment of a ski SK**110**. The ski SK**110** is similar to the ski device SK**10** and includes the features of the ski device SK**10**. The ski SK**110** includes a length SK**111**, width SK**126**, a thickness SK**112**, a first end SK**113** and a second end SK**114**. The ski SK**110** further includes a first or top surface SK**122** and a second or bottom surface SK**123**. It should be appreciated ski device invention can be constructed out of multiple layers of materials common in the art.

[0203] The ski SK**110** is different from the ski device SK**10** in that the width SK**126** is not uniform along the length SK**11**. The width SK**126** is larger near the first and second ends SK**113** and SK**114**. The ski SK**110** is what is called a parabolic ski shape and is common in the art of skis. Additionally, the ski SK**110** is different from the ski device SK**10** in that the bottom surface SK**123** does not include a central channel.

[0204] FIGS. **52** through **55** show a ski SK**210**. The ski device SK**210** is similar to the ski device SK**10** and includes the features of the ski device SK**10**. The ski SK**210** includes a length SK**211**, width SK**226** in a parabolic shape, a thickness SK**212**, a first end SK**213** and a second end SK**214**, as well as edges SK**224**. The ski SK**210** further includes a first or top surface SK**222** and a second or bottom surface SK**223**.

[0205] The ski device SK**210** is similar to the ski device SK**10** in that the bottom surface SK**223** does include a channel SK**221** with a depth of SK**225**. A difference in ski device SK**210** compared to ski device SK**10** is that the board SK**210** includes a plurality of grooves SK**220** disposed within the channel SK**221**. This additional feature increases the amount of liquid **5** getting under the ski SK**210** to increase the hydroplaning effect for the rider. It should be appreciated that all ski devices in this invention can incorporate various features and aspects of ski devices in this invention in various combinations. Another difference is that the edges SK**224** of the ski device SK**210** in this embodiment are generally concaved in shape.

[0206] The ski devices made in accordance with the present invention have similar middle and top features, and weight like a conventional snow ski, bottom features similar to conventional water ski, and camber, bottom surface, edge, flexibility, performance, swing weight, hydroplaning, and control features unique to this ski device invention. This hydroplane module ski device invention could not be used effectively in snow skiing or water skiing sport activity. The preferred primary, specific, intended purpose and use for the ski devices made in accordance with this invention is for use with extreme hydroplane environment provided for by action hydroplane devices and embodiments and activities as described in this invention.

[0207] FIGS. **56** and **57** present an exemplary embodiment of a binding device BD**110**, made in accordance with the present invention. The binding device BD**110** is for use on the ski devices SK**10**, SK **110**, and SK**210** to hold the devices SK**10**, SK**110**, and SK**210** to the rider **1** when the rider **1** is using the devices **10**, **100**, **200**, and **300** for extreme action sports in a hydroplane environment, as discussed above. The binding device BD**110** is similar to snow ski bindings in use on snow skis. The binding device BD**110** does not include the feature of braking levers as conventional bindings do in case the ski comes off the rider **1**. It should be appreciated that binding device differs greatly from convention snow ski binding device in thickness of materials used in construction, gauge and tension of springs and release mechanisms, drain ports for fluid displacement, and overall weight of binding. Further, it should be appreciated the one of the greatest differences in binding device compared to conventional snow ski binding device relates to release and securing tension rates for safely securing and releasing boot of user or rider which in hydroplane environment skim sport and physics of energy compared to snow skiing down a mountain and the physics of energy in that activity. Further, this ski device binding in this invention could not legally be used or mounted on snow skis or water skis and be legally or safely used in sport of snow skiing or water skiing. The sole and intended purpose and function of this ski binding invention is for use with extreme hydroplane skim skis use in the sport of extreme hydroplaning action extreme sport and hydroplane embodiment modules as described in this invention. Further, the binding device in this invention does not have any breaking device feature as is the case with conventional snow ski bindings.

[0208] The binding device BD**1** includes a sole portion BD**112** and a toe portion BD**130**. The toe portion BD**130** includes a catch BD**122**, a body BD**123**, an adjustment member BD**131** and an adjustment sight gauge BD**127**. The sole portion BD**112** includes a catch BD**124**, two side portions BD**118**, and a lock lever BD**116**. Both the sole portion BD**112** and the toe portion BD**130** include a plurality of mounting fasteners BD**120**.

[0209] The adjustment member BD**131** allows the rider **1** to adjust tension in the catch BD**122** according to the weight of the rider **1**. The lock lever BD**116** is rotatably connected to the sole portion BD**112**, so that when not in use the catch BD**124** is in a first or unlocked position. After the rider **1** place a foot with a proper boot, to be discussed below, into the binding device BD**110**, the rider **1** presses the lock lever BD**116** to a second or locked position moving the catch BD**124** tight against the foot of the rider **1**.

[0210] The binding device BD**110** in the present embodiment is preferably constructed out of individually or in combination, metals, alloys, plastics, plastic composites and rubber. It should be appreciated however, that in other various exemplary embodiments, other materials common in the art may be used.

[0211] It should be appreciated that the tension settings (or DIN settings) are different for the extreme hydroplaning skim sports and activities contemplated by the present invention than they would be for snow skiing for example. Hydroplane binding devices, made in accordance with the present invention cannot be utilized with other sports such as water or snow skiing with the same DIN settings. It is important to note that

professional or commercial ski shop technician could not, under current laws, legally mount for liability reasons hydroplane binding device on snow or water skis due to possible serious injury or death resulting from binding not "certified" for use in snow or water skiing sports. The amount of torque required to release the boot is adjusted by turning a screw on the toe and heel piece. This is called the DIN setting. The correct DIN setting is based on height, weight, ski boot sole length, the skiing style of the skier (cautious, average, or aggressive) and, age (if the skier is 50 years old or older). The DIN is usually set by a technician when skis are rented or bought. Adjusting a binding without the proper test equipment can cause problems with release and may be dangerous to the skier. This is due to the fact that a binding with a higher DIN setting than what is stated by DIN tension setting schedule could keep the boot of user in the binding and not release as intended, therefore causing serious injury or death to user in the event of a fall. Further, a DIN setting lower than DIN tension setting schedule could cause boot of user to prematurely release under minimal tension therefore causing serious injury or death to user.

[0212] FIG. **58** is a side view of a boot device SB**10** made in accordance with the present invention. The boot device SB**10** is for use in binding device BD**110**. The boot device SB**10** is similar in appearance and use as a conventional ski boot. The boot device SB**10** comprises a shell member that includes a toe portion SB**12**, a heel portion SB**14**, two side portions SB**15**, an ankle portion SB**16**, and a calf portion SB**18**. Connected to the side portions SB**15** is a first adjustable strap SB**20** and a second adjustable strap SB**22**. The calf portion SB**18** has a third adjustable strap SB**24** disposed on it. The adjustable straps SB**20**, SB**22** and SB**24** are as typical for conventional ski boots. The boot devices made in accordance with the present invention are preferably made from plastic composites, neoprene, rubber, foam, and metal. Other materials common in the art can be used such as carbon fiber, Kevlar, carbon graphite, and alloys, canvas, nylon, ballistic nylon.

[0213] The calf portion SB**18** is rotatably connected to the ankle portion SB**16** by the pin SB**36**. The side portions SB**15**, the ankle portion SB**16** and the calf portion SB**18** have a plurality of orifices SB**32** disposed throughout the portions SB**15**, SB**16** and SB**18** to reduce weight and expedite the removal of water. This is different from conventional ski boots, which are solid and trying to keep warmth in. Additionally, the side portions SB**15** have an opening SB**34** near the toe portion SB**12**. The boot device SB**10** further includes a calf strap SB**26** dispose on the calf portion SB**18** above the third strap SB**24**.

[0214] The boot device SB**10** further includes an insert or first liner SB**28** and a second liner SB**30**. The liners SB**28** and SB**30** provide protection to the leg of the rider **1** from the boot device SB**10**. The liners SB**28** and SB**30** are a foam material common in the art. Alternatively, the liners could be of other materials common in the art such as for example neoprene, faux fur, canvas and nylon.

[0215] Additionally the boot device SB**10** includes a first catch area SB**38** disposed on the toe portions SB**12** and a second catch area SB**36** disposed on the sole portion SB**14**. The catch area SB**38** is operably configured to engage the catch BD**122** of the toe portion BD**130** of the binding device BD**110**. The second catch area SB**36** is operably configured to engage the catch BD**124** of the sole portion BD**112** of the binding device BD**110**. Hydroplaning boot devices made in accordance with the present invention are different from conventional snowboarding boots in that they are lighter in weight, easier to walk in due to flexibility in heal, overall flexibility due to softer overall shell design and further they include numerous orifices to expedite removal of liquid. Further, it should be appreciated that the boot in this invention could be made of various materials and constructed in a manner manually, injection molded, or a combination thereof which allows for boot to be temporarily or permanently mounted to the ski or board device in this invention.

[0216] FIG. **59** is a side view of a boot device SB**110** made in accordance with the present invention. The boot device SB**110** is for use in binding device BD**10**. The boot device SB**110** includes a toe portion SB**112**, a heel portion SB**114**, two side portions SB**115**, an ankle portion SB**116**, and a calf portion SB**118**. Connected to the side portions SB**115** is a first adjustable strap SB**120** and a second adjustable strap SB**122**. The calf portion SB**118** has a third adjustable strap SB**124** disposed on it. The adjustable straps SB**120**, SB**122** and SB**124** in the present embodiment use hook and loop fasteners, however it should be appreciated that in other various exemplary embodiments, other adjustable straps common in the art may be employed. The boot devices made in accordance with the present invention are preferably made from Plastic composites, neoprene, rubber, foam, and metal, either individually or in combination. Other materials common in the art can be used such as carbon fiber, Kevlar, carbon graphite, and alloys, canvas, nylon, ballistic nylon.

[0217] The calf portion SB**118** is connected to the ankle portion SB**116**. The side portions SB**115**, the ankle portion SB**116** and the calf portion SB**118** have a plurality of orifices SB**132** disposed throughout the portions SB**115**, SB**116** and SB**118** to reduce weight and expedite the removal of water. The boot device SB**110** further includes a calf strap SB**126** dispose on the calf portion SB**118** above the third strap SB**124**.

[0218] The boot device SB**110** further includes a liner SB**128**. The liner SB**128** provides protection to the leg of the rider **1** from the boot device SB**110**. The liner SB**128** is a foam material common in the art. Alternatively, the liner could be of other materials common in the art such as for example neoprene. In some variations of invention ski boot models, inner boot is made similar to water sock or water sport shoe and as such, can be removed from boot shell and used for casual walking in on land or in water comfortably and safely.

[0219] FIG. **60** is a perspective view of a pole device P**10**, made in accordance with the present invention. The pole or balance pole device P**10** includes a pole member P**12** having a first end P**14** and a second end P**16**, wherein the first end P**14** and the second end P**16** define a length P**18**. A handle P**20** is disposed at the first end P**14**. The handle includes a strap P**22**, which is optional. Disposed at the second end P**16** is a contact member P**24**.

[0220] In the present embodiment the pole member P**12** is constructed out of materials common in the art of make ski poles. Further, hydroplane extreme skim ski pole can be made out of injection molded composites, carbon fiber, fiberglass, alloys, and other materials common in the art. The rider **1** uses the pole device P**10**, as desired, when using the hydroplane extreme sport device **10** to aid in maintaining balance, as a conventional ski pole would be used. The length P**18** in the present embodiment is preferred to be about 40 inches. However, it should be appreciated that in other embodiments the length may be longer or shorter as determined by the rider **1**

preferences and size, as well as tricks and maneuvers to be performed, the type of hydroplane event participating in such as "big air", quarterpipe, halfpipe, or cascade stair-step slope-style.

[0221] The contact member P**24** in the present embodiment has a concave shape, in that the contact member P**24** cups in the direction from the second end P**16** towards the first end P**14**. The contact member is preferably made from a rubber composite. However, it could also be made from rubber, plastics, neoprene or other composites. The contact member P**24**, when in use comes in contact with the skim surface **43** of the device **10**. The contact member P**24** is constructed of a rubber material so that the skim surface **43** is not damaged by the balance pole P**10**. The pole member P**12**, while in the present embodiment does not extend beyond the contact member P**24**, it should be appreciated that in other various exemplary embodiments, the pole member may extend beyond the contact member.

[0222] The present invention further relates to an activity of water skimming in an extreme manner, either professionally or as an amateur, using the devices described above. The rider **1** would use the equipment described above on one of or a combination of the devices described above to perform tricks, maneuvers, and athletic abilities such as but not limited to 1080 degree spins, flips, twists, toe-grabs, etc. The activity of water skimming could be perform indoors or outdoors and either publicly before an audience or privately. The water skimming activity could also be judged, wherein the rider **1** earns points or other awards based on factors such as speed, time, proficiency of performance, degree of difficulty, artistic style and amplitude.

[0223] The water skimming activity can be a single event or multiple events where the rider **1** score is accumulated. Further the water skimming activity can be operated as a team sport wherein each individual on the team earns points and the total is the team score.

[0224] Still further the water skimming activity can be established as a sport that includes teams with roosters, schedule of competition, a governing body and regulated rules to compete by wherein all competition is performed on the hydroplane environment described herein.

[0225] The present invention includes the method steps for the activity of water skimming comprising the acquiring a hydroplane environment device; acquiring equipment specifically for use on the hydroplane environment; fitting a user with the equipment; acquiring judges to judge the performance of the user **1**; hydroplaning down the hydroplane environment on the equipment by user **1** and the user **1** performing athletic maneuver while hydroplaning down the hydroplane environment; receiving a score from the judges based on the performance of the athletic maneuvers by the user **1**.

Example Action Hydroplane Gravity System and Calculations

[0226] Part 1: Wide Start/Drop-in Ramp/Slope Dimensions for ramp similar to FIG. **1**:

[0227] A. Width: 10 ft.

[0228] B. Height: 23 ft. (measured from horizontal/catchment surface vertical to beginning **3'** radius to platform)

[0229] C. Drop-in/Start Platform Angle: 7 degrees (40 sq. ft.)

[0230] D. Drop-in/Start Radius: 3' ft. (4.75 Lineal Ft.×10 ft.=47.5 sq. ft.)

[0231] E. Ramp/Slope Angle: 70 degrees (12 L.F.×10 ft.=120 sq. ft.)

[0232] F. Transition Radius: 14 ft. (Approx. 18 L.F.×10 ft.=180 sq. ft.)

[0233] G. Catchment Length: 45 ft. (45 L.F.×10 ft.=450 sq. ft.)

[0234] Part 2: Plumbing System:

[0235] A. Minimum of one Supply Line: 3" in. diameter

[0236] B. Return Lines: Qty. 4=3" in. diameter

[0237] C. Liquid Supply Pump Size: 67,200 GPH or 1120 GPM

[0238] D. Coping Liquid Dispenser: 3" line×10 L.F. (approx. 9

[0239] E. Drains: Qty. 8-12=3" in. (depending on desired range of liquid depth adjustment; see "Part 3, B-4: a., b., & c. below).

[0240] F. Optional Side Liquid Dispensers: (To increase amount of liquid on surface area as user prefers).

[0241] G. Optional Surface Liquid Dispensers: (To increase amount of liquid on surface area as user prefers).

[0242] Part 3: Hydroplane Environment Calculations:

[0243] A. Weir or flow Rates:

[0244] 1. 900 Gallons Per Hour (GPH) or 15 Gallons Per Minute (GPM) for 0.5" in. water liquid depth

[0245] 2. 2400 GPH or 40 GPM for 1" in. water liquid depth

[0246] 3. 4500 GPH or 75 GPM for 1.5" in. water liquid depth

[0247] 4. 6720 GPH or 112 GPM for 2" in. water liquid depth

[0248] B. Preferred Liquid Depth Levels:

[0249] 1. Ramp/Slope Angle: 1" in. depth,

[0250] a. Liquid volume amount: 2400 GPH or 40 GPM×10 ft.=24,000 GPH or 400 GPM.

[0251] b. The 24,000 GPH amount of liquid is supplied through liquid dispenser coping located at top of drop-in/start platform.

[0252] 2. Transition Radius: 1.5" in. (Preferred range 1"-2" in. depth (can vary, see below);

[0253] a. Add 2100 GPH or 35 GPM (difference in weir rate between 1" & 1.5") to 2400 GPH or 35 GPM (amount of liquid already supplied)=4500 GPH or 75 GPM (weir rate for 1.5 in. liquid depth).

[0254] b. 4500 GPH×10 ft.=45,000 GPH or 750 GPM (liquid volume needed at beginning of transition area to provide 1.5" in. liquid depth.)

[0255] c. The 45,000 GPH amount of liquid is supplied through liquid dispensers on sides and transitional surface area or combination of both, with flow rate being controlled with liquid dispenser controls.

[0256] 3. Catchment: 2" in. liquid depth.

[0257] a. Add 2220 GPH or 37 GPM (difference in weir rate between 1.5" & 2") to 4500 GPH or 75 GPM (amount of liquid already supplied)=6720 GPH or 112 GPM (weir rate for 2" in. liquid depth).

[0258] b. 6720 GPH or 112 GPM×10 ft.=67,200 GPH or 1120 GPM (liquid volume needed at beginning of horizontal catchment area to provide 2 in. liquid depth.)

[0259] c. TOTAL=67,200 GPH or 1120 GPM Liquid Volume Pump Size Needed

[0260] 4. Catchment Depth Control Options:

[0261] a. OPTION A.—Each return line has one valve in line which can be adjusted to affect liquid level in horizontal catchment area. (i.e. close to create more "back-pressure" which raises the level (i.e. increases depth) of liquid in horizontal catchment area or open valve to reduce "back-pressure" increasing drainage flow which reduces liquid level (i.e. shallower depth) in horizontal catchment area).

[0262] b. OPTION B.—Side barrier (gunwales) are adjusted manually, electronically (with motor), or hydraulically up and down vertically to adjust depth of liquid in catchment area according to preference. The liquid would drain over the top edge of side barrier into trough (or catch basin, tank, gutter, or chute) attached to return lines to liquid supply source.

[0263] c. Attributes of liquid depth: (1"-2.5" in.=more velocity/less control for user performing air maneuvers over jump or halfpipe, or quarterpipe; 3"-6" in.=less velocity/more control for user or rider to "pop" or "Ollie" board or ski off of hydroplane surface into air for tricks & maneuvers).

[0264] Part 3: Liquid Volume Calculations:

[0265] C. Cubic Feet of Liquid Needed to Supply Preferred Depths at Various Area of Embodiment

[0266] 1. Drop-in/Start Platform, Radius Drop-In Transition, Angled Ramp/Slope=207.5 sq. ft. (total area sq. ft.)×0.0834 (1" depth divided by 12)×7.5 (cu. Ft. factor)=129.79 gallons (rounded up to 130 gal cu. ft.)

[0267] 2. Transitional **14'** ft. radius section of embodiment FIG. **1**=180 sq. ft. (area)×0.125 (1.5" depth divided by 12)×7.5=168.75 (rounded up to 170 gal cu. ft.)

[0268] 3. Catchment (area)=450 sq. ft. (area)×0.167 (2" depth divided by 12)×7.5=563.62 (rounded up to 564 gal cu. ft.)

[0269] 4. Total gal. cu. ft.=864

[0270] 5. Multiply 864×3 ("rule of thumb" factor for amount of liquid supply with short supply & return lines, which is adjusted up or down according to volume of liquid in plumbing system, which one skilled in the art can calculate)=2,592 gallons of water liquid needed to supply plumbing system in this example. Can be adjusted higher for preference.

[0271] Part 4: Summary:

A. Hydroplane Gravity Embodiment:

[0272] 1. Establish hydroplane embodiment (i.e. embodiment module, injection molded module, device, etc.)

[0273] 2. Establish support for hydroplane embodiment surface (i.e. injection molded module, structure, ground, scaffolding, etc.)

[0274] 3. Implement plumbing system (as described) according to hydroplane environment surface size, style, preferred liquid depth, and maneuvers being performed using flow rates skilled in the art.

[0275] 4. Turn on pump(s).

[0276] 5. Begin user or rider participation.

B. Additional Hydroplane Embodiments:

[0277] 1. Hydroplane environment can be provided on other additional environments according Part 4: A, 3.

[0278] 2. Applicable to various hydroplane gravity module, structures, or device embodiments in forms such as: drop-in/start slope/ramp; quarterpipe, halfpipe, ramp-to-ramp ("big air"), cascade/stair-step ("slopestyle"), jump, box, rail, bowl, half-frustum conical, and half-frustum conical with horizontal catchment area feature.

[0279] 3. Hydroplane gravity environment is provided using hydroplane embodiment module, device, and/or structure with hydroplane gravity environment surface ranging from fifteen (15) degrees to 77 degrees when user is hydroplaning from gravity or human energy (i.e. traveling DOWN angle of embodiment). In shorter distances, hydroplane surface degree angle can increase to 80 degrees.

[0280] 4. Hydroplane gravity environment surface angle can increase to 90 degrees (vertical) when user or rider is traveling/transitioning UP hydroplane surface area, for example, when user or rider is using halfpipe, quarterpipe, or jump embodiment to perform maneuvers and tricks.

[0281] While this invention has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the invention, as set forth above, are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of this invention.

What is claimed is:

1. A hydroplane board comprising:

a board member having a first end, a second end defining a length, a thickness, a first surface and a second surface, wherein the first end and the second end have a bend in the direction from the second surface towards the first surface; and,

a plurality of flexibility grooves disposed on the first surface, near the first end and generally perpendicular to the length.

2. The hydroplane board, as recited in claim **1**, further including a second plurality of grooves disposed adjacent the second end and generally perpendicular to the length.

3. The hydroplane board, as recited in claim **1**, further comprising a plurality of grooves disposed on the second surface that are generally parallel to the length.

4. The hydroplane board, as recited in claim **1**, wherein the first end and the second end are parabolic in shape.

5. The hydroplane board, as recited in claim **4**, further comprising a plurality of grooves disposed on the second surface, wherein a portion of the plurality of grooves are generally parallel to the length, and wherein the remaining portion of the plurality of grooves are parabolic along the length.

6. The hydroplane board, as recited in claim **1**, further comprising a channel disposed on the second surface along a portion of the length.

7. The hydroplane board, as recited in claim **1**, further comprising binding mounting areas disposed on the first surface.

8. The hydroplane board, as recited in claim **1**, wherein the first surface includes non-skid areas.

9. The hydroplane board, as recited in claim **1**, wherein the board has an overall elliptical shape.

10. A hydroplaning riding device for a rider to hydroplane upon a liquid surface, comprising:

an elongated member having a first end, a second end defining a length, a thickness, a first surface and a second surface, wherein the first end and the second end have a bend in the direction from the second surface towards the first surface, wherein the second surface when in use is operably configured to hydroplane upon the liquid surface; and,

a plurality of grooves disposed on the second surface and being generally parallel to the length of the elongated member.

11. The hydroplaning riding device, as recited in claim **10**, wherein the elongated member is a ski.

12. The hydroplaning riding device, as recited in claim **10**, wherein the plurality of grooves are also disposed on the first surface, near the second end and generally perpendicular to the length.

13. The hydroplaning riding device, as recited in claim **10**, wherein a portion of the plurality of grooves are parabolic.

14. The hydroplaning riding device, as recited in claim **10**, further comprising a channel disposed on the second surface along a portion of the length.

15. The hydroplaning riding device, as recited in claim **10**, further comprising binding mounting areas disposed on the first surface.

16. The hydroplaning riding device, as recited in claim **10**, wherein the first surface includes non-skid areas.

17. The hydroplaning riding device, as recited in claim **10**, wherein the second surface includes a plurality of grooves and a channel disposed on the second surface and along a portion of the length.

18. The hydroplaning riding device, as recited in claim **10**, further including a width and an edge disposed along the width and a channel disposed along a portion of the edge.

19. A binding device for use on a board to secure a rider to the board for use in a water hydroplane environment, comprising:

a sole portion have a first end and a second end, which includes a plurality of fastener orifices;

two side portions attached to the sole portion;

a heel portion attached to the second end and the two side portions;

a calf portion rotatably attached to the heel portion;

a first securing member attached to the two side portions near the first end;

a second securing member attached to the two side portions near the heel portion;

a third securing member attached to the calf portion; and,

wherein the sole portion, two side portions, heel portion and calf portion include a plurality of orifices to reduce weight and when in use to allow the water to drain through out of the binding device.

20. The binding device, as recited in claim **19**, wherein the sole portion is rotatably connected to the board.

21. A ski boot for in use in a water hydroplane environment, for locking into a ski binding, comprising:

a shell member;

an insert to removably fit inside the shell member;

a toe end and a heel end, operably configured to engage the ski binding;

wherein the shell member includes a plurality of orifices to reduce weight and when in use allow the drainage of the water.

22. The ski boot, as recited in claim **21**, wherein the insert is neoprene.

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