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SURF FLOAT

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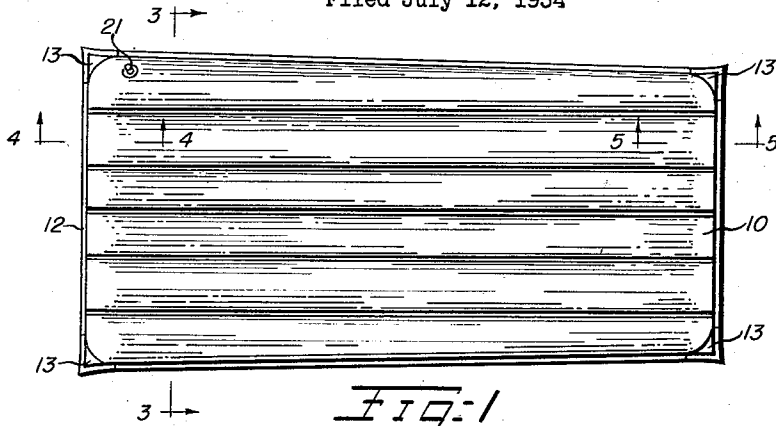


FIG-1

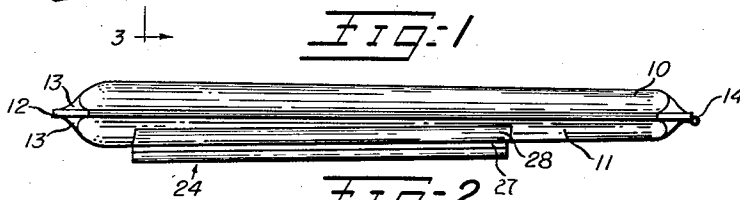


FIG-2

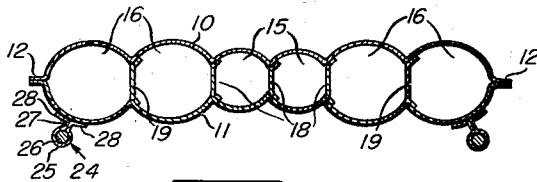


FIG-3

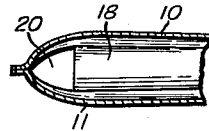


FIG-4

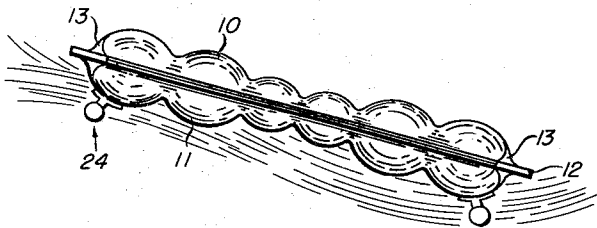


FIG-6

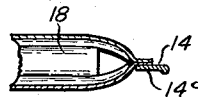


FIG-5

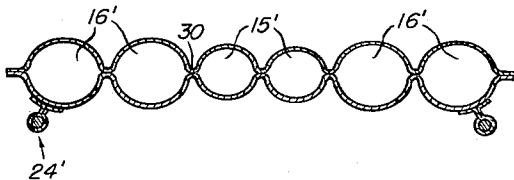


FIG-7

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2,816,299

SURF FLOAT

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7 Claims. (Cl. 9—21)

This invention relates to improvements in surf floats.

Surf riding on buoyant devices has developed into a widely acclaimed watersport. The rider launches himself upon the device in the direction of the shore with the longitudinal axis of the device at right angles to the breaker to be ridden. The device is propelled into shore by the action of the crest of the breaker. Wooden surfboards, while being quite stable in the surf due to their density, are not entirely satisfactory because of the possibility of injury to the rider if a breaker should capsize the board. In order to use a wooden surfboard with a reasonable amount of safety, a long period of training and practice is necessary. Inflatable or other light weight floats are safer to use in one sense, in that they will not injure the rider if they overturn upon him. However, because of their increased buoyancy and light weight, inflatable floats are less stable in the surf and are more apt to capsize or otherwise follow any turbulent action of the breakers. Prior inflatable devices have been proposed for use as surf floats but, due to the lack of stability in the surf, action is being taken by a number of beach resort towns to disparage their use. The lack of stability is caused, for one reason, by the fact of equal distribution of buoyancy from front to rear. The front portion of the float normally supports the rider's trunk and the rear portion supports the rider's legs, and if there is an excess amount of buoyancy in portions of the float in relation to the amount of weight to be supported thereby, which is usually present at the rear end of the float when buoyancy is equally distributed, such excessive buoyancy tends to capsize the float end over end in a breaker. Furthermore, when the float accidentally assumes a diagonal or parallel position relative to the breaker, the light weight float has little stability because the breaker rapidly overtakes it from the side and capsizes it.

It is, therefore, a principal object of the present invention to provide a light weight surf float having a distribution of buoyancy in proportion to the distribution of weight of the rider's body to be supported thereby to resist capsizing of the float in end over end movement; to provide a float having increased buoyancy at the sides, and especially adjacent the front end thereof which serve as outriggers to resist rolling on a longitudinal axis when the float has accidentally assumed a position other than at right angles to the breaker; to provide a surf float having gripping means on its underside which are absent of any structure which would permit the rider to become entangled therewith; and to provide a surf float wherein the gripping means serve as keels to facilitate steering when the float is directed into shore and to facilitate side slippage on the front wall of a breaker when the float has accidentally assumed a position other than at right angles to the breaker.

The present invention comprises, briefly, a surf float having longitudinal compartments which are adapted to be inflated, or, as an alternative, the compartments may be filled with a low density buoyant material such as kapok. The float is tapered rearwardly, both in width and

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thickness, and, in general, has a distribution of buoyancy in proportion to the distribution of weight of the rider's body carried thereby and has additional buoyancy at the sides adjacent the front to facilitate stability in the breakers. The float is absent of any substantial excess of buoyancy in areas which would tend to cause the float to capsize, as will be more fully explained hereinafter. Secured to the underside of the float are gripping means which function more or less as keels to assist in steering the float and to sustain the float in an upright position on the front wall of a breaker.

The invention will be better understood and additional objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, which illustrate preferred forms of the device. It is to be understood, however, that the invention may take other forms, and that all such modifications and variations, within the scope of the appended claims, and which will occur to persons skilled in the art, are included in the invention.

In the drawings:

Figure 1 is a top plan view of the present surf float;

Figure 2 is a side elevation thereof;

Figure 3 is a sectional view showing the distribution of buoyancy transversely of the float and also the gripping and stabilizing means, taken on the line 3—3 of Figure 1;

Figure 4 is a sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a sectional view taken on the line 5—5 of Figure 1;

Figure 6 is a front view of the float in a breaker and showing the function of the gripping means to sustain the float in an upright position when it has assumed a position parallel to the breaker; and

Figure 7 is a sectional view of a modified form of compartment arrangement.

The present device may be made of any suitable sheet material but is preferably made of a synthetic plastic sheeting. Such sheet material must be impervious to air or moisture and must be tough and flexible to resist puncture thereof by the abrasive action of sand or articles which are apt to be lying on the beach.

As best seen in Figures 1 and 3, the device comprises a top sheet 10 and a bottom sheet 11. The two sheets 10 and 11 are sealed together around the edges by the application of heat in a well known manner, thereby forming a peripheral air-tight joint 12. The corners of the float are reinforced by triangular pieces of plastic sheeting 13 heat sealed in place, and the rear edge of the float is provided with a rounded elongated bead portion 14, Figure 5, to protect the rider's body from the edges of the peripheral joint 12 when the rear end of the float is held thereagainst preparatory to launching on a breaker. Bead portion 14 is provided with a lip 14a and is secured to the float by heat sealing the lip 14a to the rear edge joint 12.

The interior of the float is formed into a plurality of longitudinal compartments comprising two central compartments 15 and four side compartments 16. These compartments are formed by means of a plurality of longitudinal webs or partitions 18 and 19 which are attached to the top and bottom sheets 10 and 11, respectively, preferably by a heat sealing process, at spaced intervals, as shown in Figure 3.

As seen in Figures 1 and 2, the float is tapered in width as well as in thickness. The taper in width is accomplished by cutting the sheets 10 and 11 narrower at one end so that the completed float will assume a rearwardly convergent shape, Figure 1. The two outermost compartments 16 may diminish in width toward the rear with the intermediate compartments having parallel side walls, as

shown, or, if desired, all the compartments 15 and 16 may assume a rearwardly tapered form. To accomplish the taper in thickness, the webs 18 and 19 are reduced in width from front to rear, and when attached in place the top and bottom walls 10 and 11 assume a rearwardly convergent form, the webs 18 and 19 having a common width at the rear portion of the float. The two webs 19 between the side compartments 16 have a greater width at the front of the float than the webs 18 and are spaced from the side walls of the float and from the webs 18 so as to make the outer compartments 16 of larger size, thereby providing for greater buoyancy of the float at its forward edges and diminishing along its sides. As an example of a preferred form, the webs 19 taper from a six inch width at the front end of the float and the webs 18 taper from a three inch width to a common two inch width at the rear. As applied to a dimension of the webs 18 and 19, the word "width" is defined as the distance between the top sheet 10 and the bottom sheet 11 at a given point where these sheets are connected by the webs.

Webs 18 and 19 terminate short of the ends of the float, as shown in Figure 5, and a common transverse passageway 20 is thereby formed which communicates with all the longitudinal compartments. Pressured air is admitted through an air valve 21 for inflating the device.

The distribution of buoyancy thus provided, i. e., a greater buoyancy at the sides than at the center and a greater buoyancy at the forward end than at the rear end, gives the float a desired stability in the surf. A portion of such stability is accomplished by the distribution of buoyancy lengthwise of the float in proportion to the distribution of weight of the rider's body which must be supported thereby, i. e., the front portion of the float supports the weight of the rider's trunk while the rear portion supports merely the weight of the rider's legs. As surf riding is done on the front wall of the breaker with the front of the float directed downwardly toward the trough of the breaker, it is apparent that if the float had an even distribution of buoyancy in all parts, the excess buoyancy at the rear would cause the rear end of the float to rise to a point where the front of the float would be submerged in the back running under portion of the breaker, causing the float to be capsized end over end and throwing the rider into the turbulent water. The distribution of buoyancy of the present device overcomes such disadvantage.

Additional stability is accomplished by the enlarged compartments 16 which provide for increased buoyancy along the forward side portions of the float. These enlarged compartments serve as outrigger floats and resist side overturn. This additional buoyancy along the sides is especially useful to prevent overturn when the float has accidentally assumed a position out of right angles with the breaker such as when the float is turned diagonally or is parallel to the breaker.

Secured to the bottom sheet 11 of the float adjacent the side edges is a pair of downwardly extending gripping means or handles designated generally by the numeral 24. The handles 24 are constructed from a single narrow sheet of flexible material such as plastic sheeting and each has a longitudinal loop or tubular portion 25 for receiving an elongated rigid rod 26. The loop 25 is formed by folding the sheet back upon itself and heat sealing the two walls together along a longitudinal line. The double wall portion forms a flexible web 27 and the free edges of the sheet are turned outwardly to form a pair of flaps 28 which are heat sealed to the bottom sheet 11 along longitudinal seal lines. To hold the rod 26 in place, the looped portion 25 may be of slightly greater length than the rod so that the portions extending beyond the end of the rods can be folded and heat sealed in folded position.

To use the present float in the surf, the operator wades out into the surf and when a breaker approaches he launches himself upon the float in the direction of the shore at the instant the breaker reaches him, whereby the float will ride the forward face of the wave into shore,

A firm grip can be obtained by means of handles. The handles 24 may be of any length but preferably extend a substantial length of the float so as to impart longitudinal rigidity to the float and so that the rider can adjust his position on the float as desired and in any such position have the handles available to him. The longitudinal heat seals by which the handles are secured to the float provide for a distribution of the pulling force which may be applied to a large area of the side walls of the float.

An additional feature of the handles 24 is that no openings are provided to receive the rider's hands or wrists and he can in no way become entangled therewith. If a wave should capsize the float, the rider can immediately free himself therefrom by releasing his grip.

In addition to serving as gripping means, handles 24 accomplish other important functions. One important function is that when the handles are held in a downward direction they serve as keels to direct the float in a straight forward direction into shore. Additionally, the handles may be used as steering means to control the direction of movement of the float. As the handles converge toward the rear, the action of the breaker exerts a side thrust on the handles adjacent the front of the float. Therefore, if one of the handles is hingedly moved upwardly the side thrust exerted by water against the other handle will turn the float in the direction of the downwardly extended handle. Effective steering can thus be had in either direction by lifting the handle on the opposite side of the float to the direction of turn.

Another important function of handles 24 is that they resist rolling of the float on a longitudinal axis if the float should accidentally assume a position other than at right angles to the breaker. As seen in Figure 6, which shows the float turned parallel to the breaker, in the absence of the downwardly extending handles the wave would tend to raise the nearest edge of the float and capsize it. However, with the rider holding the handles at substantially right angles to the bottom plane of the float, the handle on the leading edge of the float receives the force of the water and continually moves that edge forwardly, thus avoiding an opportunity for the rear edge of the float to overtake the forward edge and overturn the float.

Figure 7 is a modified form of structure. In this embodiment a top sheet 10' and a bottom sheet 11' are sealed together around their peripheral edges similar to the Figure 1 embodiment. However, the sheets 10' and 11' themselves are heat sealed together in spaced longitudinal joints 30 to form compartments 15' and 16'. Similar to the Figure 1 embodiment, the float is tapered in width and in thickness and has downwardly extending handles 24'.

Having now described my invention and in what manner the same may be used, what I claim as new and desire to protect by Letters Patent is:

1. A surf float, flexible webs secured to the underside of the float at each edge and normally depending downwardly therefrom, and elongated handle means on said webs having longitudinal rigidity, said handles being incorporated in the free edges of said webs and movable with said webs relative to the float to enable a rider to obtain a grip thereon and to hold said webs extended from or folded against the float.

2. A pneumatic surf float comprising an inflatable body portion having top and bottom walls, said body portion being tapered rearwardly in width and thickness to provide a distribution of buoyancy in proportion to the distribution of weight of a rider to be supported thereby, longitudinal handles depending from each edge of said bottom wall, and a flexible impervious web extending between each said handle and the float, said handles being rigid to enable the rider to hold said web either extended from or folded against the float.

3. A pneumatic surf float comprising a plurality of longitudinal inflatable compartments, the compartments at the sides of said float having the greater volume and

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having an over-all rearwardly diminishing volume to provide a distribution of buoyancy in proportion to the distribution of weight of a rider to be supported thereby, and gripping means secured to said float, said gripping means comprising a handle depending from each underside edge of the float, a flexible impervious web extending between each handle and the float, said handles comprising rigid means extending longitudinally of said float to enable the operator to hold the webs selectively extended from or folded against the float.

4. A surf float comprising top and bottom walls, longitudinal webs secured to said top and bottom walls at spaced intervals to provide a plurality of longitudinal compartments, the compartments at the sides of said float having the greater volume and having an over-all rearwardly diminishing volume to provide a distribution of buoyancy in proportion to the weight of a rider to be supported thereby, and gripping means secured to said float and normally depending downwardly below the bottom plane of said float, said gripping means comprising a handle depending from the underside of the float at each edge, an impervious flexible web extending between each handle and the float, said handle comprising rigid means extending longitudinally of said float to enable the operator to hold the web extended from the float.

5. A pneumatic float comprising an inflatable body portion, a pair of rearwardly convergent keels hingedly secured to the bottom of said body portion adjacent the

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sides thereof and a rigid longitudinal handle in the lower edge of each keel for holding the keel extended from or folded against the float.

6. A pneumatic float comprising an inflatable body portion, a pair of rearwardly convergent flexible web portions secured to the bottom of said body portion adjacent the sides thereof and normally depending downwardly from the bottom of said body portion, and a pair of rigid members carried by said webs to impart longitudinal rigidity to said float and to facilitate stability and steering of said float in turbulent water.

7. In a surf float, a pair of flexible keels on the float adjacent the side edges thereof, and a longitudinal rod incorporated in the lower edge of each keel forming a handle for holding the keel extended from or folded against the float.

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