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PNEUMATIC SURFBOARD OR FLOAT

Filed Feb. 19, 1934

Fig. 1.

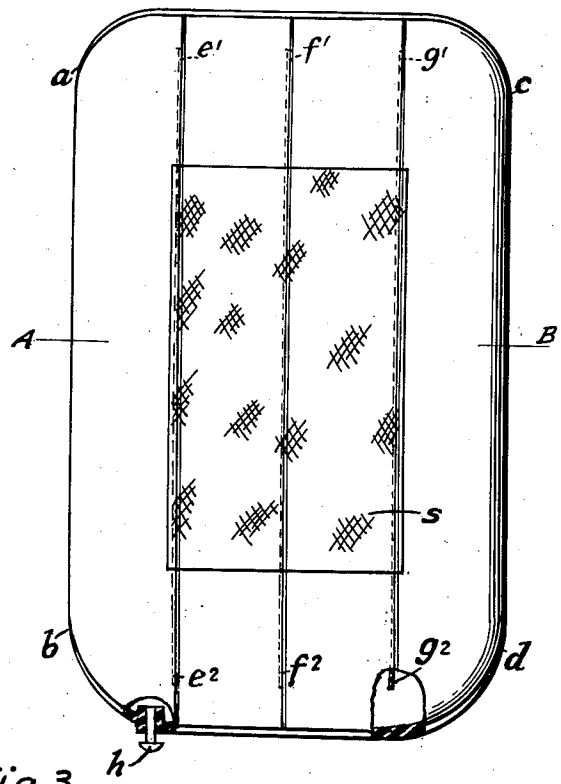


Fig. 2.

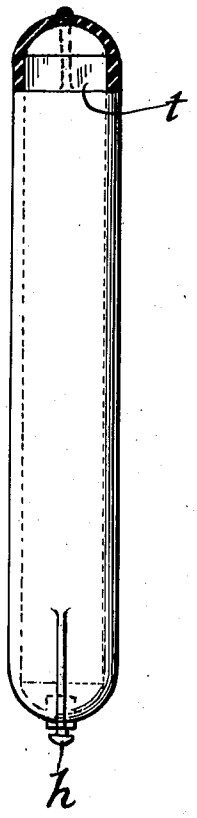


Fig. 3.

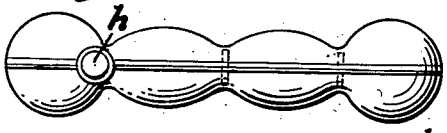


Fig. 4.

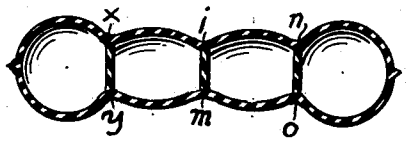
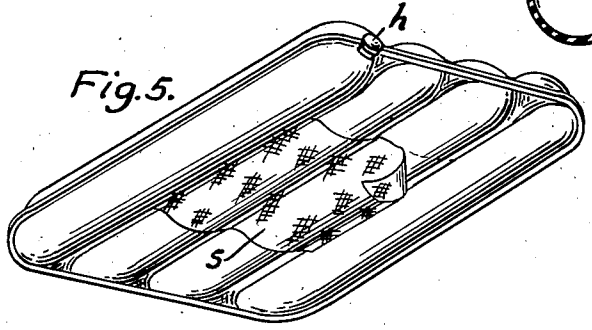


Fig. 5.



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PNEUMATIC SURFBOARD OR FLOAT

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3 Claims. (Cl. 9—11)

This invention relates to an improved type of pneumatic surf board or float composed of rubberized fabric or rubber, or of analogous material for the purpose, or of an outer casing of waterproof fabric with an inner lining of rubber or rubberized fabric, of a shape and construction substantially as illustrated in the accompanying drawing.

Surf boards or floats, heretofore known, have been fashioned usually of wood although floats composed of rubber are known. However, these rubber floats have been more or less copies of the wooden surf boards and have not been completely successful as aids to breaker-shooting in surfing, nor have they been of very material assistance in swimming.

Surf boards composed of wood are heavy and cumbersome and are a source of danger when utilized in the surf. However, they have been a successful medium as far as the actual shooting of the breakers is concerned, on account of their density which has given them a resistance to twisting and distorting influences in the surf. When rubber is taken into consideration, however, problems arise which are not met with in the employment of wood. Inflated rubber bodies are considerably less dense and more buoyant than wood and, on account of their lower density and high buoyancy, they become very susceptible to the action of cross currents and other buffeting influences present in the surf, with the result that buoyant rubber floats do not normally prove to be successful mediums in the pastime of breaker-shooting and do not adequately displace boards of wood for this purpose. It is the object of the present invention to overcome the defects in such floats, taking into consideration the mechanical principles of wave action in connection with floating bodies.

The board or float, the subject of the present invention, has been designed so that it is capable of being propelled forward by wave action from the crest of the wave towards its trough so that the motion of planing downwards is produced. The propulsive force is achieved in surfing by water impinging mainly at the rear of the float, and this float has been so designed that a maximum effective surface is presented to the propulsive force; it has been shown by experiment that as soon as a deviation from a straight course occurs the propulsive force of water is exerted on an angle, or on the side, and twisting occurs. In the case of wooden surf boards, this twisting tendency is offset by the weight and density of the board which cause it to sink into the water and offer an effective resistance to forces which may be impressed on bodies of lesser density, but with rubber floats of the designs heretofore available to the public this tendency to be twisted and/or buffeted has been very marked. In the surf board or float described herein, due consideration has been given to the action of the forces at work and the mathematical resultant of such forces in order to produce a float of such construction that the forces acting along the length of the float would predominate over side and/or angle vector forces to keep the float running in a set course and this result has been achieved by reducing the length of the float, relative to its width and to the length of such devices at present in use, as far as is practicable consistent with efficient flotation, and by the employment of parallel sides, or sides which diverge from the parallel by only a small angle, or are slightly curved and by subdividing the float, by means of partitions, into compartments which are substantially parallel to one another and to the float sides. The shape of the float is such that the inscribed figure, taking straight lines from corner to corner consecutively, is a regular quadrilateral of rectangular shape. The resulting construction is such that, on a breaking wave, the board or float will run quite straight, without any tendency to twist, and will plane down ahead of the wave like a toboggan.

In the accompanying drawing:—

Figure 1 is a plan view of the float.

Figure 2 is a side view of the float partly broken.

Fig. 3 is an end view.

Fig. 4 is a cross section along the lines A—B of Fig. 1.

Fig. 5 is a perspective view of the device.

The sides "*a*" to "*b*" and "*c*" to "*d*" are preferably parallel, as are the ends "*a*" to "*c*" and "*b*" to "*d*". The corners are rounded as shown in the drawing, the curvature of the corners being variable to vary the speed and manageability of the float. The dotted lines "e^1" to "e^2", "f^1" to "f^2" and "g^1" to "g^2" indicate interior partitions which divide the float into the desired number of apartments or cells; their number may be varied; such partitions do not extend the full length of the float and are not attached to the ends of the main or outer casing, and the length of the partitions, relative to the length of the float, may be varied. By shortening the partitions a fuller roundness, or ballooning, is given to the float ends, making it more manageable and easier to ride when shooting the breakers, but by lengthening the partitions the curvature of

the ends is decreased giving them a greater sharpness which gives the float a greater potential speed in the surf. Further modifications can be introduced by forming the apartments or cells by joining the upper and lower surfaces of the float together, for example, "*x*" to "*y*", "*i*" to "*m*", "*n*" to "*o*" but in the preferred form the partitions are substantially parallel to one another and to the sides as shown in the drawing.

Stiffening pieces may be introduced into the float and a strip of material having a greater frictional effect than the outer surface of the float may be attached to its upper surface, by moulding or other suitable means, in order to give a friction grip to the body of the surfer for example, in a float composed of rubberized fabric, a strip of canvas is attached to the upper surface of the float as shown at "*s*" in Figures 1 and 5 of the drawing.

Figure 1 shows the position of the air valve at the point "*h*". The air valve is optional and it is contemplated, as an alternative, to fashion a sealed, inflated float, ready for use. It is an advantage of the valve equipped float that, when deflated, it may be rolled up into a small space and thus conveniently transported.

Figure 2 shows a side view of the board or float showing the rounded front and rear ends, and the position of the air valve, although obviously the air valve could be located elsewhere. Fig. 2 of the drawing is partly broken away to show portion of one of the internal partitions as at "*t*".

Figure 4 is a cross section of the board or float showing the interior division into compartments or cells, the two outer compartments or cells being of larger size than the two inner compartments or cells, as shown in the accompanying drawing. The size of these outer compartments relative to the inner compartments may be varied. The greater the relative difference between the outer and inner compartments respectively, the greater the stability and manageability which is imparted to the float, but the less its effective speed in the surf; the effect of this construction is to give a bed on which the surfer's body lies with slight support at either side and at the front and rear, thus counteracting tendency of the board or float to slip from beneath the surfer's body with inexpert handling. However these modifications have the effect of reducing the potential travelling speed of the board or float, and for expert surfers the size of the outer compartments or cells is reduced to a point where they approximate in size to the inner compartments or cells; at the same time the inner partitions are carried nearer the ends of the main or outer casing thus giving greater sharpness to the ends and further increasing the potential travelling speed of the float. That is to say that a longitudinal seam approaching to within one inch of the end would give a greater sharpness to the end curvature than one approaching to within six inches and as the sharpness of the end is increased so is the speed of which the float is capable correspondingly increased. The effect of increasing the number of compartments or cells, by adding to the number of partitions, is to render the surface of the float flatter. This has the effect of decreasing the property of the float of adhering to the body, thereby calling for increased skill in manipulation, but the speed of which the float is capable is materially increased.

The float is constructed in such a way that it is the full effective paddling width of the arm; that is to say that its width is the maximum allowable, consistent with comfort and convenience, when the arms are utilized as paddles. This allows paddling to be done by the arms and, at the same time, gives maximum support and lateral stability. Its length has been constructed with an eye to the build of the normal human frame, according to anatomical observations, so that it permits the legs to be freely used as paddles, if desired, in such a way as to give a maximum propulsive effort, in other words the length of the float is about that of the average human trunk and its width about the over-all width of the average human body.

It is to be understood that the float has other uses than in the shooting of breakers in surfing. It serves as a useful aid in the teaching and learning of swimming since it gives a support for the body allowing the arms and/or legs to be freely used whilst the body is supported. Furthermore, it is an aid to skilful swimmers since it may be propelled faster than the individual can swim.

It has a further use in that it can be employed as a cushion or back rest and is particularly useful for sitting upon, or lying against, on the beach where it normally would be taken for the pastime of shooting the breakers.

In surfing the user lies upon the float, preferably with the float held below the level of the chin so that it is kept in the "downhill" position in order to assist in the tobogganing effect. Paddling may be done with the arms or legs, if desired or required, until the surfer is ahead of the wave when the float will effectively carry the surfer along without further effort on his part. In swimming it is preferable to keep the float a little further advanced.

Having thus described and ascertained our said invention and the manner in which it is to be performed we declare that what we claim as new and desire to secure by Letters Patent, is:—

1. A pneumatic float for use in surfing and in swimming, composed of substantially airproof material, adapted to be inflated, of substantially rectangular shape, limited in length to allow free use of the legs and limited in width to allow free use of the arms, comprising a plurality of internal partitions whereby the float is divided into longitudinal substantially parallel compartments entirely capable of inflation between said partitioning walls, said float having attached to the upper outer surface thereof a strip of material having a greater coefficient of friction than the material composing the outer surface of the float.

2. A pneumatic float for use in surfing and in swimming, composed of substantially airproof material, adapted to be inflated, of substantially rectangular shape, limited in length to allow free use of the legs and limited in width to allow free use of the arms, comprising a plurality of internal partitions, whereby the float is divided into longitudinal substantially parallel compartments, said compartments being intercommunicating whereby the float is entirely capable of inflation between said partitioning walls, and said float having attached to its upper outer surface a strip of material having a greater coefficient of friction than the material composing the outer surface of the float.

3. A pneumatic float for use in surfing and in swimming, composed of substantially airproof

material, adapted to be inflated, of substantially rectangular shape, limited in length to allow free use of the legs and limited in width to allow free use of the arms, comprising a plurality of internal partitions whereby the float is divided into longitudinal substantially parallel compartments being entirely capable of inflation between said partitioning walls, said compartments being intercommunicating in order to allow the free circulation of air throughout the float, and the outer of said compartments being of greater size than the intermediate compartments, said float having attached to its upper outer surface a strip of material having a greater coefficient of friction than the material composing the outer surface of the float.

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