

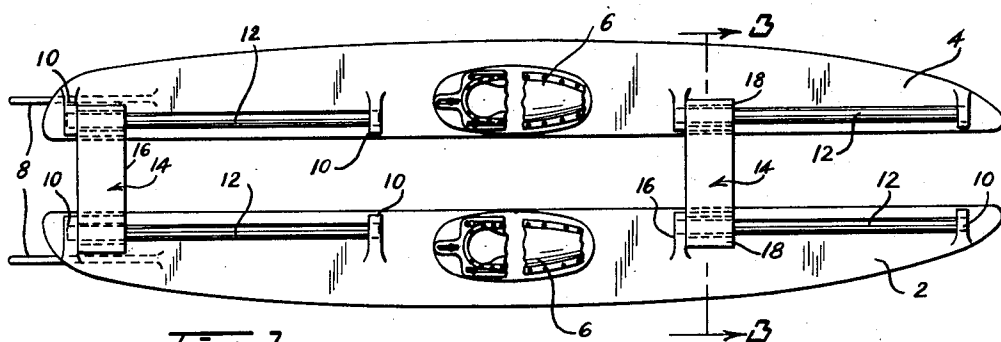
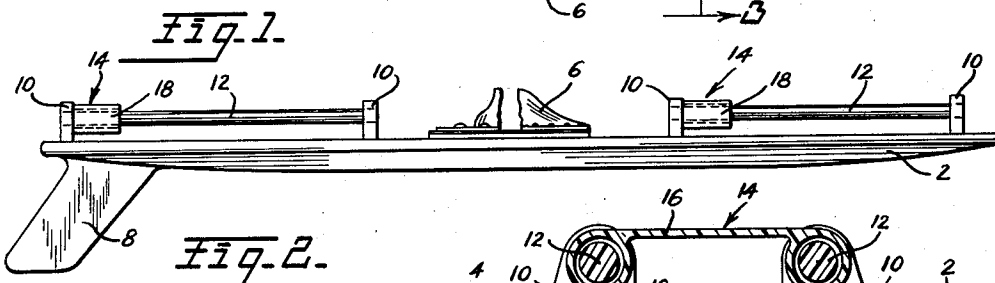
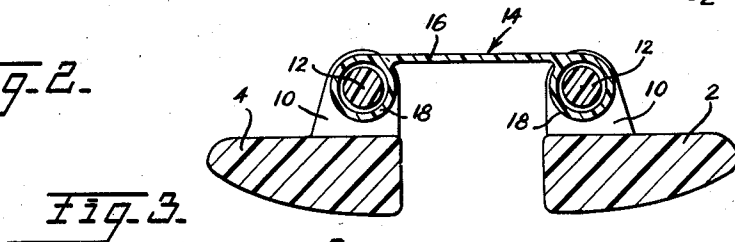
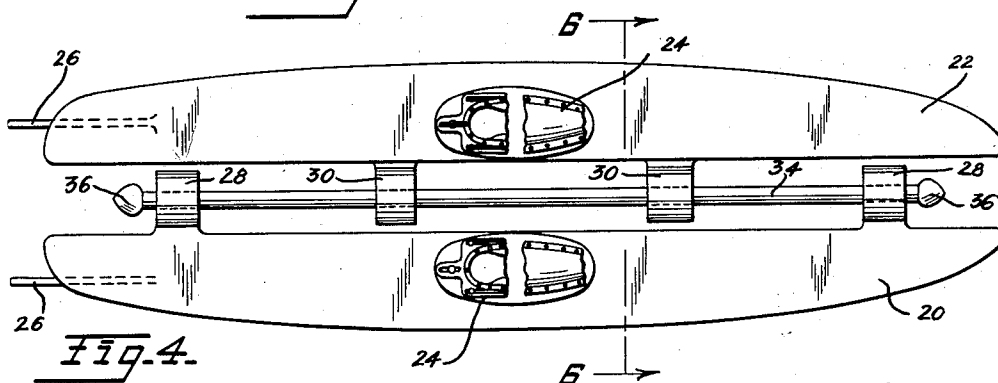
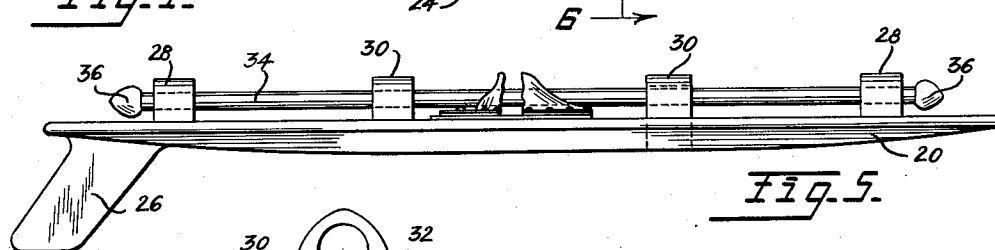
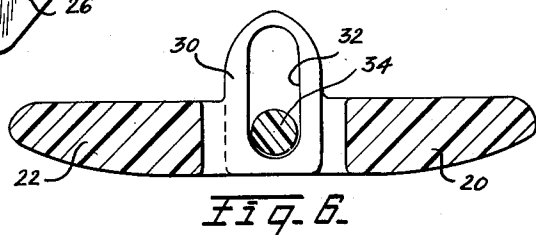
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C. H. PLUMLEE
FLOATING SKIS

3,121,892

Filed April 24, 1963

2 Sheets-Sheet 1



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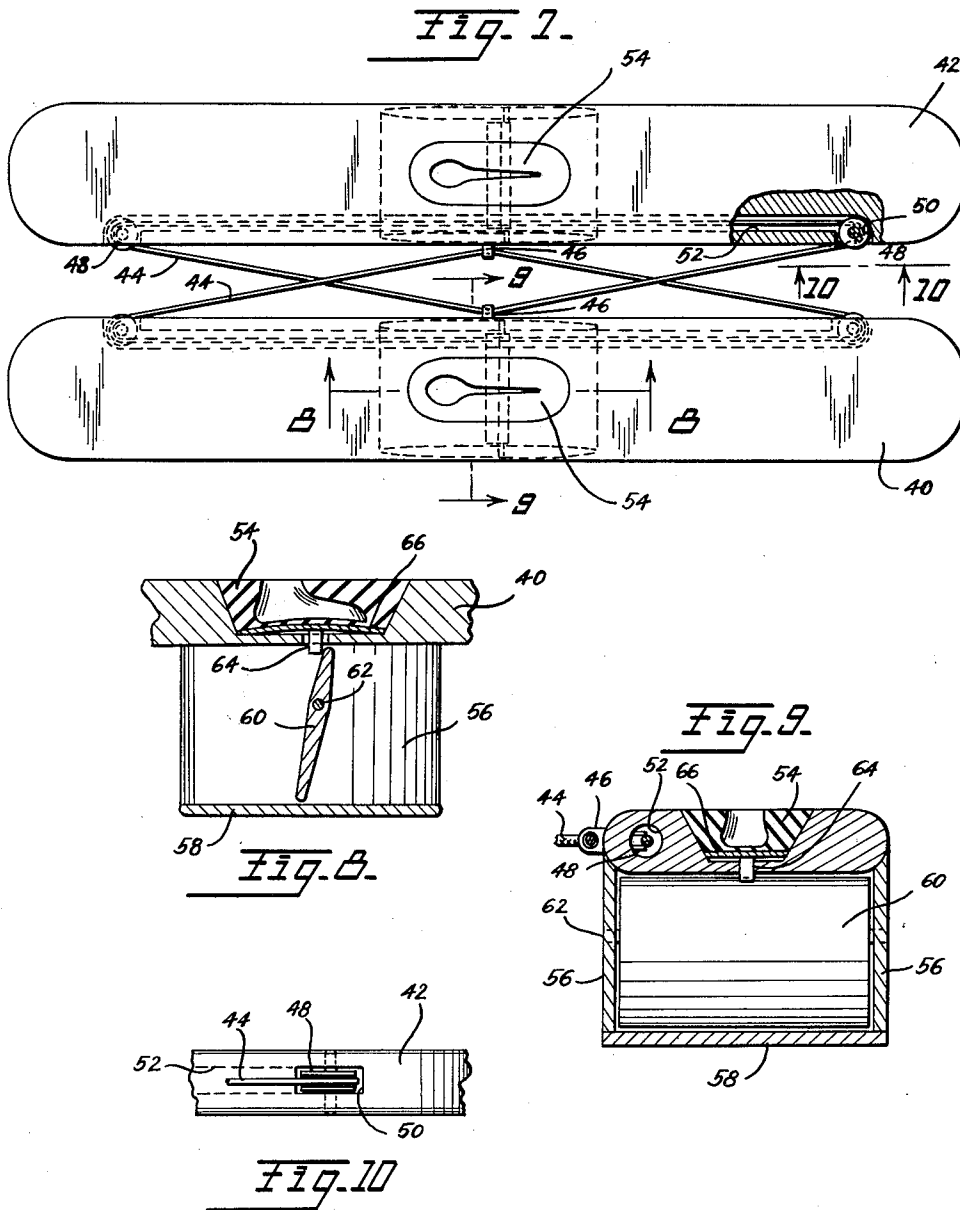
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FLOATING SKIS

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4 Claims. (Cl. 9—310)

This invention relates to floating skis and particularly to a connected pair of skis to be worn by a rider, which have sufficient buoyancy to sustain his weight, and which are so related as to permit natural skiing movements for progress along the surface of a body of water.

Many attempts have heretofore been made to devise satisfactory floating skis but difficulty was always encountered in providing means to prevent the skis from spreading apart unduly and yet permitting more or less natural movements by the user.

The floating skis of the present invention comprise separate ski members having means for receiving the wearer's feet and in which articulated means join the two skis to hold them at all times in generally parallel relationship while permitting not only free independent fore and aft movements relating to each other but also permitting independent vertical movements of the skis. By providing such articulated means applicant has found that the user may resort to substantially natural leg movements to alternately advance the skis. A further aspect of the invention resides in different embodiments of articulated means for connecting the skis and further in providing a propulsion arrangement whereby each ski may be conditioned to resist movements in one direction but to move freely through the water in the opposite direction and wherein means are provided to reverse the directions in which free and/or restricted movement is permitted.

It is, therefore, an object of this invention to provide an assembly of floating skis so interconnected that the user may perform natural leg movements in using the same.

Another object of the invention is to provide novel propelling means whereby natural skiing movements result in forward or reverse motion over the surface of a body of water.

Still another object of the invention is to provide floating skis having the features set forth above and which are constructed entirely of inexpensive, lightweight, buoyant materials.

A further object is to provide floating skis of the type set forth which are simple in construction yet efficient and reliable in operation.

Additional objects and advantages will become apparent to those skilled in the art as the description proceeds with reference to the accompanying drawings wherein:

FIG. 1 is a top plan view of a pair of skis embodying the present invention;

FIG. 2 is a side elevational view of the skis of FIG. 1;

FIG. 3 is an enlarged transverse sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a top plan view of a further embodiment of the invention;

FIG. 5 is a side elevation of the embodiment of FIG. 4;

FIG. 6 is a transverse sectional view taken along the line 6—6 of FIG. 4;

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FIG. 7 is a top plan view of a third embodiment;

FIGS. 8, 9 and 10 are, respectively, enlarged fragmentary sectional views taken along the correspondingly numbered broken lines of FIG. 7.

In all of the embodiments of the invention disclosed herein it is contemplated that the body and other solid structural features of the invention be constructed of a very lightweight yet mechanically strong but buoyant material. Applicant has found that a suitable construction comprises a skin or the like of Fiberglas encompassing a molded body of foamed plastic. Suitable foamed plastics are well known and need not be further identified. By way of example, a mold of the desired shape may be provided and the mold then lined with Fiberglas sheets after which the interior is filled with a suitable plastic material and caused to foam and to completely fill the remaining space in the mold. Many methods of constructing the skis will be apparent to those skilled in the art.

Referring to FIGS. 1 to 3 there are shown right and left hand skis, 2 and 4, respectively, each being provided with a suitable foot receiving boot portion 6. In addition, each ski is provided with a depending rigid vane 8 adjacent its rear end, which vanes guide the skis much in the nature of the rudder of a boat.

Each of the skis is provided with upstanding integral brackets 10 which are arranged in two longitudinally aligned pairs on each ski. Each pair of brackets 10 supports a guide rod 12 and the two guide rods 12 on each ski are longitudinally aligned with each other. Preferably, the guide rods 12 are likewise made of foamed plastic or the like, reinforced by a skin of Fiberglas or equivalent material and are cemented or otherwise permanently secured to their brackets 10. A pair of links 14 secure the skis together. Each link 14 comprises a relatively flat plate-like portion 16 and an integral tubular structure 18 at each end thereof. The tubular structures 18 are so dimensioned as to loosely surround the guide rods 12 as most clearly shown in FIG. 3. The links 14 are also preferably made of the same material as the skis and guide rods whereby to provide a lightweight yet rugged structure. As is obvious, each of the links 14 is freely slidable along its associated pair of guide rods 12 and is also freely pivotal thereabout in a vertical plane transverse to the longitudinal dimension of the skis.

From the structure thus described, it is obvious that either ski may be moved forwardly or rearwardly relative to the other and may be lifted vertically relative to the other regardless of its longitudinal position. At the same time the links 14 maintain the skis 2 and 4 in substantially parallel relation at all times, thus preventing their slueing sideways, which would cause the user to lose control of his progress and balance. The tubular portions 18 are of sufficient length to prevent cocking and binding on their respective guide rods 12 when forced to slide therealong by pressure applied to the other end of their link 14.

FIGS. 4 through 6 illustrate a second embodiment of the invention wherein a right hand ski 20 and a left hand ski 22 are each provided with a foot receiving boot 24. The skis themselves and the foot receiving portions may be substantially identical to those previously described, even including the rudders 26 but are not provided with the integral brackets 10. The right hand ski 20 is provided with two lateral projections 28, one near its for-

ward end and one near its rear end. The left hand ski 22 is provided with two integral lateral projections 30 which are longitudinally spaced but positioned quite some distance from the ends of the ski 22. The projections 28 and 30 each project from an edge of their respective skis toward the other ski of the pair and are longitudinally spaced from each other, as shown. Each of the projections 28 and 30 is provided with a longitudinally extending but vertically elongated slot 32 (see FIG. 6) there-through and all of the slots 32 are in substantial longitudinal alignment. A rigid bar 34 extends through all of the aligned slots 32 and is provided with enlargements 36 at its ends whereby it is retained within the slots 32. As shown, the rod 34 is slightly longer than the over-all spacing between projections 28 whereby it is permitted a slight longitudinal movement. As also shown in FIG. 6, the rod 34 fits quite loosely within the slots 32. As is obvious, the skis 20 and 22 of FIG. 4 are so connected that they can move freely and independently in a longitudinal direction relative to each other but are held in substantial parallelism at all times while at the same time each is free to move vertically with respect to the other irrespective of its longitudinal position. In this form also the user may resort to more or less normal leg movements, as he would in walking, to cause alternate advance of the skis.

The modification shown in FIG. 7 comprises a pair of skis 40 and 42, the construction of which is similar to that of the skis already described but in which modification the rudders 8 or 26 are omitted. The articulated means interconnecting the two skis comprise a pair of flexible strand loops 44. Each loop is secured at one point to an intermediate portion of one of the skis, for example, by means of a bracket or clamping means 46. Each of the loops 44 is endless and extends from its securing means 46 in divergent directions toward the opposite ski where it is trained over longitudinally spaced guide pulleys 48. Each of the pulleys 48 is pivotally mounted in a recess 50 in the edge of its respective ski and each of the recesses 50 on each ski communicates with a longitudinal passageway 52 extending through the body of the ski. That portion of each loop 44 opposite the fixed points 46 extends freely through the passageways 52.

As in the other embodiments, the skis in FIG. 7 are also provided with foot receiving boots 54, but of a somewhat different construction, which will be discussed later.

As shown in the sectional views of FIGS. 8 and 9, the skis 40 and 42 are each provided with an integral box-like structure extending downwardly from their bottom surfaces. Each box-like structure comprises opposed side walls 56 which serve in part to guide the skis in a forward direction in lieu of the rudders present on the previously described embodiments. Integrally jointed to the side walls 56 is a bottom wall 58. The bottom of the ski, the side walls 56, and the bottom wall 58 define a longitudinally extending passageway through which water flows when the ski is moved in either longitudinal direction.

A rigid flap 60 is freely pivotally mounted in each of the box-like structures on a transverse axis defined by shaft means 62. As shown, the flap 60 is of an outline substantially the same as the cross-sectional shape of the passageway referred to so that the flap substantially completely fills and obstructs the passageway when it is in the upright position shown in the drawings. Also, it is to be noted that the axis defined by shaft 62 is above the mid point of the flap so that the area of the flap therebelow is materially greater than the area of the flap above the axis and the flap thereby tends to swing in one direction or the other, depending upon the direction of movement of the ski through the water. A stop element 64 projects downwardly into the passageway and sufficiently far therein to engage the upper edge portion of the flap 60 on one side or the other, as shown in FIG. 8. As

shown in that figure, the stop 60 prevents counter-clockwise movement of the flap 60 from the position shown while permitting free clockwise movement. Thus, forward movement of the ski 40 through the water will be relatively easy because the flap 60 can swing to permit free flow of water through the passageway. On the other hand an attempt to move the ski in a rearward direction would meet considerable resistance since the flap 60 engaging the stop 64 would not be free to move in response to the flow of water and would thus offer considerable resistance to rearward movement.

As shown, the stop 64 is carried by a spring plate 66 which is of such configuration that it normally tends to bow upwardly to withdraw stop 64 from the passageway. However, the foot receiving boot 54 overlies the spring plate 66, preferably with the ball of the foot substantially over the stop 64. Thus, when the weight of the user is on his foot, the stop 64 is held in the downward position shown. However, if it is desired to reverse the direction of operation of the flap 60, the user need only lift his foot sufficiently to permit stop 64 to be retracted and while in that upward position move the ski in a rearward direction, for example, thus permitting the flap to swing in a counter-clockwise direction. While the flap is in such a tilted position the user returns his weight to the foot receiving portion to project the stop 64 downwardly so that it will then engage the forward surface of the upper edge portion of the flap. In this manner the user may selectively relate the stop 64 to the flap 60 for either forward or rearward progress. It is to be understood that, while the propelling means shown in FIGS. 8 and 9 are described with particular reference thereto, such propelling means may be used on either of the previously described embodiments and constitute a part of the broader aspects of applicant's invention.

While a limited number of embodiments of the invention have been shown and described herein, it is to be understood that the same are merely illustrative of the principles conceived and that the invention contemplates still further embodiments falling within the scope of the appended claims.

I claim:

1. Floating skis comprising: a pair of elongated buoyant members; foot receiving and positioning means on the upper portion of each member; articulated means interconnecting said members to hold the same in generally parallel relation while preventing lateral separation thereof and providing for independent fore and aft movement relative to each other; each member having means rigid on the bottom thereof and defining a longitudinal, peripherally closed but open-ended passageway for water; a rigid flap member in each passageway and pivotally mounted therein on a transverse generally horizontal axis; the outline of said flap member corresponding generally to the transverse sectional shape of said passageway, the area of said flap above said axis being materially less than the area thereof below said axis; and selectively retractable stop means extending downwardly into said passageway to engage one side of the upper edge portion of said flap and thereby prevent pivotal movement thereof in one direction from a generally upright position.

2. Skis as defined in claim 1 wherein said stop means is resiliently biased to be normally retracted from said passageway; and means responsive to pressure applied by a foot in said foot positioning means for projecting and holding said stop in position to engage one side of said flap.

3. Skis as defined in claim 1 wherein said articulated means comprises a pair of flexible strand closed loops; each loop being secured, at one point, to an intermediate portion of a respective one of said members; the strand of each loop diverging from said point and being trained over longitudinally spaced pulleys journaled on the other member.

4. Skis as defined in claim 3 wherein said longitudi-

nally spaced pulleys are mounted in recesses in the adjacent edges of said members; a longitudinal passageway joining said recesses in each member; that portion of each loop opposite said one point extending through said passageway.

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