

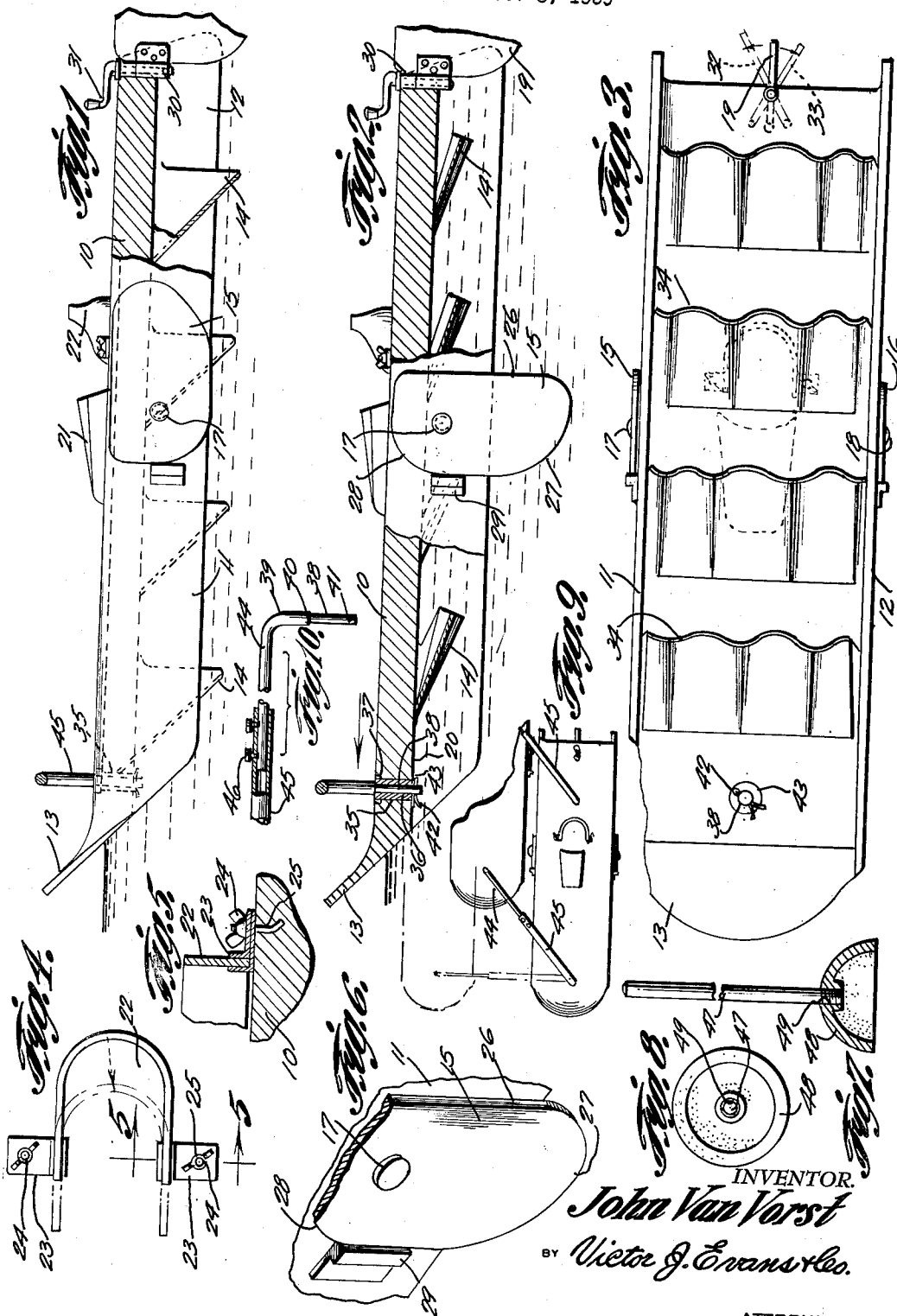
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TRACTION ACTUATED WATER SKIS

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TRACTION ACTUATED WATER SKIS

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4 Claims. (Cl. 9—310)

This invention relates to water skis, and in particular water skis having collapsible pockets or buckets on the under surfaces wherein in forward movements the buckets collapse permitting the ski to slide over the water whereas in a rearward thrust the buckets open providing water gripping elements that provide traction enabling a skier to drive forwardly.

The purpose of this invention is to provide a water ski of the self propelled type whereby a skier may operate without being towed by a boat.

Various types of propelling devices have been used in combination with skis. However, to be useful in driving a ski forwardly it is necessary to use a ski, channel shape in cross-section, and provide collapsible pockets on the under surface whereby the pockets automatically collapse as the ski moves forwardly and automatically open to provide driving power as the ski is forced rearwardly. With this thought in mind this invention contemplates an elongated ski having longitudinally disposed flanges at the sides and having transversely disposed plastic buckets secured to the under surface and positioned between the flanges whereby with stabilizing plates at the sides, a rudder at the rear, and adjustable foot retaining elements on the upper surface an efficient type of traction ski is provided.

The object of this invention is, therefore, to improve the construction of a water ski whereby pockets or buckets on the under surface collapse as the ski is actuated forwardly and open to provide traction as force is applied to the ski for driving the skis rearwardly.

Another object of the invention is to provide a water ski having collapsible buckets on the under surface and a ski pole having a hard foam plastic cup on the lower end whereby reciprocating action of the ski drives a skier forwardly and the ski pole provides balancing.

A further object of the invention is to provide a water ski having collapsible pockets on the under surface with stabilizing plates at the sides in which the ski is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies a water ski having an elongated body, channel shaped in cross-section with transversely disposed collapsible plastic buckets on the under surface, stabilizing plates pivotally mounted on the sides, a rudder adjustably mounted on the trailing end and foot retaining elements on the upper surface.

Other features and advantages of the invention will appear from the following description taken in connection with the drawing, wherein:

FIGURE 1 is a side elevational view of the improved ski with parts broken away illustrating the mounting of a rudder on the trailing end.

FIGURE 2 is a longitudinal section through the ski with an intermediate part of the ski shown in elevation to illustrate the mounting of a stabilizing plate thereon, and in which the buckets are shown in collapsed position.

FIGURE 3 is a view looking upwardly toward the under surface of the ski and also showing the buckets in collapsed position.

FIGURE 4 is a view illustrating an adjustable mounting of a heel strap or socket on the upper surface of the ski.

FIGURE 5 is a longitudinal section through a portion of the ski taken on line 5—5 of FIGURE 4 showing one of the wing nuts for clamping the heel strap to the ski.

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FIGURE 6 is a perspective view illustrating the mounting of one of the stabilizing plates on the sides of the ski showing a clip at one side providing a stop limiting the swinging movement of the plate.

FIGURE 7 is a side elevational view showing a ski pole with a hard foam plastic cup positioned on the lower end, the cup being shown in sections.

FIGURE 8 is a view looking upwardly toward the under surface of the cup on the end of a ski pole.

FIGURE 9 is a plan view showing one ski and a portion of another ski, illustrating two skis tied together by a yoke the ends of which are connected by swivel joints to the skis to prevent the skis spreading on the forward and backward strokes.

FIGURE 10 is a side elevational view, with parts broken away, showing a yoke for connecting skis with swivel joints.

Referring now to the drawing wherein like reference characters denote corresponding parts the improved traction ski of this invention includes an elongated panel 10 having flanges 11 and 12 at the sides, and upwardly disposed nose 13 on the leading end, buckets 14 on the under surface and extended between the flanges, stabilizing plates 15 and 16 pivotally mounted by pins 17 and 18 on outer surfaces of the flanges, and a rudder 19 carried by the trailing end of the panel 10.

The panel or back 10 of the ski is formed of a rigid foam plastic and the side flanges 11 and 12 are formed of a similar material. The buckets 14, the leading and side edges of which are secured to the under surface of the panel, 10 are of a similar flexible plastic whereby with forward motion of the ski the buckets are urged upwardly against the under surface 20 of the panel 10.

The upper surface of the panel 10 is provided with a toe receiving socket 21 and a heel strap 22 which is adjustably mounted by clip angles 23 that are secured by thumb nuts 24 to stud bolts 25 embedded in the material of the panel 10; and with a foot secured between the heel strap and toe socket of a ski the ski is readily moved forward with the buckets 14 collapsing and in the rearward thrust the buckets 14 are opened by the water providing traction whereby a skier thrust himself forwardly as he pushes rearwardly on a ski.

The stabilizing plates 15 and 16 are provided with straight trailing edges 26 that swing upwardly to the plane of the upper surface of the panel 10 in the collapsed or folding position. The plates 15 and 16 are also provided with arcuate lower ends 27 and arcuate upper ends 28 which are described on a radius from centers of the pins 17 and 18 whereby the ends 28 and the edges of the plates 15 and 16 that are a continuation of the ends 28 slide in clip angles 29 on the outer surfaces of the flanges 11 and 12. The clip angles 29 having sliding engagement with the edges of the plates 15 and 16 retain the plates 15 and 16 in contact with the sides of the panel 10 and prevent the water pressure created by forward motion of the water skis from bending the plates 15 and 16 outwardly from contact with the sides of the panel 10. The clip angles 29 also prevent the movement of the plates 15 and 16 in a direction contrary to the proper movement thereof as shown in FIGURES 1 and 2.

The rudder 19 is pivotally mounted by a hinge 30 at the stern of the ski and the hinge is provided with a hand crank 31 by which the position of the rudder is adjusted, as indicated by the dotted lines 32 and 33, in FIGURE 3.

The buckets 14 are formed of corrugated sheets of plastic providing wavy trailing edges 34 and in a forward motion of a ski the buckets nest upwardly against the under surface 20 of the panel 10, whereas in the rear-

ward movement the buckets are opened by the thrust of the water to the positions illustrated in FIGURE 1.

The skis are provided with openings 35 in which sleeves 36, having rims 37 on the upper ends, are positioned and pins 38 of L-shaped yokes 39 are pivotally mounted in the sleeves. The pins extend from shoulders 40 and the lower ends of the pins are provided with openings 41 in which cotter pins 42 are positioned. Washers 43 are provided between the cotter pins and lower ends of the sleeves.

Horizontal sections 44 of the yokes at one end extend into ends of connecting tubes 45 of the opposite ends in which the sections 44 are secured by set screws 46, providing adjustment of the distance between the skis.

The yokes are provided for beginners to prevent the skis spreading, and may be removed, after control of the skis is acquired.

Ski poles 47 having plastic cups 48 threaded on lower ends 49 are provided to facilitate balancing.

With the parts assembled as illustrated and described a skier using the traction skis may drive over the water with the skis sliding forwardly and providing traction as they are pushed rearwardly.

The stabilizing plates 15 and 16 retain the skis in upright positions and these plates are folded to nested positions shown in FIGURE 1 by walking upon a river bed or the bottom of a bay or the like.

The rudder 19 is used, particularly for sail skis and the position of the rudder is adjusted to compensate for the direction of the wind or the desired direction of travel.

It will be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A water ski comprising an elongated panel having flanges at the sides and an upwardly disposed nose on the leading end, collapsible buckets secured to the under surface of the panel and positioned between the flanges, the buckets being positioned to collapse as the ski is moved forwardly and open with rearward movement of the ski, pivotally mounted stabilizing plates positioned on the sides of the flanges for movement in a vertical plane parallel to the flanges at the sides of said panel, said plates having straight trailing edges and arcuate lower and upper ends on the leading edges thereof, guide clip angles mounted on the outer surfaces of said flanges in the path of movement of said plates whereby said plates will be maintained in spaced parallel relation to the outer surface of said flanges, said clip angles engaging the edges of said plates whereby said plates are prevented from being moved out of contact with said panel by water pressure during forward movement of said water ski, and a rudder pivotally mounted on the trailing end of the panel.

2. In a traction ski, the combination which comprises an elongated panel having flanges at the sides and having an upwardly disposed nose extended from the forward end, collapsible buckets mounted on the under surface of the panel and positioned between the flanges, said buckets being mounted to collapse with forward movement of the ski and open with rearward movement thereof, stabilizing plates pivotally mounted on the flanges and positioned at the sides of the panel for movement in a vertical plane parallel to the flanges at the sides of said panel, said plates having straight trailing edges and arcuate lower and upper ends on the leading edges thereof, guide clip angles mounted on the outer surfaces of said flanges in the path of movement of said plates whereby said plates will be maintained in spaced parallel relation to the outer surfaces of said flanges, said clip angles engaging the edges of said plates whereby said plates are prevented from being moved out of con-

tact with said panel by water pressure during forward movement of said water ski, toe receiving socket on the upper surface of the panel and a heel strap adjustably mounted on the panel and positioned to co-act with the toe receiving socket.

3. In a traction ski, the combination which comprises an elongated panel having flanges at the sides and having an upwardly disposed nose extended from the forward end, collapsible buckets mounted on the under surface of the panel and positioned between the flanges, said buckets being mounted to collapse with forward movement of the ski and open with rearward movement thereof, stabilizing plates pivotally mounted on the flanges and positioned at the sides of the panel for movement in a vertical plane parallel to the flanges at the sides of said panel, said plates having straight trailing edges and arcuate lower and upper ends on the leading edges thereof, guide clip angles mounted on the outer surfaces of said flanges in the path of movement of said plates whereby said plates will be maintained in spaced parallel relation to the outer surfaces of said flanges, said clip angles engaging the edges of said plates whereby said plates are prevented from being moved out of contact with said panel by water pressure during forward movement of said water ski, toe receiving socket on the upper surface of the panel, a heel strap adjustably mounted on the panel and positioned to co-act with the toe receiving socket, a rudder pivotally mounted on the trailing end of the panel, and means for connecting one ski to another ski.

4. In a traction ski, the combination which comprises an elongated panel having flanges at the sides and having an upwardly disposed nose extended from the forward end, collapsible buckets mounted on the under surface of the panel and positioned between the flanges, said buckets being mounted to collapse with forward movement of the ski and open with rearward movement thereof, stabilizing plates pivotally mounted on the flanges and positioned at the sides of the panel for movement in a vertical plane parallel to the flanges at the sides of said panel, said plates having straight trailing edges and arcuate lower and upper ends on the leading edges thereof, guide clip angles mounted on the outer surfaces of said flanges in the path of movement of said plates whereby said plates will be maintained in spaced parallel relation to the outer surfaces of said flanges, a toe receiving socket on the upper surface of the panel, a heel strap adjustably mounted on the panel and positioned to co-act with the toe receiving socket, and means for connecting one ski to another, said means comprising a sleeve having an upper circular rim on the upper end thereof, a first L-shaped yoke having a pin on one end thereof, said sleeve receiving the pin on said one end of said yoke, said yoke having a shoulder thereon engaging the rim on said sleeve, means for retaining said pin in said sleeve and a second L-shaped yoke similarly connected to said last mentioned ski and telescopically connected to said first L-shaped yoke.

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