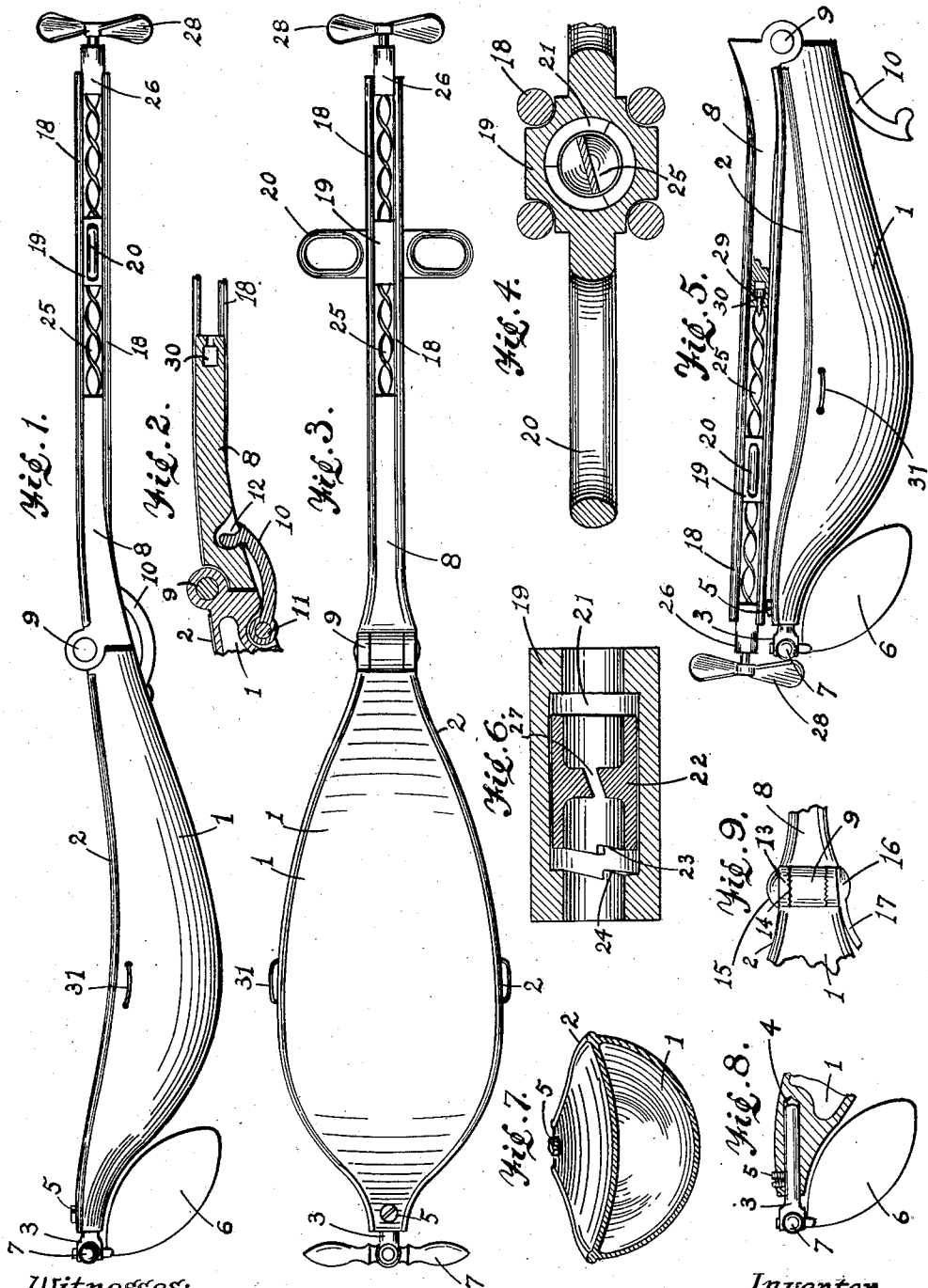


J. W. MASTER.
LIFE PRESERVER.
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Witnesses:

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LIFE-PRESERVER.

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To all whom it may concern:

Be it known that I, JAMES W. MASTER, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented a new and Improved Life-Preserver, of which the following is a full, clear, and exact description.

This invention relates to a device for preserving life and for individual suspension in and propulsion through water, the device being adapted to be used in case of ship-wreck and as a pleasure and amusement device, having the several features and advantages herein specified and the combination and arrangement of parts whereby danger from sinking is prevented and efficient means for locomotion in the water are provided.

Life-preservers of present and prior construction are adapted for suspension only and the user thereof must depend upon his ability to paddle with his hands for a means of locomotion, whereas my device is equipped with a propeller and means whereby the user may operate the same to transport himself from place to place. I have also provided a buoyant member for suspension, the same being formed for and adapted to rapid locomotion through the water.

For the purpose of illustration I have chosen to show the invention as applied to a buoyant member having the lower surface curved to reduce friction in the water when in motion, and with the upper surface shaped to conform to the body of the user, and have provided mechanical means for steering and for propulsion through the water, and means for folding the device when not in use.

While I have provided simple and efficient means for accomplishing the objects herein specified, it is to be understood that no limitation is necessarily made to the precise structural details exhibited in the drawings, but that changes, alterations, and modifications, which are within the scope of the claims, may be made, the essence of my invention comprising a means for maintaining buoyancy in and propulsion through water, a convenient embodiment thereof being

shown in the accompanying drawings forming a part of this specification.

Of the drawings, Figure 1 is a side elevation of my device, Fig. 2 is a sectional view of the clamp for locking the device in the extended position, Fig. 3 is a top plan view of my device, Fig. 4 is a sectional detail and enlarged view of the cross-head which rotates the propeller, Fig. 5 is a side view of the device folded, Fig. 6 is a longitudinal sectional view of the cross-head and driving nut therein, Fig. 7 is a sectional detail view of the buoyant member taken on line *a-b* of Fig. 1, Fig. 8 is a sectional detail view of the adjustable rudder, and Fig. 9 is a detail view of a modified form of clamping device to maintain the open position.

Referring more particularly to the drawings in which similar characters of reference denote corresponding parts of the invention throughout the several views, buoyant member 1 is of a form adapted to the body of the user and to reduce friction in the water, being preferably made of compressed paper waterproofed and is made hollow for buoyancy, and has ribs 2 for strengthening the device, and loops 31, for securing straps.

At the forward end of member 1, an extension bar 3 is provided, being adjustable in socket 4, and retained in position by a set-screw 5. Bar 3, carries rudder 6, which is operated by handle 7. The bar may be extended and clamped in the desired position, which adapts the device to users of different sizes.

Member 8 carries the propelling mechanism and is attached to member 1, by hinge 9, and is held firmly in the extended position by clamping hook 10. Clamping hook 10 is pivoted to a pin-bearing 11 in member 1, and engages with groove 12 in member 8, member 10 being a curved spring and arranged to be clamped quickly in the locked position as shown in Figs. 1 and 2.

A modified form of the clamping arrangement is shown in Fig. 9, in which the hinge knuckles 13 are provided on the adjacent faces with notched surfaces 14 the corresponding notches being radially arranged. A flange 15 on the pintle, having a right-

angled inner face, bears against the knuckle on one side, and flange 16, on the opposite end of the pintle has a wedge-shaped face which bears against a corresponding face on the knuckle, and a lever 17 is provided whereby the pintle may be turned for loosening and clamping the device.

Four rods 18, extend from member 8, and serve as cross-head guides for cross-head 19. Loops 20, on the cross-head are adapted to be engaged by the feet of the user, and the cross-head thereby be given a reciprocating movement. Within the cross-head a recess 21 is provided, having therein operating nut 22. Ratchet teeth 23 on nut 22, engage with corresponding teeth 24 on the cross-head, whereby the nut is prevented from rotating during one reciprocating motion, the opposite end of the nut and cross-head being without ratchets, whereby the nut rotates freely during the opposite reciprocating movement of the cross-head. A flat bar 25, having a spiral twist, is journaled in member 8, and in bearing 26, and passes through cross-head 19 and operating nut 22, the nut having an aperture 27, corresponding to the cross-sectional form of bar 25. The spirally twisted bar 25 is rotated in one direction by the reciprocating movement of the cross-head, and, at the rear end, carries propeller 28. An efficient mechanism is therefore provided, whereby the user, by a kicking movement, may propel himself rapidly through the water. The metal parts of my device are preferably made of aluminum, except the twisted bar 25 and the parts that are subject to friction, but any material may be used. The buoyant member, and all parts not metal, are preferably made of waterproofed and compressed paper, but cork or other material may be used. Bar 25 has a flanged head 29, engaging with bearing 30, the bearing being recessed, whereby the bar is held against longitudinal movement.

From the foregoing it will be seen that I have provided an efficient device whereby the user may sustain himself upon the surface of and propel himself rapidly over the water.

The device may be quickly clamped in the extended position and used as a life-preserver. Sufficient power may be developed to attain a speed of fifteen or twenty miles per hour in swimming. In case of shipwreck, the user may propel himself against heavy seas and thus swim to safety, whereas with the ordinary life-preserver he would be washed out to sea, the mechanism being neatly arranged for controlling the direction of swimming, and for obtaining ease of propulsion through the water.

I claim as my invention:

1. In a life preserver, a buoyant member, a propeller carrying member pivotally at-

tached to said buoyant member and foldable thereon, and a clamping hinge joint connecting said members, comprising knuckles on each member having notched ends, a pintle passing through the knuckles, flanges on each end thereof, one flange being uniform, and the other having a wedge surface engaging with a corresponding wedge face on the adjacent knuckle, substantially as set forth.

2. In a life preserver, a buoyant member, a propeller carrying member foldable thereon, and a clamping hinge connecting said members, comprising knuckles on each member, radially notched inner and corresponding faces on said knuckles, a flanged pintle connecting said knuckles, a wedge shaped face on one knuckle, and a corresponding face on the adjacent flange of the pintle, substantially as set forth.

3. In a life preserver, a hollow buoyant member having a socket in the forward end thereof, a propeller carrying member foldable thereon, a clamping hinge to connect and hold said members in the extended position, and an adjustable steering device adapted to be extended relative to the propelling member, comprising an extension bar in said socket, a set screw to clamp said extension bar, and a rudder connected to said bar by a swivel joint, substantially as set forth.

4. In a life preserver, a buoyant member, a steering rudder attached thereto, a propeller carrying member foldable on said buoyant member, a clamping hinge connecting said members in the extended position, and means for propulsion on said propeller carrying member, comprising guide rods extending therefrom, a cross-head slidably mounted between said guides, an operating nut in said cross-head, a loop member on each side of the cross-head, a bearing member at the end of said guide rods, a flat bar having a spiral twist journaled in said carrying member and said bearing member and passing through said nut in the cross-head, means for causing said nut to drive said spiral bar during the reciprocating motion of the cross-head, comprising a ratchet end on the nut and a corresponding ratchet in the cross-head, and a propeller on the rear end of said spiral bar, substantially as set forth.

5. In a life preserver, a buoyant member acting for suspension, a member foldable thereon, means for clamping said members in the extended position, and means for propulsion on said foldable member, comprising guide rods extending at the rear of said foldable member, a cross-head operated upon said guide rods having a reciprocating movement, a spiral bar rotatably mounted between said guide rods, an operating nut in said cross-head engaging with said spiral bar, ratchets which cause the nut to drive

the spiral bar during one reciprocating movement of the cross-head, and a smooth face on the other end of the nut allowing the nut to rotate with the spiral bar, an enlarged end on the spiral bar mounted in a recessed bearing to prevent longitudinal movement, and a propeller mounted on the rear end of said spiral bar, and foot loops

on each side of the cross-head, substantially as set forth.

Witness my signature to the foregoing specification this 14th day of February, 1912.

JAMES W. MASTER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."