W. T. TAYLOR.

AMPHIBIOUS VESSEL.

APPLICATION FILED MAR. 15, 1915.

1,161,267.

Patented Nov. 23, 1915.

2 SHEETS—SHEET 1.

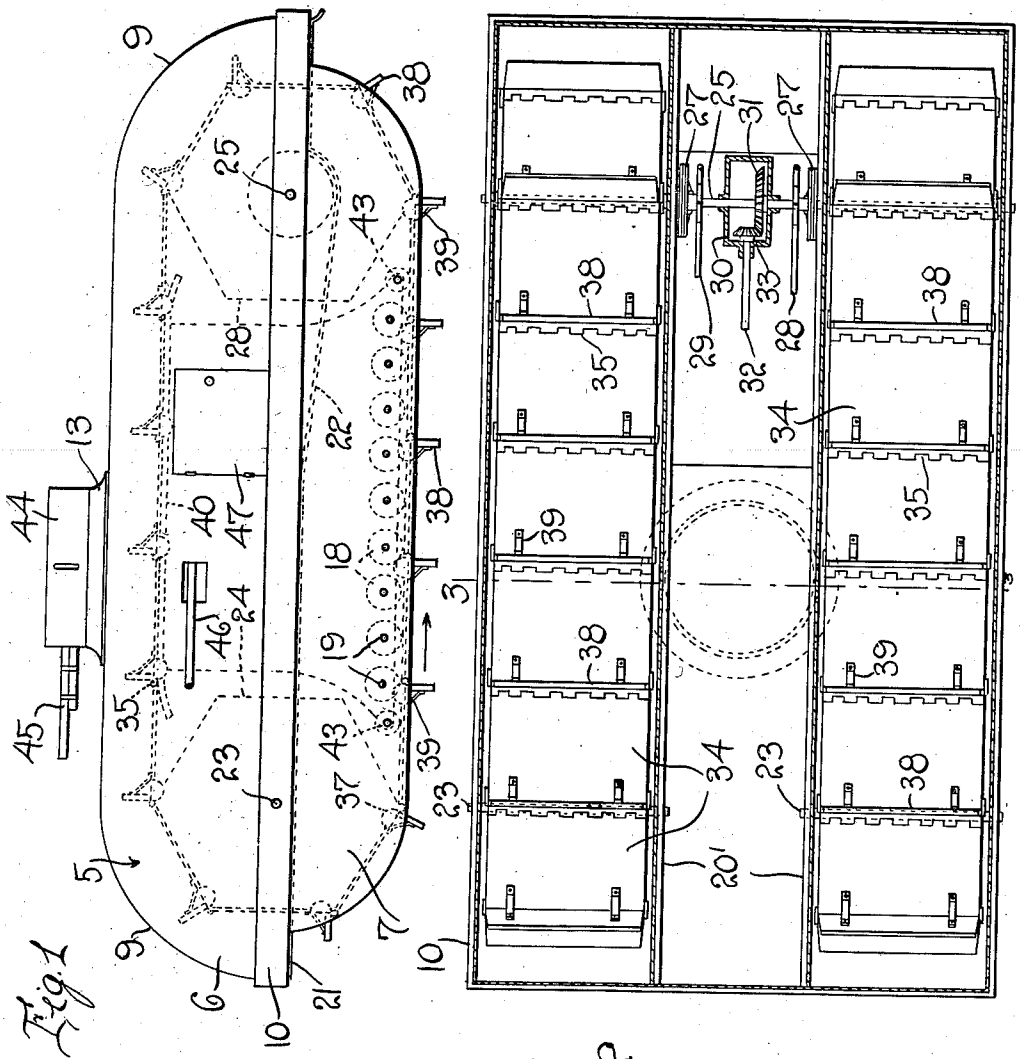


Fig. 1

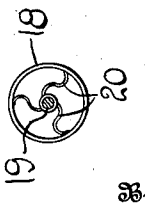


Fig. 6

Fig. 2

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3

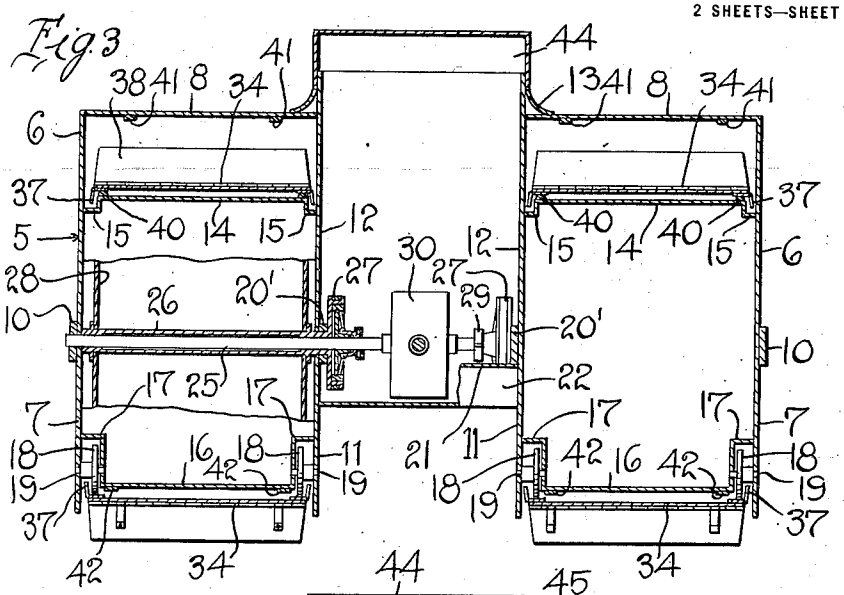


Fig. 4

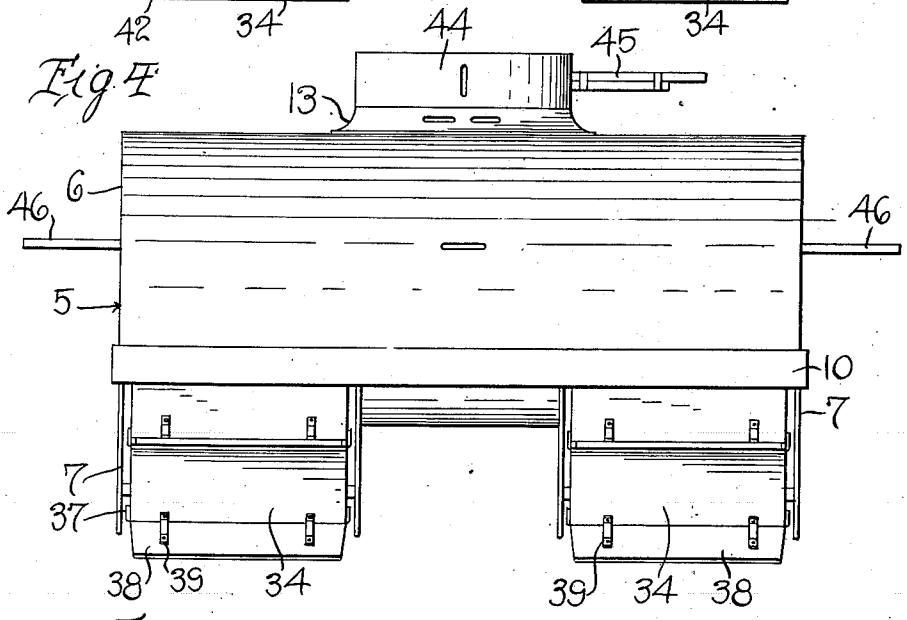
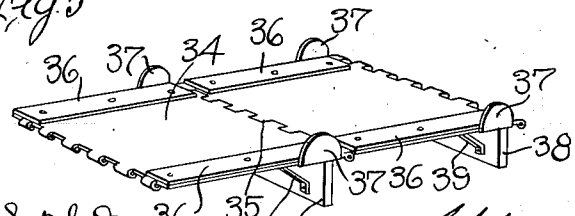


Fig. 5



Witnesses

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AMPHIBIOUS VESSEL.

1,161,267. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed March 15, 1915. Serial No. 14,516.

To all whom it may concern:

Be it known that I, WILLIAM T. TAYLOR, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Amphibious Vessels, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to amphibious vessels, and has for its primary object to provide a vessel of this character which is capable of traveling on the land or water with equal facility and at high speed.

The invention has for another object to produce a boat or vessel which is simple in its construction, as well as strong and durable, and may be operated with a minimum expenditure of power.

The invention has for an additional object to produce a vessel construction, the body of which is comparatively light in weight, two endless traveling series of paddles mounted within the body to propel the same, and means for operating the two series of paddles either in unison or independently of each other.

With the above and other objects in view, my invention consists in the novel features of construction, combination, and arrangement of parts to be hereinafter more fully described, claimed, and illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a vessel constructed in accordance with the preferred embodiment of my invention; Fig. 2 is a plan view with the body of the vessel shown in section. Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is an end elevation; Fig. 5 is a detail fragmentary perspective view of one of the endless propellers, and Fig. 6 is a detail elevation of one of the guide wheels.

Referring in detail to the drawings, 5 designates the body or shell of the vessel, which includes upper and lower side wall sections 6 and 7, respectively, and the top wall 8 which connects said upper side wall sections. It will be noted, from reference to Fig. 1, that the upper sections 6 constitute the major portion of the sides of the vessel and the top wall 8 has its opposite ends rounded or curved, as at 9. The lower marginal edges of the ends and sides of this top section of the shell are reinforced by the heavy metal band 10. The lower side wall sections 7 are upwardly curved at their opposite ends, and the opposite ends of these wall sections are equidistantly spaced from the opposite ends of the reinforcing band 10. The inner body portion of the vessel consists of the longitudinally extending spaced inner walls 11, the upper edges of which are centrally connected by a vertically extending cylindrical shell 12 which projects upwardly through an opening provided in the top wall 8 of the vessel, and is rigidly connected thereto and braced by the annular reinforcing ring 13. From the upper edges of the walls 11, the horizontally disposed plates 14 extend laterally and are suitably secured at their outer edges to the upper side wall sections 6 of the vessel body. Adjacent to its opposite edges, each of these horizontal walls is provided with a depressed channel 15, for a purpose to be later referred to.

16 designates the lower longitudinally extending walls of the vessel body, the opposite edges of which are angularly formed, as at 17, and secured to the lower side wall sections 7. In the side wall sections 7 of the vessel body and the opposed parallel portions of the metal plates 16, the axles 19 of a series of rollers 18 are rotatably engaged. Each of the rollers preferably consists simply of a rim which is connected to its axle by a series of convolute leaf springs 20 which permit of a yielding movement of the wheel rim in a radial direction with respect to its axis. It will be observed that the rim of each wheel or roller 18 normally extends a considerable distance below the horizontal wall 16.

To the inner sides of the plates 11, the longitudinally extending reinforcing bars 20′ are secured, said bars extending beyond the ends of the plates 11 and being fixed to the reinforcing bar 10. To the lower edges of these bars 20′, a longitudinally extending floor plate 21 is fixed, said plate, at a point intermediate of its ends and substantially midway of the length of the vessel, being downwardly inclined as at 22, and adjacent to the end of the vessel being again upwardly curved and extended in a horizontal plane and secured to the reinforcing bar 10, as clearly shown in dotted lines in Fig. 1 of the drawings. This plate 21 constitutes the floor of a room or compartment in the upper portion of the vessel body which extends the entire length thereof.

In the forward end of the vessel body, a pair of transversely disposed shafts 23 are

journaled at their ends in the respective longitudinal bars 20′ and the reinforcing bar 10, and upon each of these shafts, an hexagonal drum 24 is secured. In the opposite or rear end of the body of the vessel, a single transversely disposed shaft 25 is journaled in the bars 10 and 20′. Upon the opposite end portions of this latter shaft, sleeves 26 are loosely engaged, the inner ends of said sleeves being mounted in the bars 20′ and provided with friction clutch rims indicated at 27. Upon each of the sleeves 26, a drum 28, similar in form to the drum 24, is fixed. It will be understood that the clutches which cooperate with the rims 27 may be of any desired type and are actuated by means of suitable levers indicated at 29. With the inner face of each of the rims 27, clutch members are adapted to engage, while a friction brake band is engaged upon the outer face of the rim. The clutch levers 29 are connected in any suitable manner to the steering gear whereby the vessel is guided or directed. The intermediate portion of the shaft 25 extends through a casing or housing 30, in which a bevel gear 31, fixed upon said shaft, is disposed. One end of the drive shaft 32, which extends from the engine mounted in the body of the vessel, is journaled in this casing and provided with a bevel pinion 33 to mesh with the gear 31, whereby the shaft 25 is driven.

I employ two endless propellers for propelling the vessel either through the water or upon land, and each of these propellers consists of a multiplicity of steel plates 34 which are hingedly connected to each other, as at 35. These plates, at their longitudinal edges and upon one side, are provided with metal reinforcing strips 36 upon which the series of lugs 37 are integrally formed.

38 designates the propelling blades or paddles which are secured to the opposite sides of the plates 34 and preferably adjacent to the hinge connections 35, said blades being braced by means of the obliquely disposed struts 39 which are fixed to said blades and to the plates 34 upon which said blades are arranged. It will be noted that the plates 11 are comparatively short and upon the upper surfaces of the horizontal plates 14, which are secured to the upper edges of the plates 11, the longitudinally extending guide rails 40 are secured, the extremities of said guide rails projecting beyond the ends of the wall 14 and being downwardly curved, as shown in Fig. 1. Additional guide rails 41 are also fixed to the under side of the top wall 8 of the vessel body, above each of the horizontal walls 14 and intermediate of the above mentioned longitudinal rails 40. The guide rails 41 are provided for the purpose of receiving the impact of the propeller blades and guiding the propellers, when, owing to the momentum of the same, they are lifted or elevated from the supporting rails 40. Upon the bottom surface of the lower horizontal plate 16, similar rails 42 are secured. The lower ends of the longitudinally extending plates 11 are formed with projections, upon which the small guide rollers 43 are mounted beyond the opposite ends of the series of rollers 18.

One of the endless series of propeller blades 38 is mounted upon the drums 24 and 28 on each side of the center of the vessel, and when the engine is set in operation, these endless propellers are driven in the direction indicated by the arrow in Fig. 1. It will be noted that the lugs or ears 37 of the propellers project upwardly between the flanges of the rollers 18 and the lower edges of the longitudinal plates 7 and 11 of the vessel body, so as to effectually overcome all tendency of the propellers to shift transversely with respect to the guide rollers. The yieldably mounted guide rollers also prevent contact of the propellers with the bottom walls 16 and thus obviate liability of the endless propellers being caught and held by an obstruction or projection. The end rollers 43 further act to limit the relative movement of the propeller plates 34 upon upward pressure against the same and direct said plates into contact with the guides 42 on the bottom walls 16, said rollers preventing the plates of the propeller from catching upon the edges of the plates 16 when the plates 34 are forced against the same. After the propellers pass upwardly and over the rear drums 28, they are received upon the upper longitudinal guide rails 40, the ears 37 of the propellers extending into the longitudinal grooves or channels 15 formed in the opposite edges of the plates 14.

Upon the upwardly projecting shell 12 which extends through the top 8 of the vessel body, a revolving turret 44 is suitably mounted which may be equipped with ordnance indicated at 45. The upper portion of the vessel body is provided with openings in its side walls for the projection of guns, indicated at 46, through the same. This upper portion of the body of the vessel is also provided with an entrance door 47, whereby the operator may enter into the central longitudinally extending room or chamber.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have produced a very simply constructed and durable vessel which may be advantageously employed in times of war, in minor operations. The vessel can travel upon land as well as the water, the propeller blades 18 serving as traction members in land travel. The vessel may be readily steered by the operator, simply by

releasing one or the other of the clutches controlling the operation of the respective propellers so that the vessel will be driven by only one propeller and thereby caused to turn or travel on a curved path.

I have above set forth the essential structural features of my invention; but it is obvious that, in the practical development of the same, it may be necessary to provide reinforcing or strengthening braces in numerous parts of the vessel construction. I, therefore, reserve the privilege of providing such additional parts as may be necessary in order that the vessel may efficiently perform its functions and to resort to all other legitimate modifications in the form, proportion, and arrangement of the several elements as may be fairly embodied within the spirit and scope of the invention as claimed.

Having thus fully described my invention, what I desire to claim and secure by Letters Patent is:—

1. A vessel including a body having outer longitudinal side walls and relatively short inner spaced longitudinal walls, drums mounted in opposite ends of the body between the opposed inner and outer walls, endless articulated propellers engaged upon said drums, guide rails for the upper stretches of the propellers, vertically yieldable members engaging the lower stretches of the propellers to prevent relative vertical movement of the propeller sections, and means for driving said propellers.

2. A vessel including a body having outer longitudinal side walls and inner longitudinally extending spaced walls, drums mounted between said inner and outer walls at opposite ends of the vessel, endless articulated propellers engaged upon the corresponding drums, guide rails for the upper stretches of the propellers, horizontal walls arranged between the inner and outer longitudinal walls of the vessel body and having vertically offset portions, and means yieldably mounted between the longitudinal walls and the vertical portions of said horizontal walls to engage upon the lower stretches of the propeller and yieldably prevent relative movement of the propeller sections.

3. A vessel including a body having longitudinally extending outer side walls and relatively short inner longitudinal walls spaced from each other, a metal reinforcing band extending around the vessel body, longitudinally disposed bars secured upon the opposed faces of said inner walls and connected to the opposite ends of said reinforcing band, drums supported by said bars and the reinforcing band at its opposite ends, endless articulated propellers arranged upon the corresponding drums, guides for the upper stretches of the propellers arranged between the inner and outer longitudinal walls of the vessel body, vertically yieldable guides mounted between said vessel walls to yieldingly prevent relative vertical movement of the sections in the lower stretches of the propellers, and means for driving the propellers.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM T. TAYLOR.

Witnesses:
WM. KELLBERG,
W. T. C. SMITH.