Sept. 14, 1937. J. V. HUNT 2,093,320

BOAT

Filed Oct. 16, 1936 2 Sheets-Sheet 1

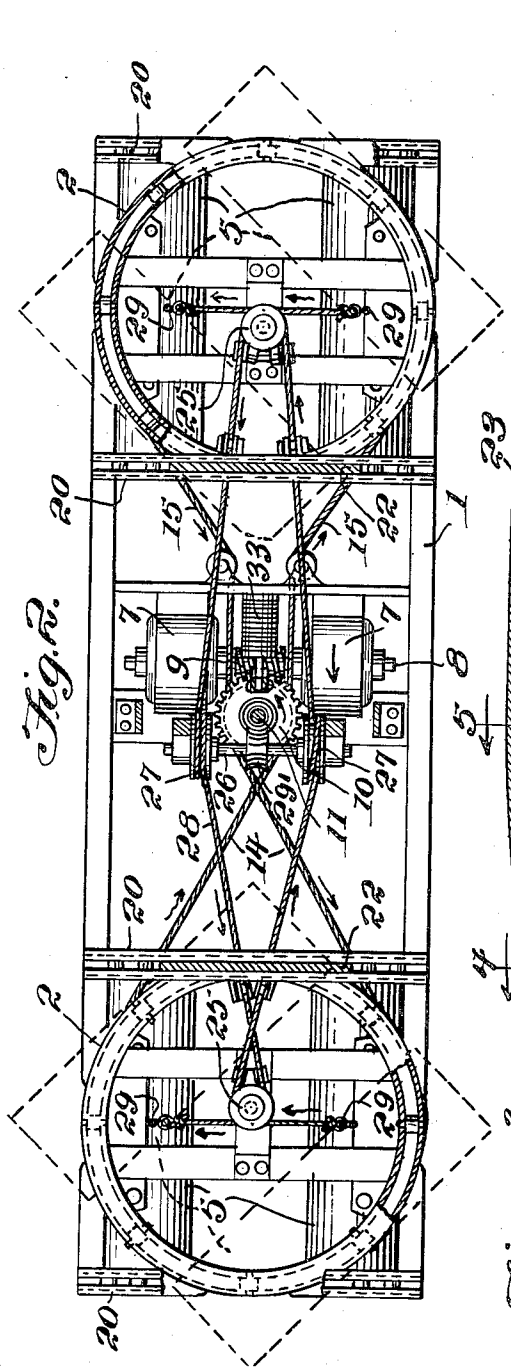


Fig. 2.

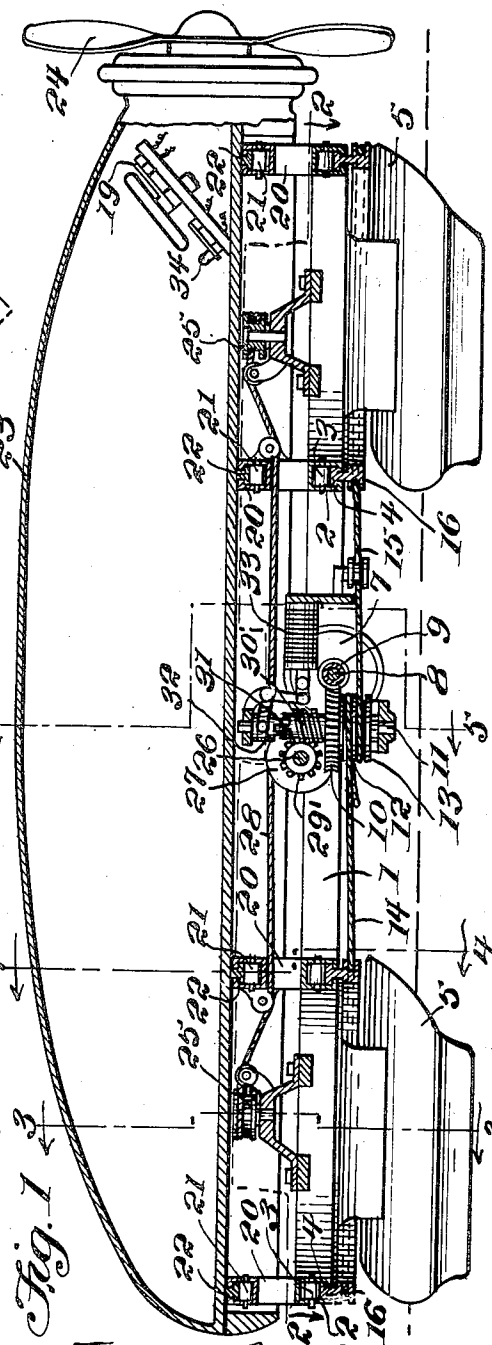


Fig. 1

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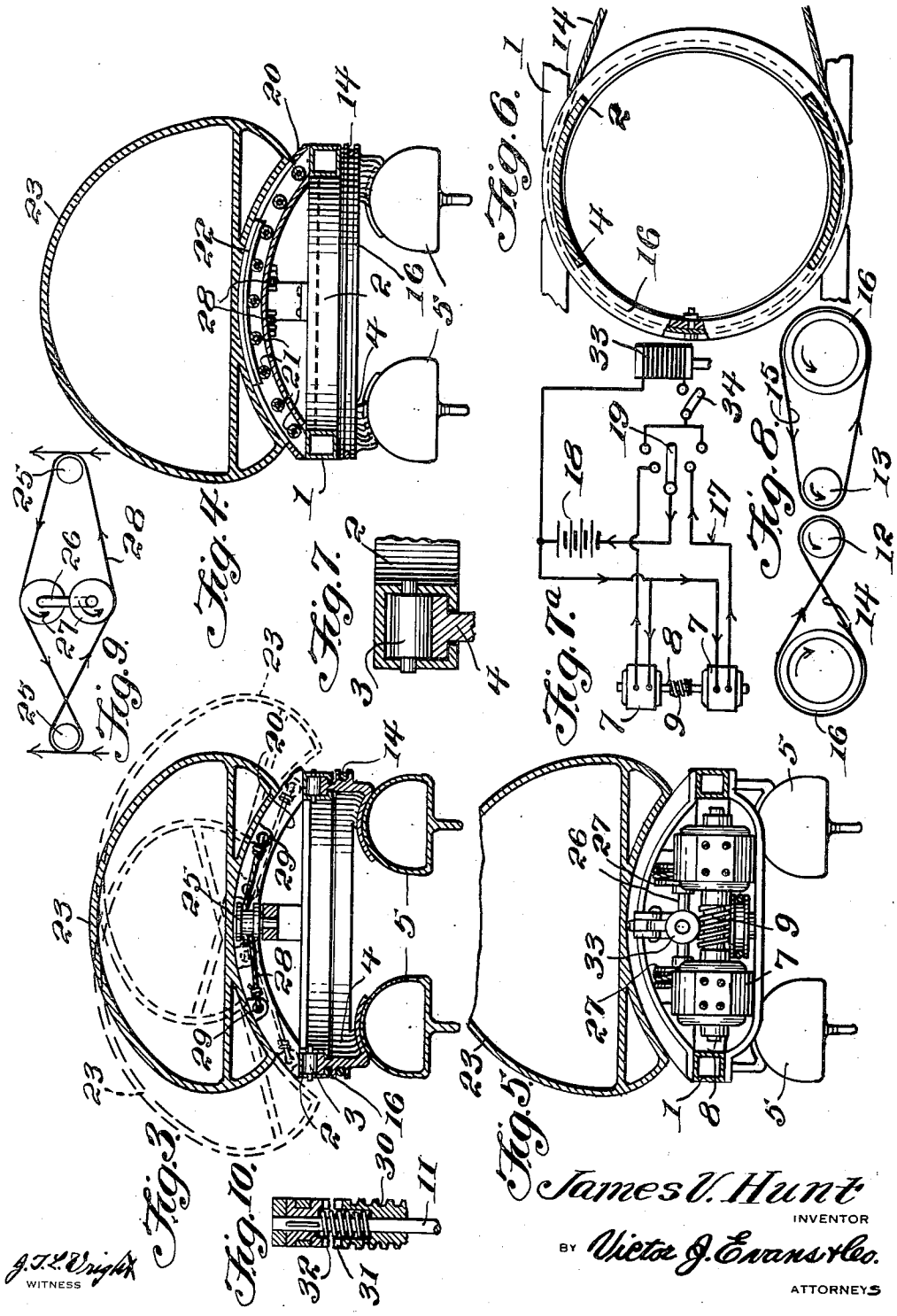
ATTORNEYS

WITNESS J. T. L. Wright

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Patented Sept. 14, 1937 2,093,320

UNITED STATES PATENT OFFICE

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BOAT

James Vernon Hunt, Washington, D. C.

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3 Claims. (Cl. 114—61)

This invention relates to vehicles which by minor alterations may be adapted for use on land or water, the present showing being for water use and has for the primary object the provision of a device of this character whereby air and water resistance will be reduced to a minimum, requiring a minimum amount of power for its propulsion and may be easily steered and caused to turn within a limited or small size space or distance and to shift its center of gravity in the direction of the turn being made thereby materially increasing the safety of the vehicle.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a vertical sectional view illustrating a vehicle constructed in accordance with my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a transverse sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a fragmentary plan view illustrating the connection of one of the steering cables to the turning member of one of the sets of pontoons.

Figure 7 is a fragmentary sectional view illustrating the means of mounting the pontoons to the annular track carried by the chassis.

Figure 7*a* is a diagrammatical view illustrating the wiring diagram for the electric motors.

Figure 8 is a diagrammatical view showing the steering cables for the pontoons.

Figure 9 is a diagrammatical view showing the cables for tilting the body of the vehicle to either side of the longitudinal axis of the vehicle.

Figure 10 is a detail sectional view illustrating a clutch.

Referring in detail to the drawings, the numeral 1 indicates a chassis having secured thereto adjacent each end annular tracks 2 each of channel iron construction and equipped with a series of anti-friction rollers 3 to be engaged by annular members 4 carried by said tracks and which are free to rotate relative thereto. Secured to the annular members 4 are pontoons 5. The pontoons are arranged in pairs at the fore and aft ends of the chassis. Electric motors 7 are mounted on the chassis and have a common power shaft 8 to which is secured a worm 9 meshing with a worm gear 10 secured to a power shaft 11. The power shaft 11 is journaled on the chassis 1. Grooved pulleys 12 and 13 are secured to the drive shaft 11 and trained over said pulleys are endless elements 14 and 15. Formed integrally with the annular members 4 of the pontoons are grooved pulleys 16. The endless element 14 is trained over the pulley 16 of the aft pontoons while the endless element 15 is trained over the pulley 16 of the forward pontoons. The runs of the endless element 14 cross each other.

One of the electric motors 7 operates in a right hand direction and the other electric motor operates in a left hand direction.

Connected to the electric motors is an electric circuit 17 including an electrical source 18 and a control switch 19. The switch 19 acts to close the circuit when in one position to one of the motors and to break the circuit to the other motor and vice versa when placed in its other position. The switch 19 has a circuit breaking position whereby the circuits to both motors may be broken. Closing the switch to one of the motors will cause the pontoons to be turned in a direction for steering the vehicle to the right and when the circuit is closed to the other motor said pontoons will be turned in an opposite direction and for steering the vehicle to the left. By referring to Figure 2 it will be seen that the front and aft pontoons swing in opposite directions so that a comparatively short turn may be made.

Arcuately curved tracks 20 are mounted on the chassis 1 and arranged transversely thereof and each is equipped with anti-friction rollers 21 engaged by body elements 22 curved similarly to the curvature of the tracks. The body elements carry a body 23 preferably of cigar-shape and has located in its forward end an engine (not shown) for driving a propeller 24 located at the forward end of the body. The propeller 24 acts against the air for the purpose of drawing the body forwardly. However, if desired, the body may be equipped with a propeller at the rear end thereof for acting on the water.

The body being mounted on the tracks 20 is capable of shifting to either side of the longitudinal axis of the chassis. The purpose of shifting the body is to counteract centrifugal forces tending to turn the vehicle over when traveling on a curve. It is desired that the body be shifted in the direction of the inside of a turn.

Mounted on the chassis are pulleys 25 and also journaled on a shaft 26 carried by the chassis are drive pulleys 27. The drive pulleys 27 are secured to the shaft 26 and have trained thereover flexible elements 28 both of which pass over the pulleys 25 and have their ends secured to lugs carried by the body 29 and located adjacent opposite sides thereof. The flexible elements 28 are employed for shifting the position of the body on the chassis. A worm gear 29' is secured to the shaft 26 and meshes with a worm 30 journaled on the drive shaft 11. The worm 30 has a clutch element 31 and splined on the shaft 11 is a clutch element 32 controlled by an electro-magnet 33. The electro-magnet 33 is connected in the electric circuit 17 and is controlled by a switch 34. When the electro-magnet 33 is energized it engages the clutch elements 31 and 32 so as to connect the worm 30 to the shaft 11 and in that way shift the body of the vehicle laterally of its longitudinal axis during the turning of the pontoons. It is to be understood that the steering of the pontoons and the tilting of the body is brought about by the electric motors 7. However, the tilting of the body can be discontinued while the turning of the pontoons is continued by the manipulation of the switch 34.

A water vehicle constructed in accordance with the foregoing is capable of being easily steered and will reduce water and wind resistance to a minimum and may obtain high rates of speed with safety increased to a maximum due to the shifting of the body laterally of the longitudinal axis of the chassis when traveling upon a turn. While I have shown and described this invention as being especially adaptable to water vehicles, through a simple rearrangement of parts, the pontoons may be substituted by land wheels whereby the device may be made to travel on land with substantially the same advantages as obtained when traveling on water.

Having described the invention, I claim:

1. A vehicle comprising a chassis, groups of fore and aft pontoons mounted on said chassis for turning to the right or left, a drive shaft carried by the chassis, electrical power means connected to said shaft and capable of operating in either direction, endless elements connected to said pontoons and to said drive shaft whereby the groups of pontoons are caused to turn in opposite directions, body tracks mounted on the chassis, a body slidably supported by said body tracks and capable of shifting laterally of the longitudinal axis of the chassis in either direction, and means driven by said drive shaft for shifting the body in either direction.

2. A vehicle comprising a chassis, groups of fore and aft pontoons mounted on said chassis for turning to the right or left, a drive shaft carried by the chassis, electrical power means connected to said shaft and capable of operating in either direction, endless elements connected to said pontoons and to said drive shaft whereby the groups of pontoons are caused to turn in opposite directions, body tracks mounted on the chassis, a body slidably supported by said body tracks and capable of shifting laterally of the longitudinal axis of the chassis in either direction, and means driven by said shaft for shifting the body in either direction and including a clutch for connecting and disconnecting said last-mentioned means with the drive shaft.

3. A vehicle comprising a chassis, groups of pontoons supporting said chassis and capable of turning about a vertical axis, power means carried by said chassis, means for connecting said power means to the pontoons for the steering of the latter, a substantially cigar-shaped body mounted on the chassis and capable of shifting laterally of the longitudinal axis of the chassis in either direction, means connected to the body and driven by said power means for shifting the body in either direction and including a clutch for connecting and disconnecting said last-named means to said power means, and a power means including a propeller carried by said body.

JAMES VERNON HUNT.