No. 693,228. Patented Feb. 11, 1902.

S. T. BRITTAIN.

BOAT ADAPTED TO BE PROPELLED ON LAND OR IN WATER.

(Application filed July 18, 1901.)

(No Model.) 3 Sheets—Sheet 1.

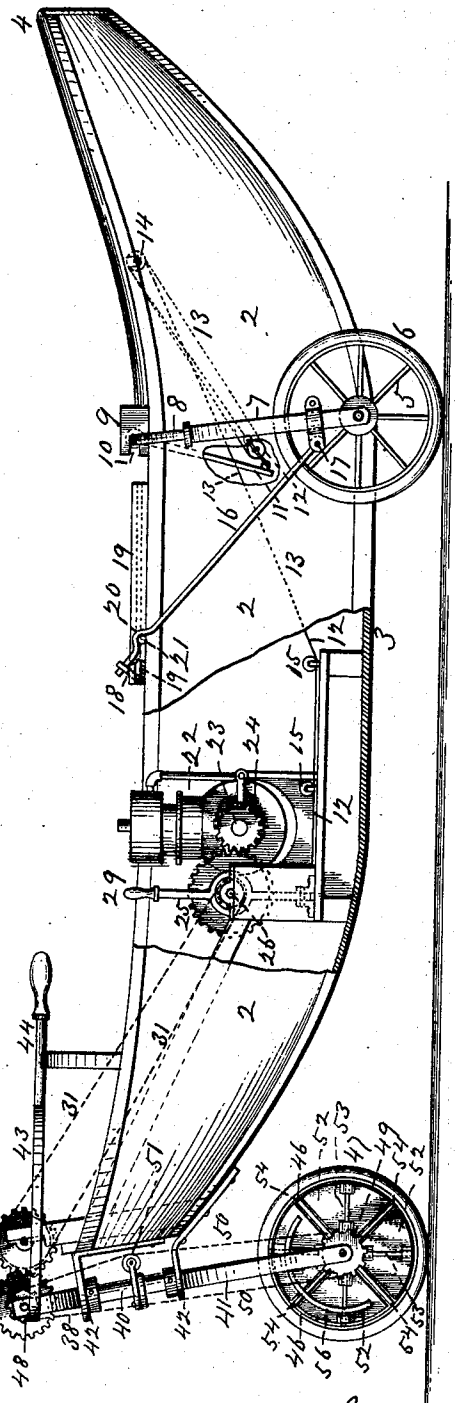


Fig. 1.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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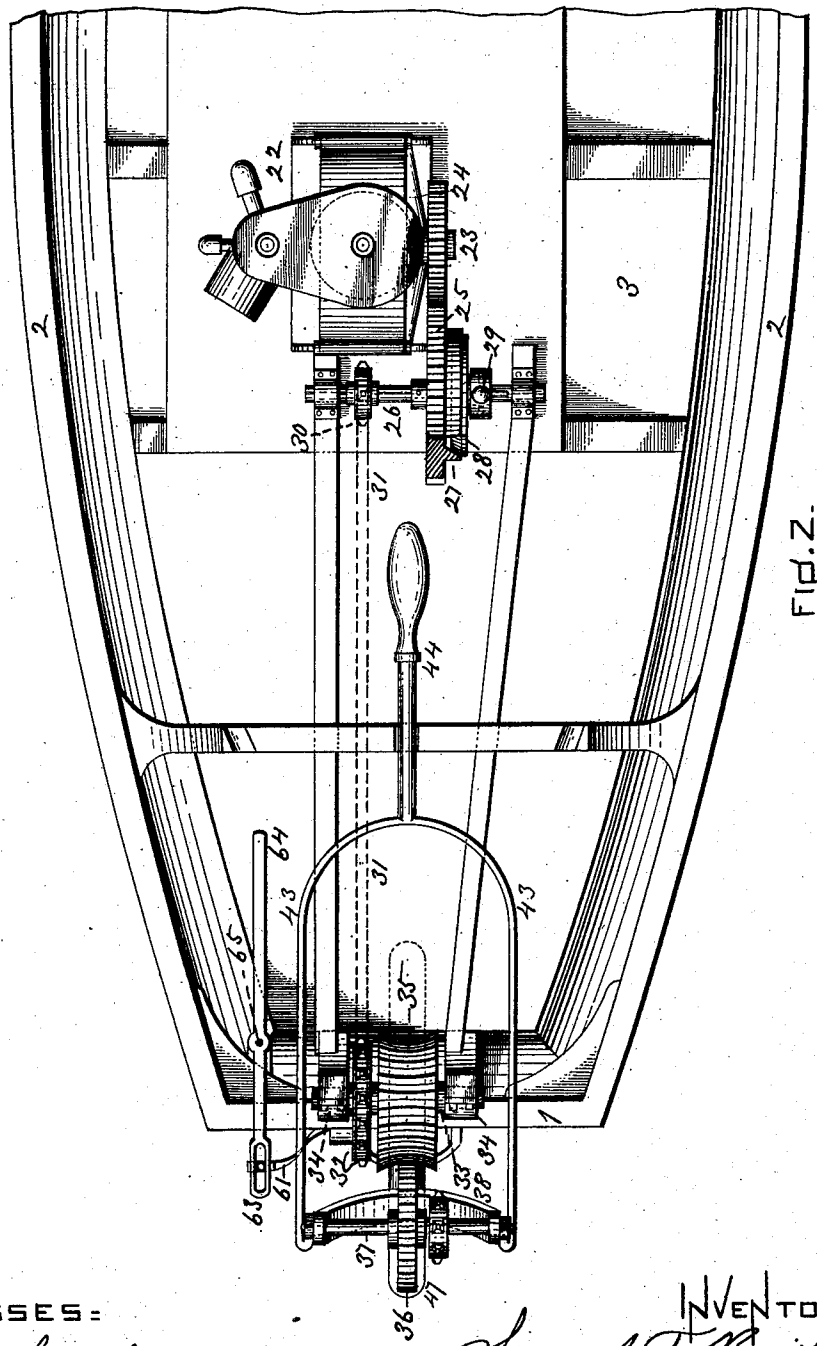


FIG. 2.

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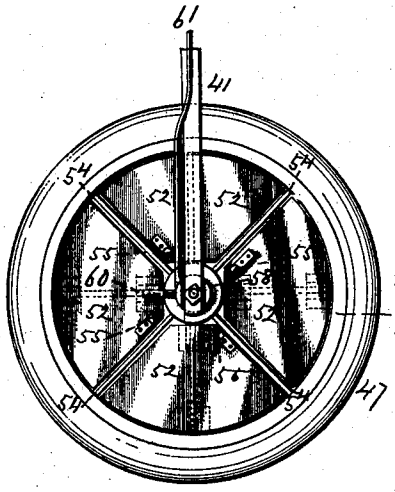


Fig. 4.

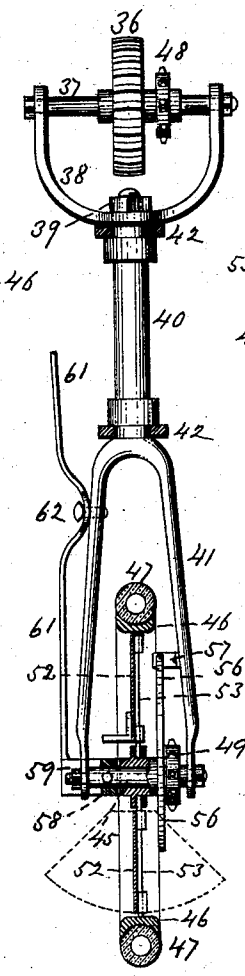


Fig. 3.

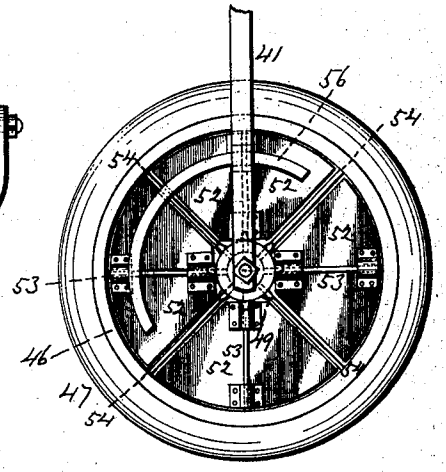


Fig. 5.

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UNITED STATES PATENT OFFICE.

SAMUEL T. BRITTAIN, OF BOSTON, MASSACHUSETTS.

BOAT ADAPTED TO BE PROPELLED ON LAND OR IN WATER.

SPECIFICATION forming part of Letters Patent No. 693,228, dated February 11, 1902.

Application filed July 18, 1901. Serial No. 68,735. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. BRITTAIN, a subject of the King of Great Britain, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Boats Adapted to be Propelled on Land or in Water, of which the following is a specification.

This invention relates to self-propelled boats adapted to be driven over the land or in the water, as desired.

My improved boat is particularly intended for use as a beach-boat, and when used as such the passengers enter the boat while it is high and dry on the beach, and the boat is then propelled by the engineer or other suitable official within it along the beach and through the surf into the water, when a portion of the running-gear is lifted and the vessel is propelled by the same power in the water as it was on land.

This improved boat may be used, however, in other places, such as in camp, where the boat can be propelled by its own power over a "carry" from one piece of water to another or from camp to water or from one point to another on land, as desired.

An important feature of the invention consists in the fact that the propeller or paddle-wheel operates also as a rudder and is provided with steering mechanism.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a boat embodying my invention, portions being broken out. Fig. 2 is an enlarged plan view of the rear portion of the boat. Fig. 3 is an enlarged detail, part in rear elevation and part in cross vertical section, of the propelling and steering mechanism. Fig. 4 is an enlarged side elevation of the propeller or paddle-wheel looking from the left. Fig. 5 is an enlarged elevation of the same looking from the right.

Similar characters of reference indicate corresponding parts.

1, 2, 3, and 4 represent, respectively, the stern, sides, bottom, and bow of a boat which may be of any suitable size or shape. Near the bow of the boat and on opposite sides thereof are two wheels 5, preferably provided with pneumatic rubber tires 6. Each of these wheels is supported by a frame 7 8, which is preferably of the forked shape used in the construction of bicycles. The upper end of the portion 8 of this frame is rigid or integral with a suitable shaft having its bearings in the box 9 on the gunwale on that side, and extending downward from said shaft 10 within the boat is a suitable arm 11, provided with a pulley-block 12, which is connected by a chain 13 with a block 14, secured to the boat, said chain extending around the two pulleys under guides 15 and having its free end accessible to the engineer. An arm 16 is pivotally secured at its lower end at 17 to a suitable bracket on the frame 7, said arm being provided at its upper end with a pin or slide 18, which extends into the slideway 19 on the gunwale. The arm 16 is formed at 20 with a recess adapted to fit over a horizontal pin 21, extending outward from the frame of the slideway or the gunwale.

When the boat is resting upon or being propelled over the land, the wheels 5 are in the position indicated in Fig. 1 and hold the bow of the boat in a raised position from the ground, said wheels being locked in such position by the recessed portion 20 of each rod resting on the pin 21. When the boat has been propelled from the land into the water and begins to float, the engineer pulls on the chains or cords 13, which by means of the pulleys 12 and 14 swing forward and up the lower ends of the arms 11, and by means of the rod 10, with which said arms and the frames 7 8 are rigid, swing up and forward the wheels 5 out of the water, the pins 18 sliding in the slideways 19.

22 represents a suitable engine, preferably a gasolene-engine, the driving-shaft 23 of which has mounted on it a gear-wheel 24. This wheel engages the gear-wheel 25, loose on the horizontal shaft 26, mounted in the boat. A clutch mechanism comprises the portion 27 on the gear-wheel 25 and the portion 28, splined on the shaft 26 and provided with a handle 29. Rigid on this shaft is a sprocket-wheel 30, connected by a chain 31 with the sprocket-wheel 32, rigid on the horizontal shaft 33, supported in bearings 34 at the stern of the boat and having mounted on it the gear-wheel 35, formed with the concave teeth shown. The concave gear-wheel 35 engages

with a gear-wheel 36, having convex teeth and mounted on a horizontal shaft 37, having bearings in the yoke-frame 38, secured by a nut 39 to the upper end of the post 40, which extends up from the fork-shaped frame 41, said post 40 and frame 41 being substantially similar to a bicycle-fork. The frame 40 41 is preferably not quite vertical, but is inclined so that its lower end is toward or under the stern of the boat. The post 40 is supported rotatively in brackets 42, extending rearward from the stern, and a yoke-shaped frame 43 extends horizontally forward from the opposite ends of the shaft 37 and is provided with a tiller 44, adapted to be locked in any suitable manner, said tiller serving to rotate the post 40 on its axis. The lower ends of the forked frame 41 support a horizontal shaft 45, on which is mounted a wheel 46, preferably provided with a pneumatic tire 47, said wheel, in connection with the wheels 5, operating to keep the boat raised and in a horizontal position when on land. Sprocket-wheels 48 and 49, connected by a chain 50, are mounted in the shafts 37 and 45, respectively. An adjustable wheel 51, taking up the slack of the chain 50, may be provided and is indicated in Fig. 1 as supported by the post 40.

The wheel 46 is provided between its spokes 54 with paddles 52, each of which has divergent opposite side edges and a curved outer edge, as shown in Figs. 4 and 5, thus occupying the entire space between two spokes. Each paddle is pivoted on a radially-arranged pivot or intermediate spoke 53, extending from the hub to the rim of the wheel. The paddles have secured to one surface—in the drawings to the left surface—horizontally-extending pins 55, said pins being next corresponding radial edges of the paddles. On the opposite or right side of the paddles an arc-shaped guide or deflector 56 is secured by a bracket 57 to the inner side of the fork 41, said guide being opposite about one-half of the paddle-wheel, preferably near its periphery and concentric with it. Moreover, it is placed near enough to the paddles to engage them when they are swung out, as indicated in dotted lines in Fig. 3. A sleeve or clutch 58, slotted at 59, slips on the shaft 45 and is provided with a pin 60, which extends radially with the wheel and into the path of the pins 55 when the wheel rotates. A lever 61 is pivoted at 62 to the fork 41, has its lower end secured to the sleeve 59, Figs. 3 and 4, and its upper end Fig. 2 extends into the slotted end 63 of the lever 64, pivoted at 65 to the boat.

When the boat is on land—as on a beach, for example—the front wheels 5 are down, as in Fig. 1, and are locked in such position by the notch 20 and pin 21, and the lever 61 has its lower ends swung out, thus withdrawing the sleeve or clutch 59 from the shaft 45 sufficiently to move the pin 60 out of the path of the pins 55 when the wheel rotates. The engineer starts his engine and moves the part 28 of the clutch into engagement with the part 27. Rotation is imparted to the wheel 46 by means of the gears 24 and 25, shaft 26, sprocket 30, chain 31, sprocket 32, shaft 33, gears 35 and 36, shaft 37, sprocket 48, chain 50, sprocket 49, and shaft 45. Thus the boat is driven along the beach toward the water, and the wheel 46 acts not only as a driving-wheel, but also as a steering-wheel, being turned like a rudder by means of the tiller 44, yoke 43, shaft 37, yoke 38, post 40, and frame 41. During this land propulsion the paddles 52 are in line and substantially fill the spaces between the spokes, so that the driving-wheel is practically a solid wheel.

As soon as the boat has been propelled sufficiently into the water to float the wheels 5 are swung up by means of the chain 13, as above described, and the sleeve or clutch 59 is moved into the position indicated in Fig. 3 by means of the levers 64 and 61. As the wheel 46 is driven in the water the pin 60 engages the pins 55 in turn, with the effect of swinging the paddles 52 in turn from the position indicated in Figs. 4 and 5 into the position indicated by dotted lines in Fig. 3—that is to say, the paddles are swung, one after the other, into positions at right angles with the plane of the wheel, thus enabling said paddles to propel the boat. Each paddle remains in the above-described position during about one-half of the revolution of the wheel when it strikes the end of the arc-shaped deflector 56 and is guided into its original position with its divergent edges next the spokes. Thus it will be seen that there are constantly in operation one half of the paddles while the other half are folded. Moreover, the paddle-wheel operates not only as a propeller, but while in the water as a rudder, being turned by the tiller 44, so that the same wheel drives the boat on land and in water and also steers the boat under both conditions.

It is well known that on many beaches which are very level—such as at Atlantic City, for example—it is impossible to launch a boat from the beach unless the passengers wade out to the boat or are pushed out in the boat by hand-power; but in this contrivance the passengers may enter the boat and be driven along the beach into the water and when the boat floats propelled over the surface of the water without outside aid and solely by the motor in the boat.

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

1. In a boat of the character described, in combination with the hull, the wheel 46 provided with a traction-tire for use on land and with paddles and mechanism for operating them for use in water, the rotative frame 40, 41 supporting the wheel, brackets extending from the stern and supporting said frame, the yoke 38 and shaft 37 supported thereby, the sprocket-wheels 48 and 49 on the shaft 37

and the driving-shaft of the wheel respectively, the gear-wheel 36 mounted on the shaft 37 and provided with convex teeth, the shaft 33 supported by the boat and provided with the gear-wheel 35 formed with concave teeth, steering mechanism connected with the yoke 38, a suitable motive power supported by the boat, and mechanism intermediate of the shaft 33 and said power for imparting rotation to the former, substantially as described.

2. In a boat of the character described, the combined paddle-wheel and steering-wheel 46 provided with a traction-tire for use on land, the radial pivots 53, the paddles 52 of substantially the shape described and supported by said pivots, the pins 55 extending at substantially right angles from the paddles, the pin 60 extending into the path of the pins 55 and substantially radially with the wheel, the sleeve or clutch 59 supporting said pin 60, mechanism for operating said sleeve or clutch from the boat, means for supporting the paddle-wheel at the stern of the boat, mechanism for rotating said wheel, and mechanism for steering the same, substantially as set forth.

3. In a boat of the character described, a combined traction, paddle and steering wheel connected with and near the stern of the boat, mechanisms for rotating said wheel and operating it as a rudder, the wheels 5 on opposite sides of the boat near its bow, swinging frames connecting said wheels of the boat, a locking mechanism holding said wheels normally down, and means whereby said wheels can be swung up when the boat is in the water, substantially as described.

4. In a boat of the character described, a combined traction, paddle and steering wheel connected with and near the stern of the boat, mechanisms for rotating said wheel and operating it as a rudder, the wheels 5 on opposite sides of the boat near its bow, the rod 10 supported by the boat, the frames 7, 8 rigid with said rod and supporting the wheels, the arms 11 rigid with said rod, mechanisms for swinging said arms, the slideways 19 on the boat, the arms 16 extending from the frames 7, 8 and provided with slides moving in the slideways, and means for locking said arms when the wheels are down, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL T. BRITTAIN.

Witnesses:
HENRY W. WILLIAMS,
E. B. SMALL.