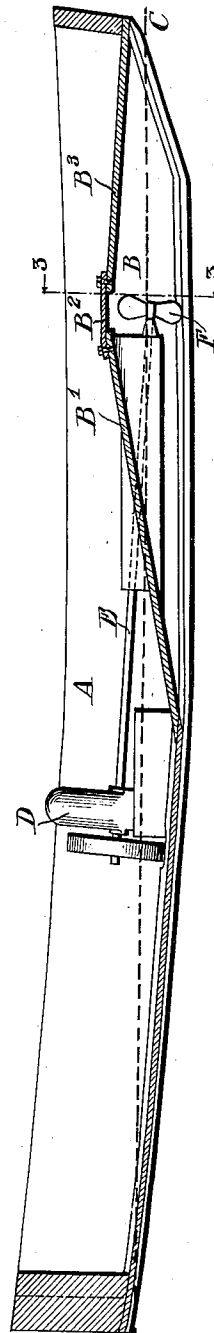
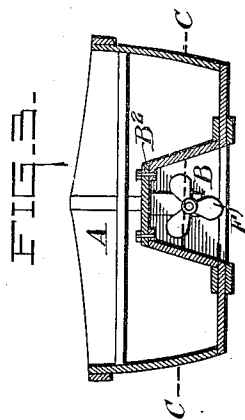
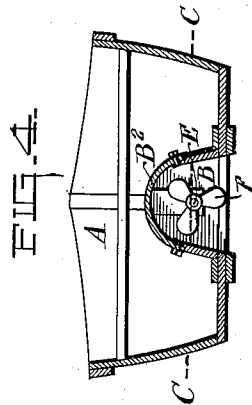
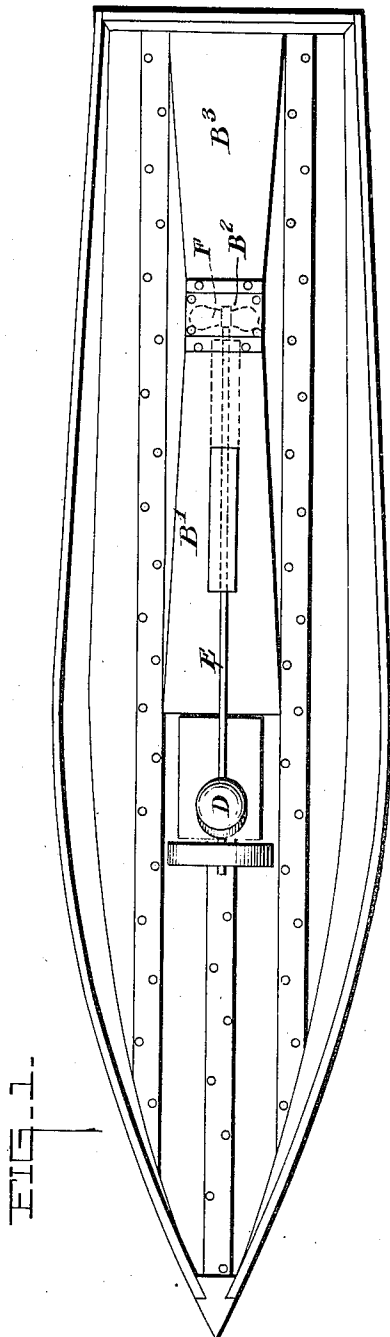


C. E. LOETZER.
MOTOR BOAT.

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1,007,583.

Patented Oct. 31, 1911.



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MOTOR-BOAT.

1,007,583.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed August 12, 1910. Serial No. 576,924.

To all whom it may concern:

Be it known that I, CHRISTIAN E. LOETZER, a citizen of the United States, residing at Sayre, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Motor-Boats, of which the following is a specification.

The object of my invention is to provide a motor boat for river and stream navigation, which can be navigated in very shallow water and over or among various obstructions without injury to the propeller, and which can travel up stream in swift currents with less retardation than motor boats of previous designs. These objects are attained by a construction substantially as illustrated in the accompanying drawings, which show the hull of a motor or power boat embodying my invention.

Figure 1 is a top plan view thereof; Fig. 2 is a central longitudinal vertical section; Fig. 3 is a vertical cross section on the line 3-3 of Fig. 2; Fig. 4 is a view like Fig. 3 showing a modified cross sectional form.

The boat has preferably a flat-bottomed hull with a tunnel stern for housing the propeller.

A is the hull, B the longitudinal stern tunnel, and C-C is the water line.

D is the motor, E the motor shaft and F the propeller. As will be seen the propeller is arranged to extend partly above the water line.

The longitudinal top lines of the tunnel B are straight instead of curved, and comprises a long front slope B¹ extending from the bottom of the boat to the apex B² of the tunnel, and a long rear slope B³ terminating at the stern above the water line C-C; providing an elongated tunnel with gentle straight slopes or inclines to and from said apex which is above the water line and considerably in advance of the stern. The tunnel at its apex B² is of such height as to take in the entire diameter of the propeller so that no part of the propeller extends below the bottom of the boat, as shown in Fig. 3; and the rear slope B³ of the tunnel is parallel or nearly parallel with the propeller shaft E, a slight variation from true parallelism being immaterial.

The line C-C in the drawings indicates the approximate water line when the boat is fully equipped, but without passengers aboard, and when the propeller is stationary. With the additional weight of a passenger

or passengers, the water line is ordinarily still below the rear terminus of the slope B³. When the engine is started, the boat squats enough to allow the said terminus of the rear slope to meet the water, thus forming a water seal at that point and causing the water under action of the propeller to fill the tunnel, which is retained solidly full of water so long as the propeller is in motion, so that the propeller works fully in water the same as a normally submerged propeller.

The straight gentle inclines of the tunnel form natural and practical ways for the flow of water with the least amount of friction and resistance, and, the rear slope of the tunnel being straight and parallel with the motor shaft, the water receding from the propeller when in action meets with the least obstruction and does not choke in the tunnel nor cause the boat to drag.

When the boat is running up stream against a swift current, the water passing under the boat flows up into the tunnel with a tendency to partially and momentarily come to a stop, which gives the propeller a better leverage or purchase; and this insures the progress of the boat against a swift current, where other boats would come to a stand-still or be considerably retarded. In going against a swift current, in a boat constructed without the tunnel stern, and with the propeller in the rear and submerged below the water line, the water passes rapidly by and away from the propeller and gives the propeller little or no purchase, according to the degree of swiftness of the water, in consequence of which the boat has little or no ability to travel up stream in swift running water; whereas a boat constructed according to my invention passes over the same places with light or heavy load, and in deep or shallow water. The boat is very successful for navigating in swift and shallow streams.

While the water line is variable in accordance with the load sustained by the boat, the results are entirely satisfactory under all variations. A little more or less sinking of the terminus of the rear slope of the tunnel below the water line makes no appreciable difference, which is one of the results of having the rear slope of the tunnel straight and parallel with the shaft, the propeller working directly against a solid calm of water.

It is easily possible to navigate the boat

among and over all kinds of obstructions without in any manner injuring the propeller or disabling the boat. It can be hauled over rocks, logs, gravel and sand bars, the same as any flat-bottomed row boat, and will safely run under full power in any stream in which the hull will float. A boat constructed according to my invention sixteen feet in length, will run under power in any stream six inches deep and four feet wide.

The arch or cross sectional form of the tunnel may be flat at the top, as shown in Fig. 3, or it may be curved, as shown in Fig. 4 but its rear end in either event is straight or parallel with the bottom of the boat, so that when the boat is in use, an effectual seal across the entire rear end of the tunnel will be provided with the water held therein sufficiently to furnish proper bearing for the propeller, while at the same time it will be permitted to escape therefrom with sufficient rapidity and smoothness to prevent dragging of the boat.

It is preferable to provide at B² a removable cover to give access to the propeller and stuffing box.

I am aware that tunnel stern motor boats

are not broadly novel and I make no broad claim to a boat of this general type or character.

I claim as my invention and desire to secure by Letters Patent:

A motor boat having a tunnel in its bottom opening through its stern, the upper wall of the tunnel having a long straight front incline from the bottom of the boat to the apex of the tunnel, and a shorter straight incline from its said apex to the rear end of the tunnel, a propeller shaft journaled in and passing through the long front incline of the tunnel parallel with the shorter rear incline and terminating beneath the apex of the tunnel, and a propeller on the terminal of said shaft, said propeller lying entirely above the plane of the bottom surface of the boat, and the rear end of the shorter incline of the tunnel lying slightly above the normal water line and transversely parallel with the bottom of the boat.

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

CHRISTIAN E. LOETZER.

Witnesses:

GEO. S. CURTISS,

CHAS. E. MILLS.