P. G. MARX & L. BRUCKER.

HYDRAULIC TRANSMISSION FOR BOATS.

APPLICATION FILED NOV. 23, 1910.

1,035,458.

Patented Aug. 13, 1912.

2 SHEETS—SHEET 1.

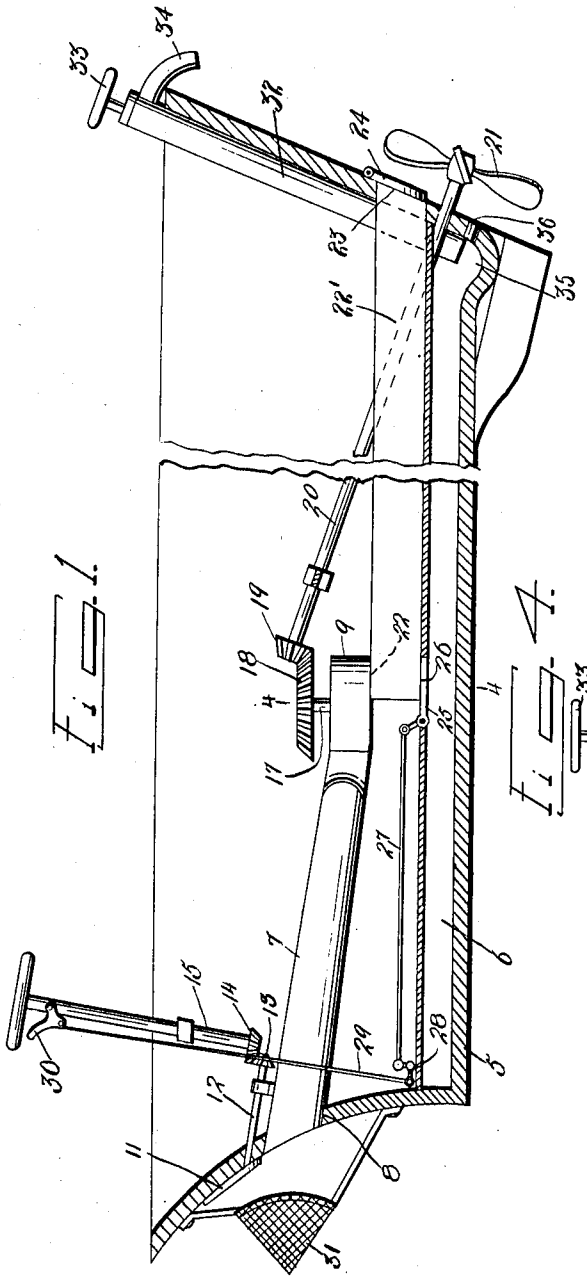

Fig. 1.

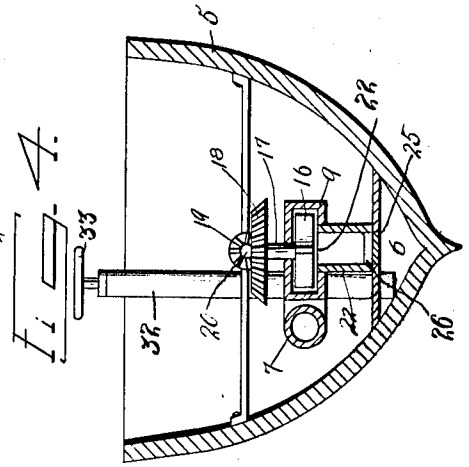

Fig. 4.

Witnesses

L. E. Starkl

Joseph J. O'Brien

Inventors

Paul G. Marx and

Louis Brucker.

By Cyrus Cyrus Cyrus & Scott Cyrus

Attorneys.

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Fig. 1.

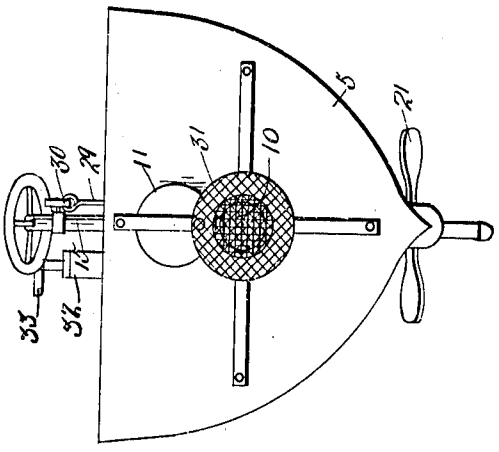
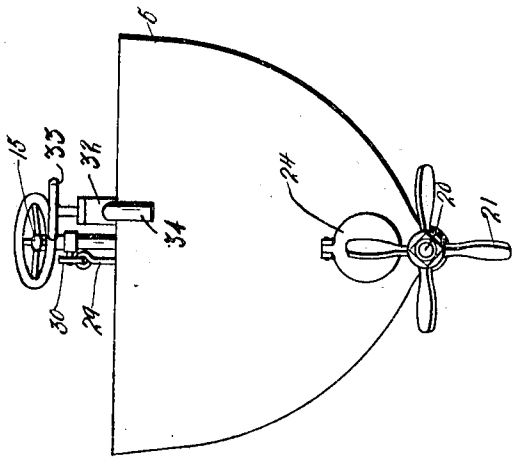


Fig. 2.



Witnesses.

P. E. Stahl

Joseph J. O'Brien

Inventors

Paul G. Marx and

Louis Brucker

By Brandt & Brandt

Attorneys

UNITED STATES PATENT OFFICE.

PAUL G. MARX, OF NEW YORK, N. Y., AND LOUIS BRUCKER, OF BOSTON, MASSACHUSETTS.

HYDRAULIC TRANSMISSION FOR BOATS.

1,035,458. Specification of Letters Patent. Patented Aug. 13, 1912.

Application filed November 23, 1910. Serial No. 593,920.

To all whom it may concern:

Be it known that we, PAUL G. MARX, a citizen of the United States, residing at New York, in the county of New York and State of New York, and LOUIS BRUCKER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Hydraulic Transmission for Boats; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in boat propelling mechanisms and the leading object of the invention is to provide a boat with an improved hydraulic propelling mechanism arranged to be operated by the pressure of the water in which the boat is partly submerged.

With the above and other objects in view the invention consists in certain constructions, combinations and arrangements of parts, clearly described in the following specification and clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view through the boat. Fig. 2 is a rear end elevation. Fig. 3 is a front end elevation. Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1.

Referring to the accompanying drawings, 5 denotes the boat which is provided with a water chamber or ballast room 6, located along the bottom thereof. Within the boat a conduit 7 is arranged, one end of the conduit extending through the port 8 of the boat and the other end of the conduit being connected with a centrally disposed turbine casing 9. The outer end of the conduit 7 is covered by a screen 10, and a valve 11 is hinged near said screen so as to close said open outer end. The valve 11 is operated through the medium of a rod 12 which carries the beveled gear 13, which beveled gear meshes with a beveled gear 14 which is mounted on the end of a turning rod 15. Within the turbine housing or casing 9 a turbine 16 is operatively disposed. The shaft 17 of said turbine carries a beveled gear 18 on its upper end which beveled gear meshes with a beveled gear 19 of the propeller shaft 20 which extends at an incline through the rearward or stern end of the boat and which carries a suitable screw propeller 21.

Beneath the turbine housing or casing 9 a discharge valve 25 is pivotally arranged to close the discharge opening 26 of the water compartment 6, and said valve 25 is connected by means of a rod 27 with the bell crank lever 28, which lever is pivoted near the forward or stern end of the boat and is connected with a vertical operating rod 29, and said rod 29 is connected at its upper end by a hand lever 30. A fender 31 is operatively arranged in front of the intake of the conduit 7, whereby weeds are pushed aside instead of being sucked into said conduit. Water flowing through the conduit 7 and into the housing 9 will exert a pressure sufficient to rotate the turbine 10 and thereby actuate the propeller 21 and consequently move the boat forwardly.

The boat is especially adapted to use in navigating streams against the current.

When it is desired to operate the boat, the valve 11 is rotated to the position shown in Figs. 1 and 3 of the drawings so that the water will pass through the conduit 7 and operate the turbine by passing through the turbine casing and outlet 22 into the discharge pipe 22′ or by opening the valve 26, said water will pass into the water chamber or ballast room 6 and owing to the fact that the water will be retained in the boat and will not be discharged therefrom, there will be no back pressure tending to hold the boat stationary. A pump 32 provided with an operating handle 33 and a discharge spout 34, is mounted at the stern of the boat and has its lower end disposed above a depression 35 in the bottom of the boat within the chamber 6 and after the boat has been started, the pump 32 is operated to withdraw the water from the chamber and instead of the water being discharged through the port 23 the flap valve 24 will be held closed by the suction created and the water will flow through the opening 26 and the boat will be propelled as long as the water is discharged. The stern of the boat adjacent to the depression 35 is provided with a drain opening which is closed by a plug 36 and adapted to be removed in order to clean or drain the contents of the water chamber, when the boat is out of the water.

The water may flow through the conduit 7 into the housing 9 pass out of said hous-

ing 9 through an exit or exhaust port 22 into the discharge or exit pipe 22′ and thence flow through the exhaust port 23 in the stern of the boat, this operation permitting the boat to be brought to a stop. The exhaust port 23 is closed by a flap valve 24 which may be operated in any suitable manner.

We claim:—

1. In a hydraulic transmission for a boat having a water compartment in its bottom, an intake disposed within the boat and communicating with the forward end thereof, a propeller at the stern of the boat, a turbine housing disposed in communication with the pipe, a turbine mounted within the housing operatively connected to the propeller to rotate the latter, means for regulating the discharge of water from the turbine housing and the compartment and means for discharging the water from within said compartment at the stern of the boat.

2. In a boat propelling mechanism, a boat having a water chamber in its bottom, a turbine housing mounted within the boat and communicating with the chamber, an intake pipe communicating with the chamber and bow of the boat, protectors arranged at the intake end of the pipe, a valve movable to open and close said end, a turbine mounted in the housing and having a vertical shaft, a gear mounted on the shaft, a propeller shaft, a propeller at the rear end of the shaft, a pinion at the forward end of the shaft engaged with the gear, a valve controlling the exit of water from the turbine housing to the chamber and a pump for discharging the water from the chamber.

In testimony whereof, we affix our signatures, in the presence of two witnesses.

PAUL G. MARX.
LOUIS BRUCKER.

Witnesses for Marx:
ADOLPHE SCHMIDT,
JOHN LICHTMANN.
Witnesses for Brucker:
CHAS. A. FLAVELL,
TIMOTHY F. CALLAHAN.