June 28, 1932. G. RANKE 1,864,857

BOAT PROPELLING DEVICE

Filed Aug. 28, 1931 2 Sheets-Sheet 1

Fig. 1

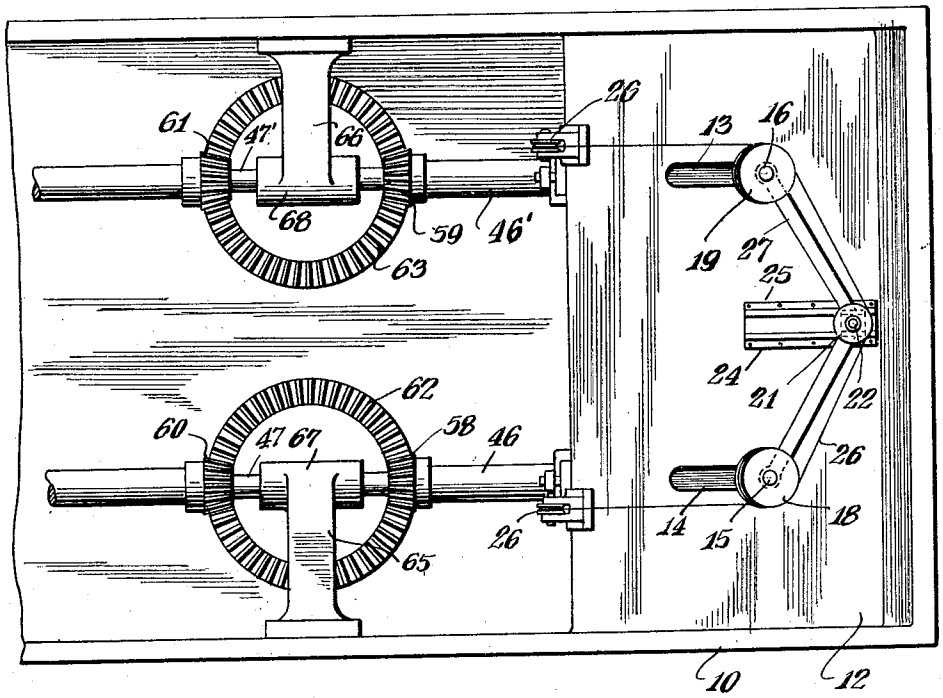
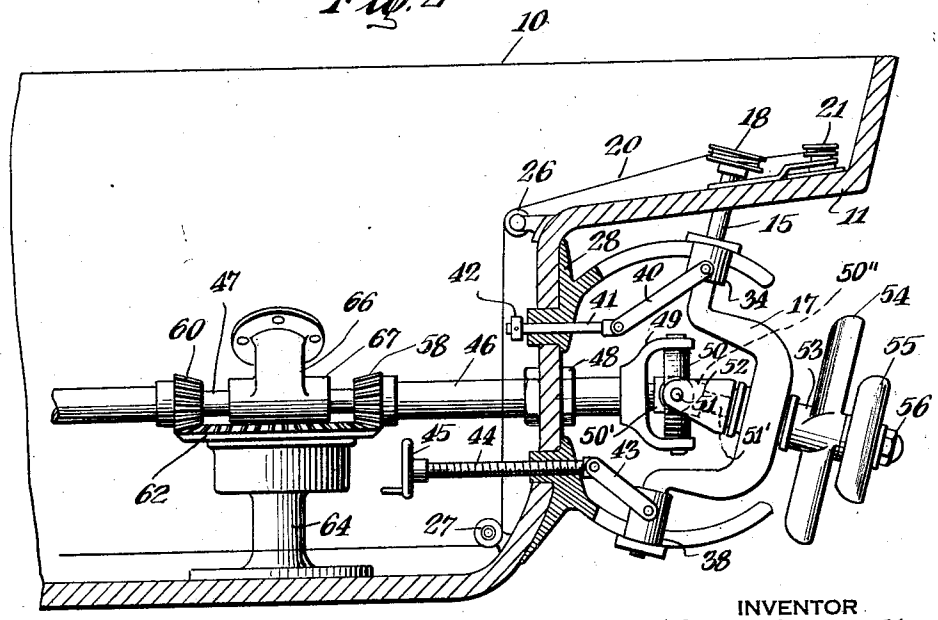


Fig. 2



INVENTOR
Gisbert Ranke
BY
George C. Heinicke
ATTORNEY

June 28, 1932. G. RANKE 1,864,857

BOAT PROPELLING DEVICE

Filed Aug. 28, 1931 2 Sheets-Sheet 2

Fig. 3

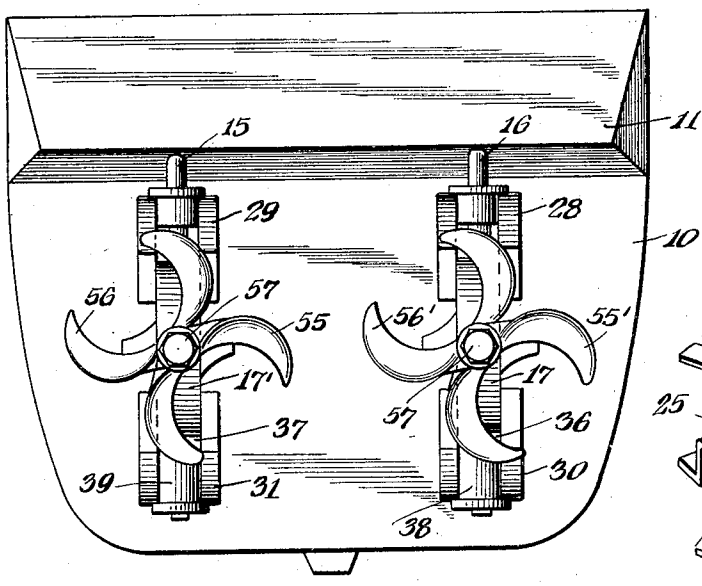


Fig. 5

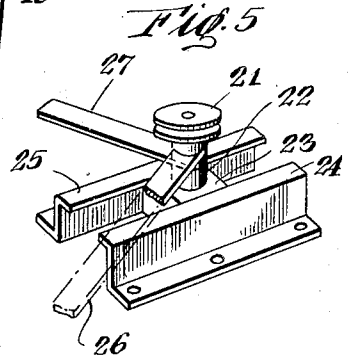
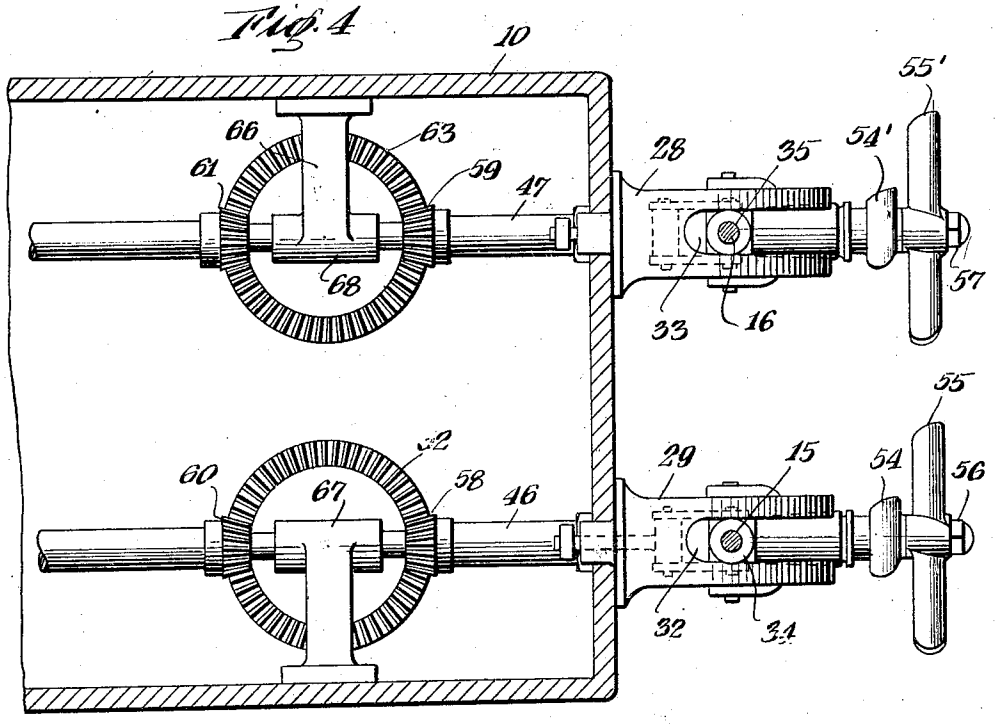


Fig. 4



INVENTOR

Gisbert Ranke

BY George C. Heinicke

ATTORNEY

Patented June 28, 1932 1,864,857

UNITED STATES PATENT OFFICE

GISBERT RANKE, OF MASPETH, NEW YORK

BOAT PROPELLING DEVICE

Application filed August 28, 1931. Serial No. 559,872.

This invention relates to improvements in water vessel propelling devices, particularly intended for the propulsion of boats, and it is the principal object of my invention to provide a plurality of twin propellers, turning in opposite directions on articulated inner and outer shafts, connected by a universal joint, and allowing a displacement of the propellers to any desired angle to the boat to vary the pitch to suit any prevailing condition during the manœuvring of the boat, and to provide a coupling for said shafts to allow their simultaneous operation.

My invention will, therefore, allow a dispensation with oars and rudders as the angular adjustment of the propellers laterally or horizontally as well as vertically will permit of imparting to the boat any desired turn.

It is hereby immaterial whether the boat is under way or speeding, or about to land at a pier or landing, or to start therefrom, it will under all conditions operate in the manner of a two-armed lever as soon as the propellers are angularly adjusted to the boat.

A boat equipped with my improved articulated propeller shaft or shafts and adjustable propellers can be manœuvred more readily than a boat with rigid propeller shafts. Furthermore, when travelling in shallow waters or waters of unknown depths, the propellers can be lifted in order to clear the bottom, and even if the boat should touch bottom the propellers could be elevated and will still be operative to allow a floating of the boat, which evidently will be impossible with rigidly arranged propellers which will dig themselves into the ground.

It will be clear that such articulated shafts may be operated from any kind of operating or motoric device, such as for instance a motor, steam engine, turbine, etc.

Another object of my invention is the provision of a boat propelling device including stub shafts carrying twin propellers and extending through substantially U-shaped heads to be movably connected or articulated to the driving shafts, said heads adapted to be displaced by suitable means from the operator's seat to vary the pitch of the propellers to suit the conditions prevailing at a certain moment.

A further object of my invention is the provision of a boat propelling device including twin propellers so arranged upon their shaft as to mutually assist in their rotation by impinging the water used by one propeller blade against the corresponding propeller blade of the other propeller.

A still further object of my invention is the provision of a boat propelling device of a comparatively simple and inexpensive construction, yet durable and highly efficient in its operation, provided with a suitably arranged guiding block sliding in guide rails and displaced between the same by the operation of cables and coupled to the propeller displacing means for allowing a displacement of the propellers in a horizontal plane.

These and other objects and advantages of my invention will become more fully known as the description thereof proceeds, and will then be specifically defined in the appended claims.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a fragmentary top plan view of a boat equipped with a propulsion device constructed according to my invention.

Fig. 2 is a fragmentary, sectional side elevation thereof.

Fig. 3 is a rear end view of the boat equipped with my propulsion device.

Fig. 4 is a fragmentary sectional top plan view.

Fig. 5 is a perspective detail view of the sliding central block and guides effecting a propeller adjustment in the horizontal plane.

As illustrated, a boat 10 has its overhanging stern part 11 equipped with a tail board

12 provided with elongated slots or openings 13, 14, through which pass movably arranged stems 15, 16, at the ends of substantially U-shaped heads 17, 17′, for a purpose hereafter to be more fully described.

The upper ends of the stems 15, 16, project through the slots 13, 14, and carry pulleys 18, 19, about which cables 20 are guided which are also guided over a centrally located pulley 21 on a stem 22 projecting from a block 23 slidably guided between two guide rails 24, 25, secured to the tail board 12, while operating bars 26, 27, are attached at their inner ends to stem 22 and with their outer ends engage stems 15, 16.

The cables 20 are guided over suitable guide rollers 26, 27, to the seat of the operator within convenient reach of the same.

Upper brackets 28, 29, and lower brackets 30, 31, are attached to the lower part of the boat's stern and have their outer ends forked. In the spaces 32, 33, formed between the forks of the upper brackets, collars 34, 35, on the stems 15, 16, and the upper ends of heads 17, 17′, are displaceable, while in the spaces 36, 37, between the prongs of the forked ends of the lower brackets 30, 31, collars 38, 39, at the lower ends of the U-shaped heads 17, 17′ are displaceable.

Links 40 are pivotally attached at one end to the collars 34, 35, and at their other ends to the inner ends of bars 41 slidably arranged in the inner ends of brackets 28, 29, and equipped with nuts 42 to limit their outward movements.

Other links 43 are pivotally attached at their outer ends to collars 38, 39, while their inner ends are pivotally attached to the outer ends of screw spindles 44, equipped with operating hand wheels 45 at their inner ends for effecting a lifting and lowering of the propellers in the vertical plane.

Propeller shafts 47, 47′ are arranged within outer hollow shafts 46, 46′, extend through suitable bushings 48 to the outside of the boat at its stern, and shafts 46 carry forked heads 49 the prongs of which are connected by rings 50, and shafts 47 carry in said ring one part 50′ of a universal joint, the other part 50″ is arranged upon the inner end of a shaft 51′.

The inner flattened and forked ends 52 of stub shafts 53 are secured at their inner ends, as at 51 in said ring while their outer ends extend through heads 17, 17′ and carry propeller blades 54, 54′. The propeller blades 55, 55′ are carried on the outer ends of shaft 51′ and turn in a direction opposite to the direction of rotation of propellers 54, 54′ held on said shafts by means of the lock nuts 56, 57.

The shafts 46, 47, carry bevel gears 58, 59, and 60, 61, respectively meshing with bevel gears 62, 63, rotating on supports 64, while brackets 65, 66, attached to the boat walls at their outer ends carry at their inner ends the shaft bearings 67, 68.

In operation, the heads 17, 17′ are suitably lifted or lowered by the proper operation of the hand wheels 45 and screw 44 to assume their elevated, horizontal or lowered position with respect to the driving shafts, and these positions will be taken up also by the propellers. If a displacement of the propellers to the left or right in a horizontal plane is desired, the operator will pull cables 20 correspondingly to swing either both propellers in one direction parallel to one another, or to swing one propeller in one and the other in the opposite direction by a corresponding turn of heads 17, 17′.

The propellers 54, 54′ or 55, 55′, are pairwise arranged on their respective shafts to turn in opposite directions, in such manner that the water used by one blade of one of the propellers is then impinged on the corresponding blade on the other propeller on the same shaft to materially assist and augment its power of propulsion.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a boat propelling device for boats having an overhanging stern part, a tail board having elongated openings in the stern of said boat, a pair of spaced guide rails on said tail board, a block displaceable in the space between said guide rails, a pair of substantially U-shaped heads guiding propeller shafts, means on said heads extending through the slots in said tail board, pulleys thereon, a pulley on said block, and cables guided over said pulleys to the operator's seat to move said heads and propellers in a horizontal plane.

2. In a boat propelling device for boats having an overhanging stern part, a tail board having elongated slots in the stern of the boat, a pair of spaced guide rails secured to said tail board, a block displaceably guided in the space between said guide rails, a stem on said block, movable, substantially U-shaped heads, propeller carrying stub shafts extending through said heads, driving shafts to which said stub shafts are articulated, stems on said heads extending through the slots in said tail board, pulleys on said stems and a pulley on the stem of said block, cables guided over said pulleys to the operator's seat for displacing said propellers at an angle laterally to said boat and to one another.

3. In a boat propelling device a pair of brackets secured at their inner ends to the lower part of the stern of the boat, the outer ends of said brackets forked, substantially U-shaped heads movably arranged between the branches of said brackets, collars at the ends of the U-branches of said heads slidably arranged in the space between the prongs of

said forked ends, links pivotally attached at one end to said collars, a sliding bar passing through the stern wall of the boat into the same and pivotally attached to one of said links at its outer end, a means on the inner end of said bar to limit its outward movement, a screw bolt pivotally attached at its outer end to the other, lower of said links and passed through the stern wall of the boat into the same, and a hand wheel on the inner end of said screw bolt to displace and hold said heads at any angle to the boat in the vertical plane.

Signed at New York, in the county of New York and State of New York this 27th day of August A. D. 1931.

GISBERT RANKE.