

No. 658,678.

Patented Sept. 25, 1900.

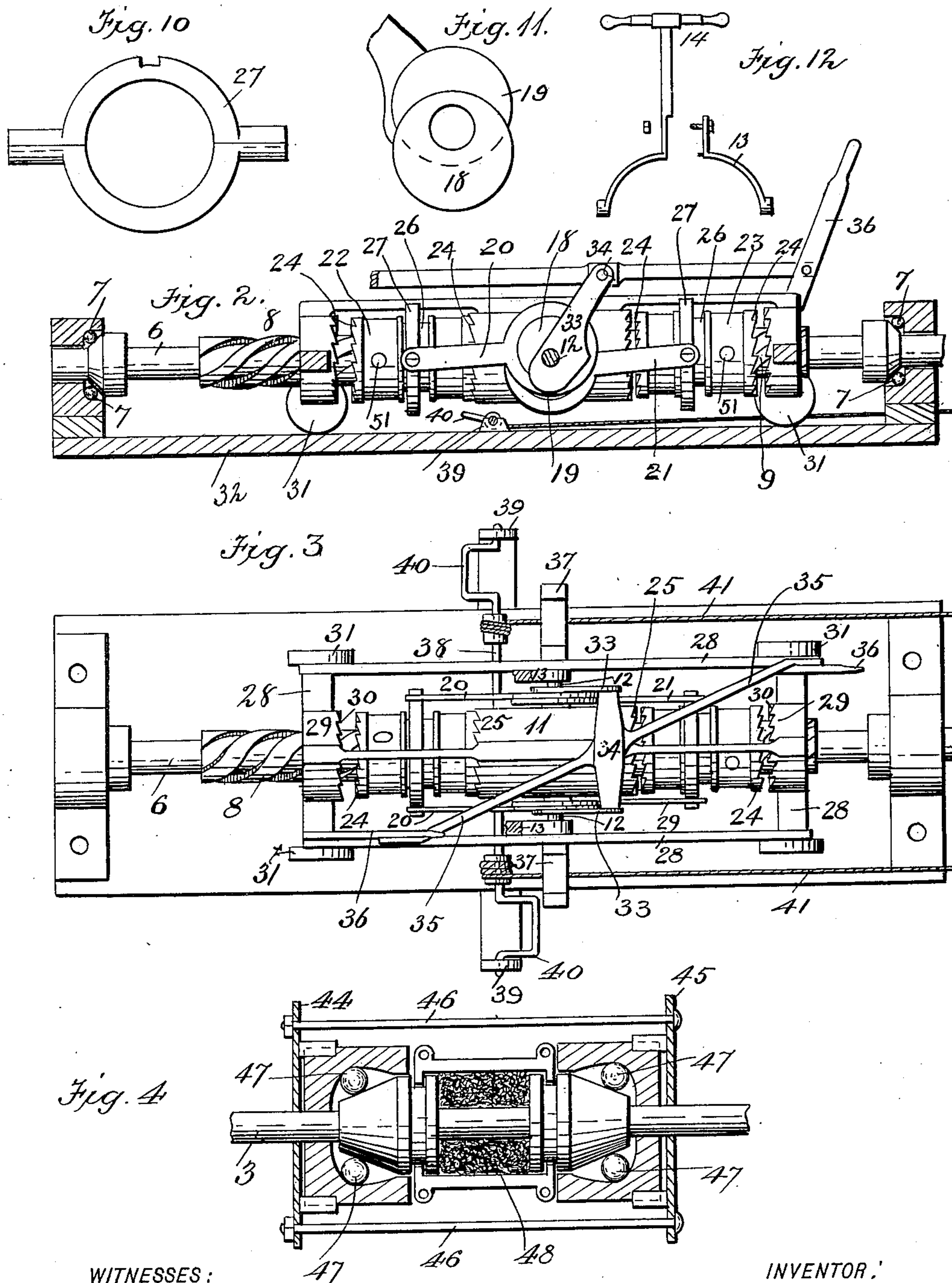
C. T. ROSEBOROUGH.

BOAT PROPELLER.

(Application filed June 8, 1900.)

(No Model.)

3 Sheets—Sheet 2.



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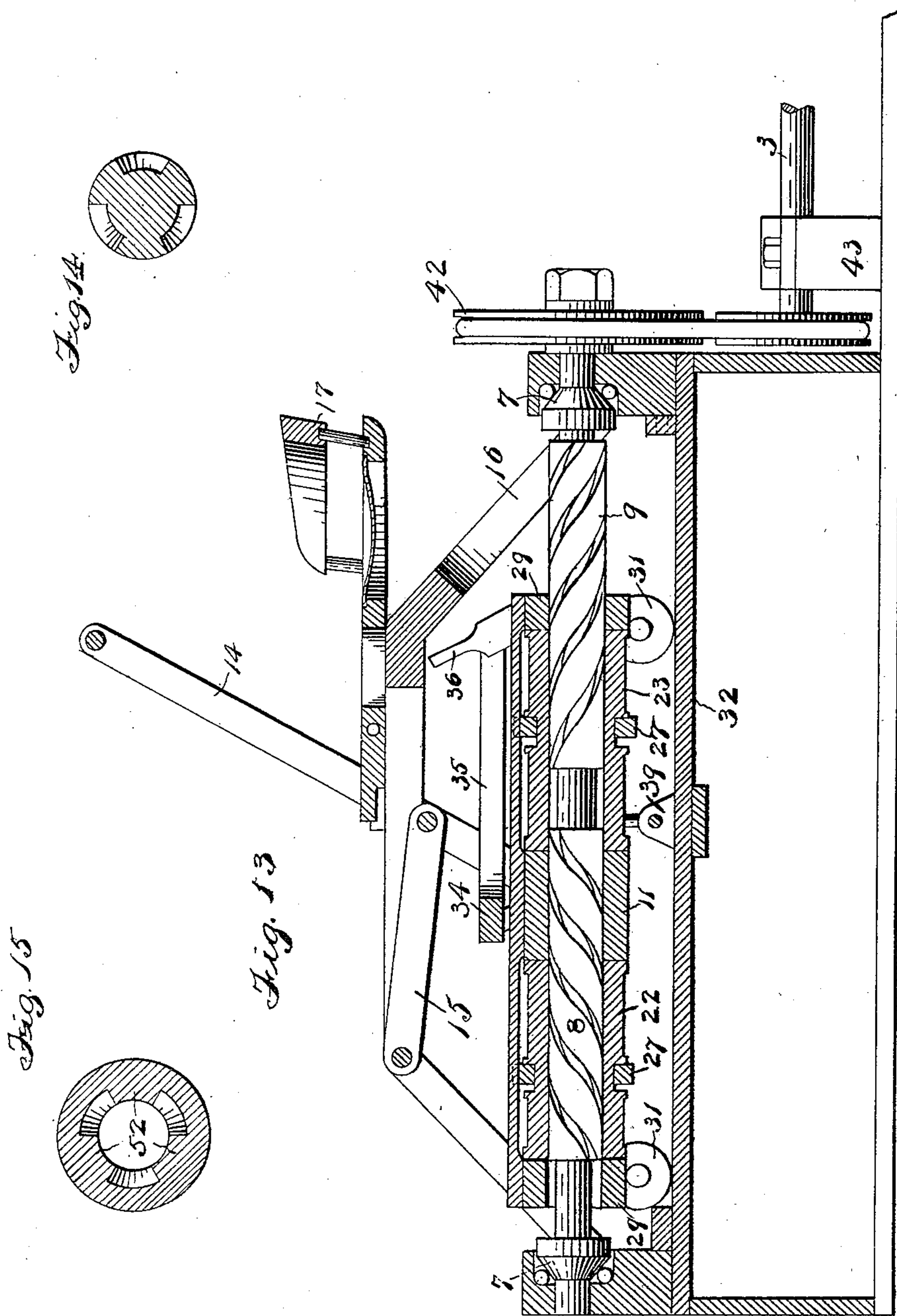
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UNITED STATES PATENT OFFICE.

CHARLES T. ROSEBOROUGH, OF CHICAGO, ILLINOIS.

BOAT-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 658,678, dated September 25, 1900.

Application filed June 8, 1900. Serial No. 19,516. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. ROSEBOROUGH, (whose post-office is 9040 Houston avenue, Chicago, Illinois,) a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Boat-Propellers; and I 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.

My invention relates to certain new and useful improvements in boat propulsion; and it consists of certain novel combinations and construction of parts, as will be hereinafter fully described and claimed.

One object of my invention, among others, is to provide simple and cheap though reliably-efficient means whereby an ordinary row-boat may be quickly propelled or driven through the water at great speed by a single person occupying a position in the rear end of the boat.

A further object is to provide propelling mechanism which will be found useful upon almost any variety of boat, though it is designed primarily for use upon row-boats, as above set forth.

A further object of my invention is to provide means for controlling the rudder at the same time the boat is being driven through the water.

Other objects and advantages will be made fully apparent in the following specification, considered in connection with the accompanying drawings.

It will be understood that in the following specification and the drawings made a part thereof I shall confine myself to a description of the preferred manner of constructing and combining the several parts of my propeller, though I desire to comprehend in this application all such substantial equivalents and substitutes as may be considered to fall fairly within the scope of my invention.

In the accompanying drawings, Figure 1 is a side view of my invention complete, illustrating the driving mechanism and the propeller-blades. Fig. 2 is a side view on a slightly-enlarged scale from that shown in Fig. 1. Fig. 3 is a top plan view of the driv-

ing mechanism. Fig. 4 illustrates the stuffing-box and means for mounting the propeller-shaft upon ball-bearings. Fig. 5 illustrates how the propeller-shaft may be driven by a gear-wheel. Fig. 6 is a detail view of the shaft-driving thimble or barrel. Fig. 7 is a side view of the driving-shaft, whereby power is transmitted to the propeller-shaft. Fig. 8 illustrates in plan view and side elevation the preferred means of connecting the rudder-chains to the rudder-post. Fig. 9 illustrates an end view of one of the actuating-barrels, wherein properly-located pins are provided to follow the threads on the actuating-shaft instead of the ribs or internal threads. Fig. 10 illustrates means for controlling the barrel or thimble shown in Fig. 6. Fig. 11 illustrates the controlling-eccentric, whereby the driving mechanism is reversed at will. Fig. 12 is a detail showing the reversing-lever separated from the other parts. Fig. 13 is a longitudinal central section of the parts illustrated in Figs. 1, 2, and 3, showing the shaft in position to cooperate with the actuating-barrels. Fig. 14 is a cross-section of the actuating-shaft, showing the threads or grooves provided thereon; and Fig. 15 is a cross-section of one of the barrels, illustrating the internal threads carried thereby adapted to cooperate with the grooves upon the shaft shown in Fig. 14.

In order to conveniently refer to the several parts of my invention and the elements deemed necessary to illustrate a practical application thereof to use, numerals will be employed, the same numeral referring to the same part throughout the several views.

It will be understood that any desired proportion may be observed in forming the several parts of my invention, and it is therefore obvious that the propelling mechanism may be very compactly built and disposed in the extreme end of the boat, and thus occupy but little room, inasmuch as the driving mechanism may be practically entirely disposed under the seat of the operator at the stern end of the boat, and while I shall not attempt to set forth the exact or true proportions of the driving and propelling mechanism it will be understood that any preferred proportion for said parts may be adopted to meet the requirements of varying situations.

In illustrating the application of my invention to use, 1 designates the stern of a boat of the usual or any preferred construction, which is provided with the stern-post 2, to which the sides of the boat may be secured in the usual way and through which the propeller-shaft 3 is designed to extend, a suitable stuffing-box, hereinafter referred to, being employed to avoid leakage around said shaft.

Contiguous to the stern-post I erect, preferably in the rear end of the boat, the standards 4 and 5, designed to support in suitable bearings the ends of the actuating-shaft 6, as clearly shown in the several views, it being understood that said shaft, as illustrated in Fig. 13 and other views, is properly mounted in ball-bearings, as indicated by the numeral 7. The shaft 6 is provided at one end with a series of right-handed threads 8 and at the opposite end with left-handed threads 9, while the middle portion of the shaft 10 is left free from threads, said middle portion being designed to accommodate the body-section or central thimble 11, having the trunnions or journals 12, the outer ends of which are suitably connected to the lower ends of the yoke 13, the upper end of said yoke being provided with the operating-handle 14, as clearly shown, the said handle being held in position by being pivotally connected to the inner end of the lever-section 15, the outer end of which is secured to the framework 16. The framework 16 extends downward to the standards 4 and 5 and is designed to carry the seat 17 for the operator, said seat being located adjacent to the handle 14, whereby said handle may be readily grasped by the operator and the central thimble or barrel moved forward or aft, as desired.

The journals 12 have pivotally secured thereto, adjacent to the thimble 11, a pair of oppositely-disposed eccentrics 18 and 19, coöperating, respectively, with the levers 20 and 21. Designed to coöperate with the right-handed threads 8 is the actuating thimble or barrel 22, while designed to coöperate with the left-handed threads 9 upon the opposite end of the shaft is the barrel or thimble 23, both of said barrels being provided at each end with a ratchet-face 24, as clearly shown. It will be observed that the ratchet-faces of the rear thimble are oppositely disposed with respect to the ratchet-faces on the forward thimble, the object being to insure that only one of said thimbles will act positively upon the shaft 6, the other thimble acting merely as an idler, as will be hereinafter more particularly set forth. Both ends of the centrally-disposed thimble are provided with a ratchet-face 25, designed to coöperate with the inner ends of the actuating-barrels, as will be clearly apparent by reference to Fig. 2. Each of the actuating-barrels 22 and 23 is provided centrally with a groove-section or annular recess 26, designed to receive a collar 27, which collar is pivotally connected to one of the levers 20 or 21, as it is by means of said collars

that said levers are adapted to control their respective actuating thimbles or barrels.

By reference to Fig. 3 it will be seen that the framework (indicated by the numeral 28) is provided at each end with the collars 29, designed to loosely receive the threads upon the shaft 6, as it is by means of said collars 29 that the barrels upon the shaft are moved in one direction or the other, as desired, thereby resulting in the actuation of the shaft 6, as will be hereinafter particularly set forth. The inner face of each of the collars 29 is provided with ratchet-teeth 30, designed to coöperate with the ratchets 24 upon the outer ends of the actuating-thimbles 22 and 23 during the operation of my driving mechanism. The framework 28 is provided with suitable carrying-wheels 31, designed to rest upon a suitable track 32, carried by the standards 4 and 5, as clearly set forth in Fig. 1.

The trunnions or journals 12 are mounted in the side sections of the frame 28, as it is by means of said trunnions that said framework and the parts carried thereby are reciprocated during the operation of the machine. Rigidly connected to the eccentrics 18 and 19, which latter are loosely mounted on the journals 12, I secure the reversing-arms 33, which are properly connected together by the cross-section 34, and in order to control said arms I connect to said cross-section 34 the controlling-rods 35, each one of which extends to one end of the framework and is there properly connected to the reversing-lever 36, the latter being pivotally connected to the framework in any desired way. The reversing-lever extends upward ready for being conveniently grasped by the operator, and it is therefore an easy matter to instantly reverse the movement of the shaft 6 by moving one of said levers forward or backward, as the case may be. When one of said levers is, for instance, thrown forward, the position of the eccentrics 18 and 19 will be so changed that the reach of the lever 20 will be increased sufficiently to throw the actuating-thimble 24 forward out of engagement with the clutch-face of the central thimble or barrel 11, thereby causing the outer end of the thimble 24 to engage the clutch-face 30 upon the forward collar 29, thus locking said thimble 22 against rotation, and consequently inducing the rotation of the shaft 6. By throwing the thimble 22 forward into locked engagement with the clutch face 30 upon the forward collar 29 the thimble 23 will be simultaneously acted upon and brought out of engagement with the clutch-face upon the rear collar 29, and thereby permit said thimble 23 to act as an idler, the shaft 6 being wholly controlled by the forward thimble. When, however, it is desired to reverse the movement of the shaft 6, all that is necessary to be done is to throw one of the reversing-levers 36 backward, which will result in bring-

ing the rear thimble 23 into engagement with the clutch-face of the rear collar 29, and thereby lock said thimble against rotation and cause its rear movement through the operation of the controlling-lever 14 to induce the reverse movement of said shaft 6, while at the same time the rear movement of the lever 36 will withdraw the forward end of the thimble 22 out of engagement with the clutch-face 30 upon the forward collar 29, and thereby leave said thimble 22 free as an idler.

It will be seen that the crank-shaft 38 is mounted in suitable bearings 39 and provided with the cranked ends 40, designed to be controlled by the foot of the operator, while upon each side of the movable frame 28 I provide the lateral extensions 37, adapted to afford a support or rest for the foot of the operator, there being one of said extensions on each side of said frame. The extensions 37 in addition to affording a rest for the foot will also enable the operator to apply the force of his feet to the force manually applied to the lever 14, and thereby insure that the movement of the frame 28 will be more easily and efficiently controlled. It will be seen that the rope, chain, or cable 41 is properly connected to the crank-shaft 38 in such a way that the chain, rope, or cable will be wound upon the shaft at one end and simultaneously unwound at the other end. The object in thus disposing the rope, chain, or cable upon the crank-shaft 38 is to insure that the rudder 55 will be placed fully under the control of the operator. On one side the chain will coil under the pulley, and on the other side the chain will coil over the pulley, so by peddling forward or backward the rudder will swing right or left and may be operated by one or both feet of the operator with ease. By the use of side arms attached to the journal 12, extending forward in the boat to two or more levers 14, would enable two, three, or four operators to work levers and use a larger propeller-wheel. It is obvious, therefore, that my improved propelling device may be easily and cheaply adapted by the simple changes and additions suggested so that it will accommodate one, two, or more persons, and thus fit the propeller for use upon boats of larger size.

To the rear end of the shaft 6 I connect the sprocket-wheel 42, designed to cooperate with the sprocket-wheel upon the inner end of the propeller, said propeller-shaft being properly supported in bearings provided in the post 43. A suitable stuffing-box designed to prevent leakage is provided in the stern-post, as more clearly set forth in Fig. 4. A suitable inner plate 44 and an outer plate 45 are provided and are designed to be securely held in place, as by the bolts 46, which extend through the rear wall of the boat, as is usual. The propeller-shaft may also be properly supported by ball-bearings 47, of the usual or any preferred construction, the stuffing-box proper, 48, being preferably located between said bearings, as clearly shown, thereby guard-

ing against all leakage which might otherwise occur around the shaft 3.

It will be understood that the sprocket-wheels 42 and 43 may be replaced, respectively, by the gears 49 and 50, the latter being mounted upon the inner end of the propeller-shaft 3, while the former is secured to the rear end of the shaft 6. The section 10 of the shaft 6, which is left clear of threads, is designed to afford a seat for the reception of the inner thimble 11, thereby permitting said thimble to move in either direction without contacting with the shaft. In Figs. 6 and 9 I have shown removable pins 51, which may be properly located in the barrels 22 and 23, and thus obviate the necessity of providing internal threads upon said barrels adapted to cooperate with the threads 8 and 9. The pins, it is thought, will be found amply sufficient to insure that the thimbles 22 and 23 will be rotated, inasmuch as the inner ends of said pins are designed to extend into the threads upon the shaft 6, and thus induce its rotation when the said thimbles are moved for the purpose of accomplishing this result. If preferred, however, the pins 51 may be entirely dispensed with and internal ribs 52 provided in lieu thereof, as shown in Fig. 15, said ribs 52 being designed to fit in the threads 8 or 9.

Designed to cooperate with the stern-post, which is curved rearwardly, as shown in Fig. 1, is the rudder-support 53, designed to receive in suitable bearings the lower end of the rudder post or shaft 54, to which the rudder 55 is secured in any preferred way. The rudder-post is designed to support in suitable bearings 56 the outer end of the propeller-shaft 3, upon which the propeller-blades 57, of the usual or any preferred construction, are disposed. In order to provide blades or grooves for the propeller-shaft of the most effective pattern, I prefer to expand or broaden the free edges of the blades 57, as indicated by the numeral 58, in order that the blades will more reliably act upon the water through which they pass. To the upper end of the rudder-post 54 I secure the controller 59, having the groove 60, within which is disposed the driving rope or chain 41, it being understood that said chain or rope may be supported at suitable intervals, as by the brackets 61.

In Fig. 10 I have illustrated a detail of one of the controlling-collars 27, wherein it will be seen that said collar is formed in two parts for the obvious purpose of enabling the said collar to be more readily mounted within the groove 26, provided in the barrel with which it is designed to cooperate.

It will be seen by reference to the foregoing specification and the accompanying drawings that I have provided reliable means for enabling a single person to rapidly drive a boat through the water, inasmuch as the power applied is greatly conserved and multiplied. It is further obvious that my actuating mech-

anism may be instantly and easily reversed by the simple movement of the lever. By providing oppositely-disposed threads upon the actuating-shaft 6 the propeller-blades 5 are continuously driven in one direction, although the operating-lever 14 is moved backwardly and forwardly, and said blades will continue to be moved in one direction until the reversing-lever 36 is moved. By providing the rapidly-acting screw-threads 8 and 9 10 I am enabled to apply great power upon the propeller-blades.

Believing that the construction and use of my improved boat-propelling appliance have 15 been made fully apparent from the foregoing specification, further reference to the details thereof is deemed unnecessary.

Having thus fully described my invention, what I claim as new, and desire to secure by 20 Letters Patent, is—

The herein-described boat-propelling appliance comprising the actuating-shaft 6 having oppositely-disposed threads thereon, suit-

able means to support said shaft in its operative position, actuating-thimbles designed to 25 cooperate with the threads upon said shaft, a movable carriage for said thimbles, a central thimble arranged on said shaft between said threads; suitable means to move said carriage and its cooperating barrels and additional means to reverse the movement of 30 said thimbles at will, in combination with propeller blades or screws having a swelled or broadened outer edge and a rudder cooperating with said blades, and means to so 35 connect all of said parts that the boat may be driven forward or reversed at will, all combined substantially as specified and for the purpose set forth.

In testimony whereof I affix my signature 40 in presence of two witnesses.

CHARLES T. ROSEBOROUGH.

Witnesses:

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