

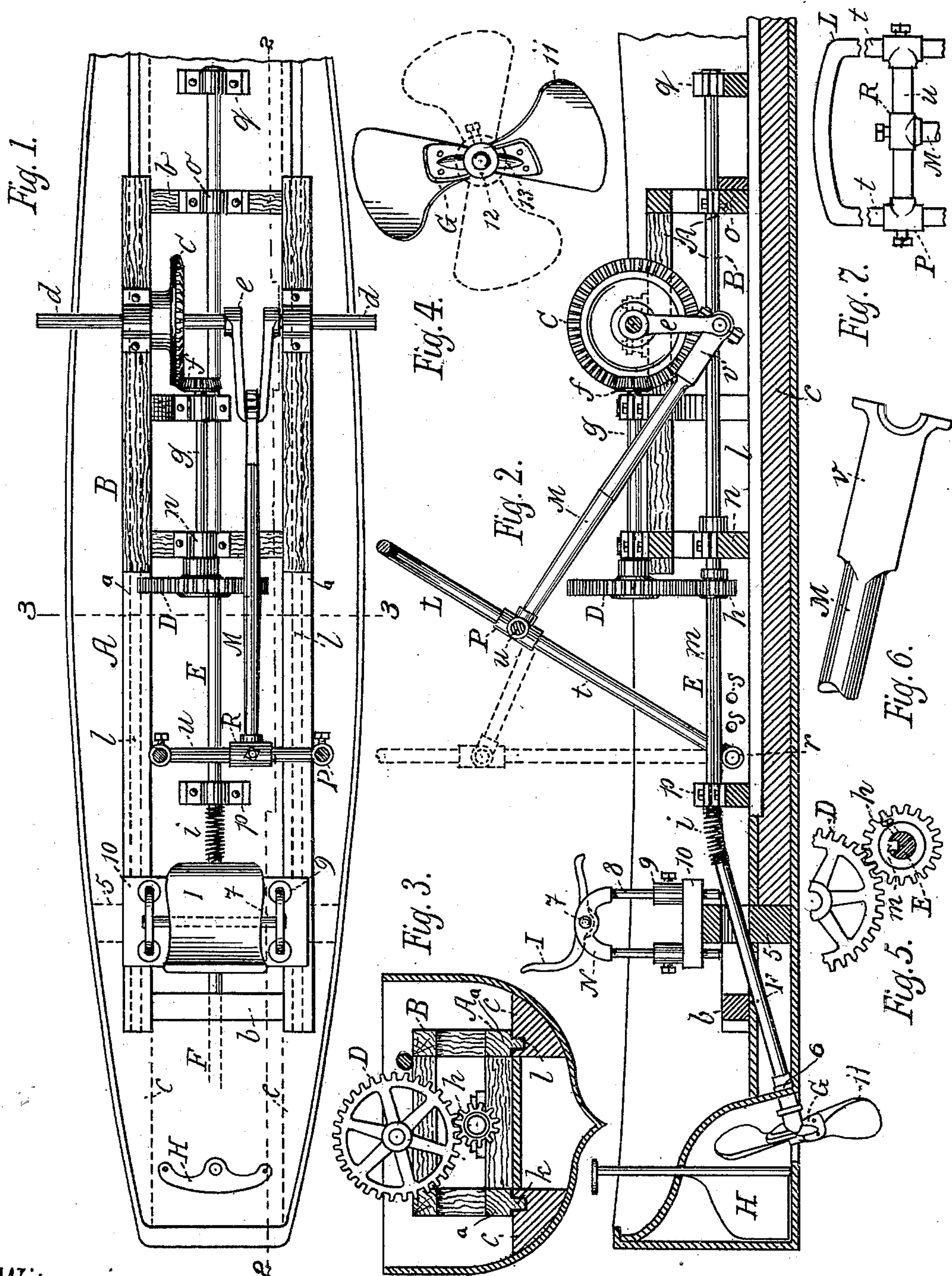
No. 696,703.

Patented Apr. 1, 1902.

I. A. WILSON.
HAND POWER PROPELLER.

(Application filed Apr. 16, 1901.)

(No Model.)



Witnesses:

Ans E. A. Eastlick
Russell D. Schofield

Inventor:

Isaac Albert Wilson
by his Atty. Fred Stetson

UNITED STATES PATENT OFFICE.

ISAAC A. WILSON, OF DETROIT, MICHIGAN.

HAND-POWER PROPELLER.

SPECIFICATION forming part of Letters Patent No. 696,703, dated April 1, 1902.

Application filed April 16, 1901. Serial No. 56,143. (No model.)

To all whom it may concern:

Be it known that I, ISAAC ALBERT WILSON, a subject of the King of England, residing at Detroit, in the county of Wayne, State of Michigan, have invented an Improved Hand-Power Propeller, of which the following is a description.

My invention relates to improvements in hand-power-propeller vessels; and it consists chiefly in the introduction of mechanical parts, constructions, and arrangements of parts fittingly attached to light crafts of the said kind for the purpose of utilizing the physical strength of a person in working the same to the best advantage and to assist in attaining the highest possible speed of such vessels when used in either deep or shallow water.

In the accompanying drawings, Figure 1 represents a top plan view of a portion of a small vessel embodying the features of the present invention. Fig. 2 represents a longitudinal section of the same, taken on line 2 2 of Fig. 1. Fig. 3 represents a transverse sectional view on line 3 3 of Fig. 1. Fig. 4 represents a view in front elevation of the propeller-wheel; and Figs. 5, 6, and 7 represent details, on an enlarged scale, relating to the parts of Figs. 2 and 3.

The vessel as constructed and represented in the accompanying drawings relates to a hand-power-propeller craft of light draft and capable of high speed running by means of an introduced lever which is pivotally attached to a framework and operated by hand-power, the imparted motion of said parts causing the operation of the propelling mechanism.

The mechanical parts to which I refer are preferably arranged upon a framework A, consisting of a pair of parallel side timbers *a a*, connected together at their ends by suitable cross-pieces *b b* for providing a firm structure for supporting a similar but somewhat shorter framework B at a suitable distance above the same, the entire structure resting upon supporting floor-timbers *c c*, situated along the side and near the bottom or keel of the vessel, as will be hereinafter more fully described.

The upper framework B is designed to support a crank-shaft *d*, carrying a beveled gear-

wheel C, rigidly attached to the same, and a crank *e* at a suitable point intermediate its length, the ends of said shaft projecting from the sides of the boat and adapted to be mounted with side wheels when the boat is to be used for running in shallow water, where a propeller-screw would be of little or no use. The aforementioned beveled gear-wheel C is adapted to mesh with a pinion *f*, carried by one end of a counter-shaft *g*, which shaft carries at its opposite end a suitable spur-wheel D, whereby motion may be transmitted to a pinion *h*, keyed to the longitudinally-grooved portion *m* of the main shaft E, thereby rotating the connected propeller-shaft F, which latter rests on supports 5 and 6 in an inclined position and has its upper end coupled to the rear end of the said main shaft by means of a flexible shaft *i*, while the other end of said shaft bears the propeller-screw G, which is preferably closely located in front of the steering apparatus H and reaches down into the water below the bottom-line of the boat.

The under sides of the lower frame-timbers *a a* are provided with tongues *k k* for their entire length, and the said tongues are adapted to rest in grooves *l l* in the supporting floor-timbers *c c* for enabling a sliding motion to be imparted to the frames A and B, the pinion *h* being free to move longitudinally of the main shaft E, in accordance with the movement of the said frames, by virtue of its keyed engagement with the grooved portion *m* of said main shaft. It will be readily seen that a great advantage is attained by permitting a longitudinal movement of the said parts, as it materially assists in balancing the boat or lowering, more or less, the propeller-screw below the surface of the water. Of course I contemplate providing any suitable and desired means for retaining the said parts in a given position during operation of the propeller mechanism.

Arranged vertically upon the lower frame A are suitable supports, as *n o*, which carry the main shaft E and are provided with end-wise-located journal-bearing blocks *p q*, securely retaining the said shaft in position.

Located at a suitable point within the boat is a lever L, which consists of an arched rod or yoke having side bars *t t*, which are each provided with a flattened end *r*, pivotally se-

cured by means of pins passed through eyes in the same and into any of a series of apertures, as *s s*, in the said lower frame-timbers *a a*, in which position the lever may be oscillated by a person occupying a suitable seat, as *I*, behind the lever, the distance between said seat and lever being readily regulated by changing the pins carried by the ends *r* of the lever to any of a series of holes or apertures *s s* in the lower frame-timbers provided for that purpose. About centrally of the length of the side bars *t t* of lever *L* are attached sliding T-shaped sleeve-bearings *P P*, each provided with a set-screw to enable the same to be adjustably secured at any preferred height on said bar *t*, the said bearings *P* serving as supports for a suitable cross-rod *u*, situated between the said bars, as best shown in Figs. 2 and 7 of the drawings. Said cross-rod is also provided with a T-shaped sleeve-bearing *R*, which is free to rotate upon said rod and carries the upper end of a pitman *M*, which at its lower end or cross-head *v* is coupled to crank *e* in the usual manner to revolve the same when the lever is operated. The lower end of said pitman is made comparatively heavy to assist the motion of lever *L* by increasing the momentum of crank *e*, and thereby enabling the same to the more readily pass the dead-center. To increase or decrease the leverage power of lever *L*, the length of stroke thereof is altered by the cross-rod *u* being adjusted vertically of said lever, such movement being permitted by an adjustment of said set-screws of sleeve-bearings *P P*. For instance, should the said cross-rod be moved upwardly the leverage would be decreased and should it be lowered the leverage would be increased. The seat *I* behind the lever is arranged for the accommodation of the person operating said lever and is mounted upon a transversely-arranged rod *7*, which is revolvably mounted in suitable supporting-arches, as *N*, each of which arches is provided with downwardly-extending legs *8*, the said legs being adapted to be supported by being passed through sockets *9*, mounted upon platform *10*. Each of sockets *9* is provided with a set-screw engaging the leg passed therethrough, whereby the said seat may be raised or lowered to accommodate the occupant. The revoluble mounting of rod *7* in its supports permits of a rocking movement of seat *I*, so that the same may follow the occupant in his forward and backward movements during the operation of said lever, the seat being the pivot-point of said movement, whereby the operator is at all times provided with a comfortably-positioned seat.

The propeller-screw *G*, as best seen in Fig. 4 of the drawings, consists of a double or two-blade wheel comprising spirally-formed blades *ii*, which are arranged at suitable angles to each other and are fastened to the flat rear surface of the said screw arising from an axis *12*, and the rounded sides of the

same are strengthened by the ribs *13* to sustain the pressure brought to bear against the same by the reaction of the water behind the blades when they are set in motion.

Although I have specifically set forth one particular embodiment of the present invention, yet I do not wish to be understood as limiting myself to the precise structure specified, but shall feel at liberty to deviate from the minor details thereof within the spirit and scope of my invention.

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

1. A propeller vessel comprising in its construction a hull, parallel side timbers carried thereby and provided with grooves, a framework mounted upon the said timbers adapted to engage such grooves, and means for operating propelling mechanism supported by said framework, the construction and arrangement being such that the said framework may be moved longitudinally of the said side timbers, and carry with it said propeller-operating mechanism substantially as described.

2. A propeller vessel comprising in its construction a hull, parallel side timbers mounted therein and provided with longitudinal grooves a framework slidably mounted upon said timbers, means carried by said framework engaging said grooves, stern and side propeller-operating mechanism mounted upon said framework, and means for operating such mechanism, substantially as described.

3. A propeller vessel comprising in its construction a hull, a framework slidably mounted therein, and means mounted on said framework for simultaneously operating stern-screw and side-propeller mechanism, substantially as described.

4. A propeller vessel comprising in its construction a hull, a framework mounted therein and slidable longitudinally thereof, and hand-operated means carried by said framework for simultaneously actuating stern-screw and side-propeller mechanism, substantially as described.

5. In a hand-operated-propeller vessel, the combination with a hull of a framework slidably mounted within the same, a crank-shaft finding bearings in said framework arranged transversely of the said hull and having its ends extending beyond the sides thereof and adapted to carry side-wheel propellers, a crank interposed intermediate the length of said shaft, hand-operated means for rotating the said crank, and means carried by said crank-shaft for imparting motion to a stern-propeller, substantially as described.

6. In a hand-operated-propeller vessel, the combination with a hull of means for operating a stern-propeller, comprising a framework mounted within said hull, a crank-shaft arranged transversely of the said framework and finding bearings thereon, a crank mounted upon the said shaft, hand-operated means

for rotating the same, a beveled gear-wheel rigidly affixed to said shaft, a counter-shaft extending at right angles to said crank-shaft and carrying a pinion adapted to mesh with the said beveled gear-wheel, a spur-wheel carried by the opposite end of said counter-shaft, a main shaft extending longitudinally of said hull and carrying a pinion adapted to mesh with the said spur-wheel, a shaft extending from the stern of said hull and carrying a screw-propeller at its outer end, and flexible means connecting said propeller-shaft with said main shaft, substantially as described.

7. In a hand-operated-propeller vessel, the combination with a hull, of means for operating a stern-propeller, comprising a framework slidably mounted within said hull, a crank-shaft arranged transversely of said framework and finding bearings thereon, hand-operated means for rotating the same, a beveled gear-wheel affixed to said shaft, a counter-shaft extending at right angles thereto and carrying a pinion adapted to mesh with the said beveled gear-wheel, a spur-wheel carried by said counter-shaft, a main shaft arranged longitudinally of said hull and provided with a groove for a portion of its length, a pinion keyed to said grooved portion and slidable longitudinally of said shaft and adapted to mesh with said spur-wheel, and means for imparting motion from said main shaft to a screw-propeller at the stern of said hull, the construction and arrangement being such that the said framework together with its supported propeller-operating mechanism may be adjusted bodily longitudinally of said hull for raising or lowering the stern thereof, substantially as described.

8. In a hand-operated-propeller vessel, the combination with a hull, of a framework mounted therein, a crank-shaft extending transversely of said framework, means carried by said crank-shaft for imparting motion

simultaneously to stern and side propeller-wheels, a crank mounted upon said shaft, and hand-operated means for rotating the same, comprising a yoke having its ends pivotally secured to said hull and its arched portion extending upwardly therefrom and adapted to serve as a handle, a cross-rod connecting the arms of said yoke, a pitman pivotally secured to said cross-rod and connecting the same with said crank, and means for adjusting said cross-rod longitudinally of said yoke, substantially as described.

9. In a hand-operated-propeller vessel, the combination with the hull, of crank-operated mechanism for imparting motion to stern and side propellers, and means for rotating said crank comprising a yoke having its ends pivotally secured to said hull, means for adjusting said ends longitudinally of the hull, sleeve-bearings carried by the arms of said yoke, means for adjustably securing said sleeves at varying distances longitudinally of said arms, a rod connecting said sleeve-bearings, and a pitman connecting the said rod with said crank, substantially as described.

10. In a hand-operated-propeller vessel, the combination with a hull, of crank-operated mechanism therein for imparting motion to a suitable propeller, and means for rotating said crank, comprising a yoke having its ends pivotally secured to said hull, means for adjusting the ends thereof longitudinally of said hull, a rod connecting the arms of said yoke, means for adjusting the said rod longitudinally thereof, and a pitman pivotally secured to said rod and connecting the same to said crank, substantially as described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ISAAC A. WILSON.

Witnesses:

ALLISON D. OPDYKE,
LEWIS A. DUMAS.