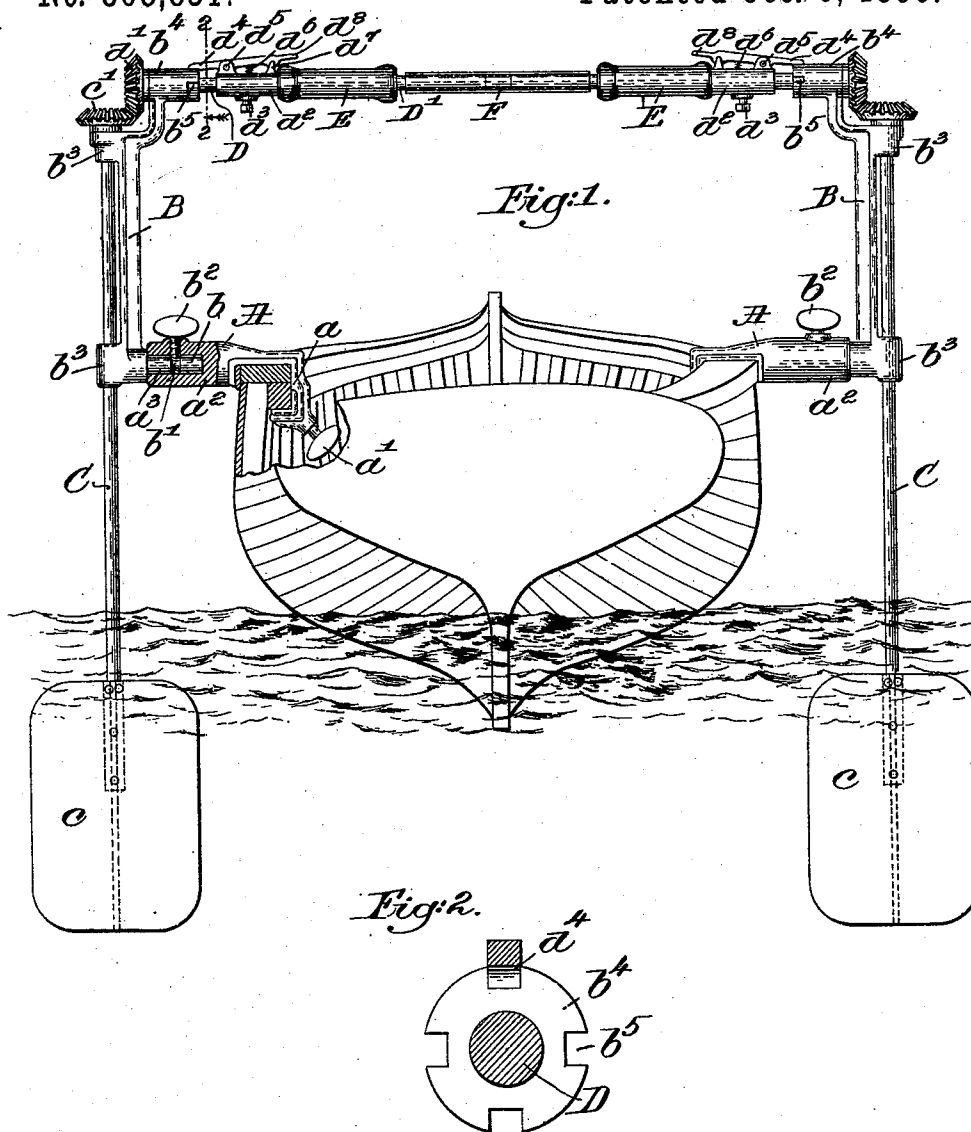


(No Model.)

J. F. BLISS.
PROPELLING APPARATUS FOR BOATS.

No. 568,831.

Patented Oct. 6, 1896.



witnesses.

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UNITED STATES PATENT OFFICE.

JAMES F. BLISS, OF BOSTON, MASSACHUSETTS.

PROPELLING APPARATUS FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 568,831, dated October 6, 1896.

Application filed March 17, 1896. Serial No. 583,535. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. BLISS, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Propelling Apparatus for Boats, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to propelling apparatus for boats, being especially intended for use for hand propulsion of row-boats.

In propelling a row-boat by means of a paddle and also in skilful rowing there is a free, graceful bending of the wrist at each stroke, due to feathering the oar. Accordingly I have invented the present mechanism, which combines this movement with the propelling movement of a paddle somewhat similar to the action of a paddle-wheel striking the water with a backward movement, preferably in the arc of a circle, then feathering or turning the propelling-blade on its edge, and returning it to its initial position to be again quarter-turned flatwise against the water for further propelling movement.

My invention further comprises two blades, which may be operated together or independently, and are carried in fixed adjustment on the boat.

In the accompanying drawings, Figure 1 is a view in elevation of my invention, showing the same applied in operative position to a small row-boat, the propelling apparatus being shown enlarged and partly broken away in order to present the details of construction more clearly; and Fig. 2 shows an enlarged detail in cross-section on line 2 2 of Fig. 1.

In the present embodiment of my invention, A designates an outrigger of any preferred construction, that shown having a jaw *a* to engage the gunwale of the boat, a clamping-screw *a'* to secure the same in desired adjustment, and a projecting arm *a''*, longitudinally perforated, to provide a socket *a'''* for the propelling mechanism to swivel in.

A plurality of propellers are provided, and inasmuch as they are all substantially alike a description of one will suffice for all.

The bracket B, having a reduced spindle *b*, preferably grooved, as at *b'*, or otherwise formed for loose engagement with the secur-

ing means, as the thumb-screw *b''*, is provided with suitable bearings *b''' b''''*, disposed at an angle relatively to each other. The bearings *b'''* carry the upright propelling shaft or rod C, loosely journaled therein, provided at its lower end with a suitable blade *c* and at its upper end with a bevel-gear or other operating means *c'*. Similarly journaled in the bearings *b''''* is the hand member or shaft D of the propeller, having at its outer end a suitable actuating means *d'* for cooperating with the member *c'*, such means being herein shown as a bevel-gear meshing with the gear *c'*.

Suitably mounted on the shaft D, as by means of the sleeve *d''* and set-screw *d'''*, is the dog *d''''*, pivoted at *d'''''* and preferably spring-pressed, as at *d''''''*, so as normally to engage one of the notches *b''''''*, radially disposed in the periphery of the journal-bearing *b''''*. The dog *d''''* is inwardly extended, preferably between lateral stops *d''''''*, and provided with a finger-hold *d''''''*, adjacent the handle E.

The construction thus far described permits of the independent operation of the propellers. In order that opposite pairs of propellers may be operated together, I have provided a projection or extension D' for the shaft D, which may be integral with said shaft or additional thereto, as preferred, and have connected these extensions D' to move in unison by suitable connecting means, as by the sleeve F, this construction also accommodating the propellers for adjustment to boats of different widths.

The operation of my invention is as follows: Having properly adjusted the propellers relatively to the seats and according to the length of stroke desired, the rower or rowers seat themselves facing the stern of the boat and, grasping the handles E, pull vigorously backward. This movement swings the brackets B and rods C on the spindles *b* as pivots, forcing the blades *c* down through the water somewhat after the manner of a paddle. Having reached the end of the stroke, the operators, still firmly grasping the handles E, disengage the dogs *d''''* from the notches *b''''''* and flex the wrists, as in feathering an oar in rowing, this motion serving to slightly rotate the shafts D and, through the gearing *d' c'*, to turn the blades *c* edgewise or parallel to the length of the boat and direction of propul-

sion, so that the return movement of the propellers is easily accomplished without any retarding tendency, the blades simply cutting through the water. Having returned
 5 the blades to their original raised or forward position, the wrists are again flexed back to their natural positions, restoring the blades to their transverse propelling positions, and the dogs d^1 are released, thereby immediately interlocking with the notches b^5 as before, and
 10 the pulling movement is again repeated.

The interlocking feature herein shown as accomplished by means of the dog d^1 and notches b^5 may be omitted, if preferred, the
 15 blades being then constantly maintained in their required relative positions by means of the skill and strength of the operator or operators. Also for some purposes it may be preferred to give a different dip or angle of impact to the blades c , and to accommodate this
 20 the relative angles of the shafts C D will be changed in an obvious manner or the shaft C may be bent angularly, as desired, below the bearing b^3 . In order to vary the dip of the
 25 blades, I make the shaft C extensible, telescopically or otherwise.

Many other changes and modifications may be made within the spirit and scope of my invention.

30 What I claim is—

1. The combination with an outrigger, having a socket therein, of a bracket, provided with a spindle adapted to be loosely secured

in said socket, a shaft mounted in said bracket and carrying a propelling-blade, a second shaft also mounted in said bracket, and connections between said shafts, whereby movement of one causes movement of the other, substantially as described. 35

2. In a propelling mechanism of the kind herein described, a shaft, a suitable journal-bearing therefor, engaging surfaces provided on said bearing, a dog carried by said shaft to cooperate with said engaging surfaces, and connections between said shaft and a propelling-blade, substantially as and for the purpose described. 40 45

3. The combination with an outrigger, of a bracket, a socket in one and a spindle on the other, said spindle being adapted to be loosely secured in said socket, a shaft mounted in said bracket and carrying a propelling-blade, a second shaft also mounted in said bracket, connections between said shafts, whereby movement of the latter causes movement of the former, and means to lock the said latter against rotary movement, substantially as described. 50 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES F. BLISS.

Witnesses:

JOHN C. EDWARDS,
 GEO. H. MAXWELL.