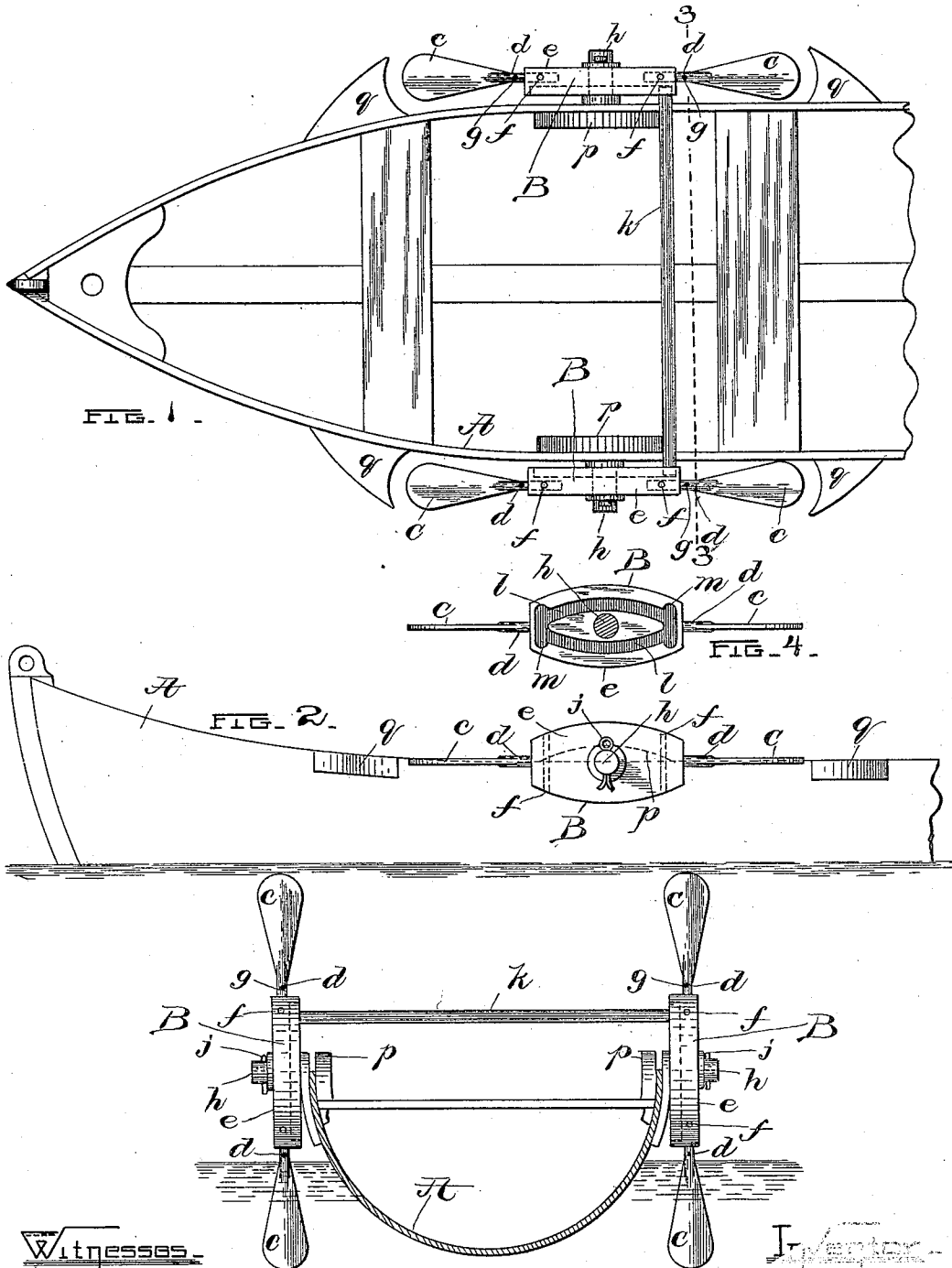


(No Model.)

J. F. BLISS.
BOAT PROPELLING DEVICE.

No. 511,748.

Patented Jan. 2, 1894.



Witnesses

Arthur F. Randall,
Robert Wallace.

FIG. 3.

James S. Bliss
by Mark S. Bliss
Attorneys

UNITED STATES PATENT OFFICE.

JAMES F. BLISS, OF BOSTON, MASSACHUSETTS.

BOAT-PROPELLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 511,748, dated January 2, 1894.

Application filed December 28, 1892. Serial No. 456,596. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. BLISS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Boat-Propelling Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object an improved device for propelling boats and it consists in a rotary paddle and means for rotating the same, all constructed and arranged as herein-after set forth.

The novel features of my device are pointed out in the claims which are appended hereto and made a part hereof.

I have shown my invention embodied in the best form now known to me in the accompanying drawings, in which—

Figure 1 is a plan view of a boat partially broken away with my device applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a section on line 3—3 Fig. 1 but showing the paddles in vertical position. Fig. 4 is a side view of a paddle detached showing the grooves on the inner face thereof.

The invention is simple and will be readily understood from the following description in which reference is made to the accompanying drawings.

A represents a boat which may be of any size, although my device is more particularly intended to be applied to boats of such size as are ordinarily propelled by oars.

B represents the rotary paddle which consists of a central or body portion, on each end of which is placed a blade *c*. The precise shape of the blade *c* is unimportant, but I prefer to make it of substantially the shape shown. The blade is preferably provided with a shank portion *d* which is set in a socket in the end of the body or part *e*. For convenience in securing the blade in the socket I provide a pin *f* although any other well-known means of securing the blade in position may be employed. It is not essential that the blade should be detachable, and it may be made integral with the body portion. I prefer, however, to make it detachable in order that it may be adjusted, that is, the paddle may be lengthened or shortened by withdrawing the

securing pin *f* and moving the blade farther out of its socket or shoving it farther into the socket and placing the pin *f* in another one of the holes *g*, which are provided in the shank of the blade. This arrangement is convenient because if the boat be heavily loaded it will sit lower in the water and the paddles will not require to be so long whereas if the boat be lightly loaded the paddles may be required to be lengthened to take the water properly. The central portion of the paddle *e* is set on a pin or stud *h* which is secured on the side of the boat in any convenient manner. The outer end of the pin is preferably provided with a securing-pin *j*. By withdrawing this pin the paddle may be readily unshipped when desired. For the purpose of rotating the paddle the central portion thereof is provided with a cross-bar *k* which may be of any suitable material and which extends across the boat to the paddle on the opposite side thereof. The ends of the cross-bar are set in grooves *l* in the body portions of the paddles and are free to slide from end to end of these grooves. At the ends of the grooves, recesses *m* are provided in which the ends of the cross-bar are received when a stroke is being made. These prevent the slipping of the cross-bar with reference to the paddles. At the end of a stroke the paddles are in a horizontal position. The cross-bar is then either pushed or drawn to the other end of the grooves *l* in the body portion of the paddle. When the bar has reached the other end of the grooves it is raised slightly to throw it into the recess *m* and is then in position for another stroke. During a stroke the bar describes a half circle. To aid in moving the bar backwardly after a stroke has been taken, into position to take another stroke, guide blocks *p* are secured on the sides of the boat in any suitable manner. These guide blocks correspond to the curve of the grooves *l* and the cross-bar in its return movement may be slid along on top of these guides.

By the use of my device as many men as the width of the boat will accommodate may work on one cross-bar and they will work in unison. They may also sit facing the direction in which the boat is moving, if that is desired. The projecting blades of the ordinary form of oars are also avoided, and by constructing the boat

as shown Fig. 1 with a fender plate or series of plates *q* secured to the gunwale or sides of the boat the boat may be run alongside a wharf or another boat without danger of carrying away the paddles or damaging them.

What I claim is—

1. The combination with a pair of rotary paddles, of the actuating cross-bar *k* between them, the ends of the said cross-bar being engaged with the said paddles with capacity to slide along the latter from one side to the other of the pivots of the paddles, substantially as described.

2. A boat propelling device embracing two rotary paddles, one for each side of the boat, each of said paddles consisting of a grooved body portion provided with adjustable blades and means for rotating said paddles, consisting of a cross-bar engaging the grooved portions substantially as set forth.

3. A boat propelling device consisting of rotary paddles provided with grooves and a co-

operating cross-bar *k*, the ends of said cross-bar being arranged to slide in said grooves, substantially as set forth.

4. In a boat propelling device the combination with a pair of rotary paddles having grooved body portions of a cross-bar engaging with said grooved portions for operating the paddles and the guide blocks *p*, substantially as set forth.

5. In a boat propelling device the combination of a rotary paddle consisting of a body portion provided with oppositely extending blades and having grooves therein with recesses at the ends thereof and an operating bar *k* engaging said paddle in said grooves, substantially as set forth.

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

JAMES F. BLISS.

Witnesses:

WM. A. MACLEOD,
ROBT. WALLACE.