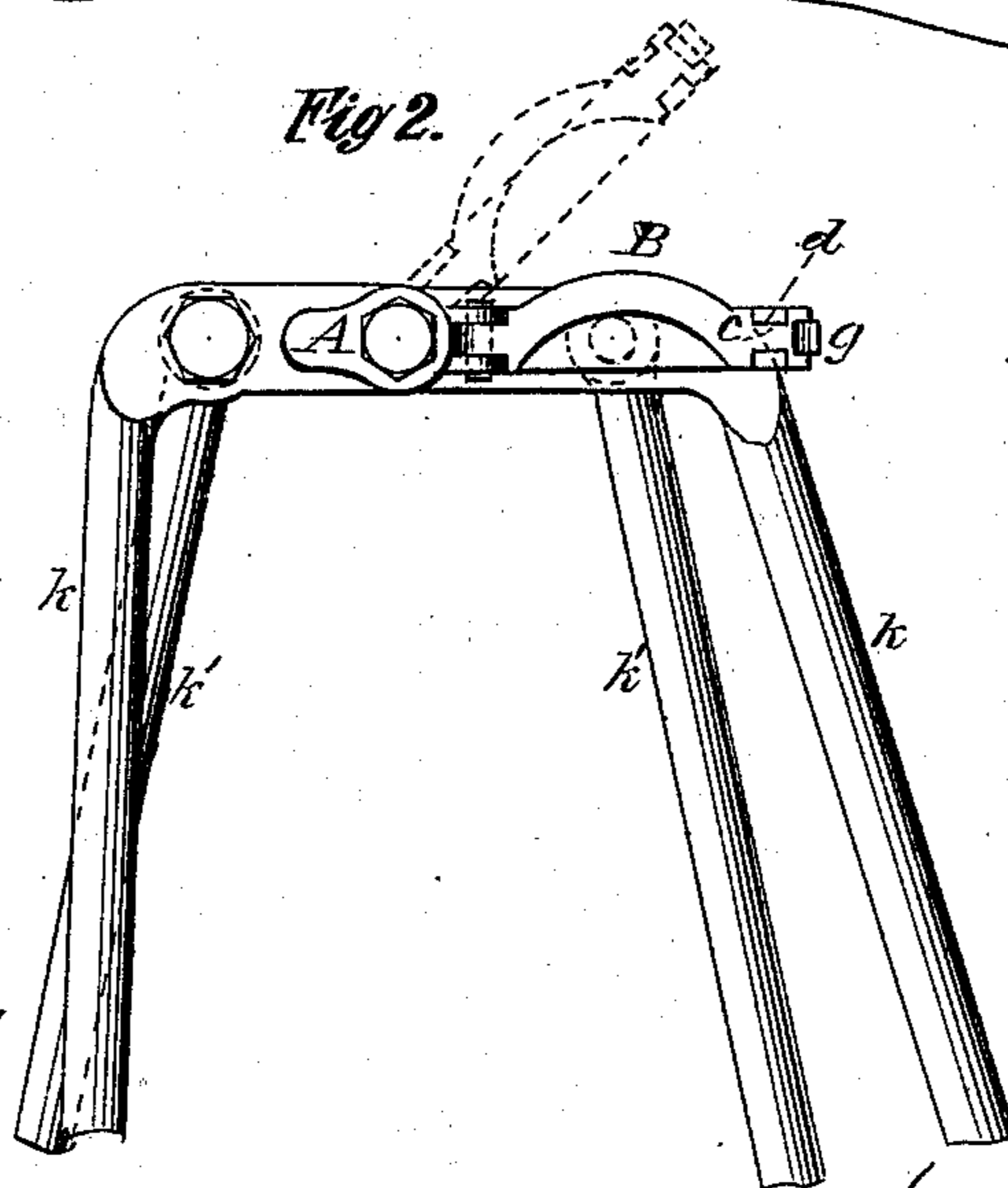
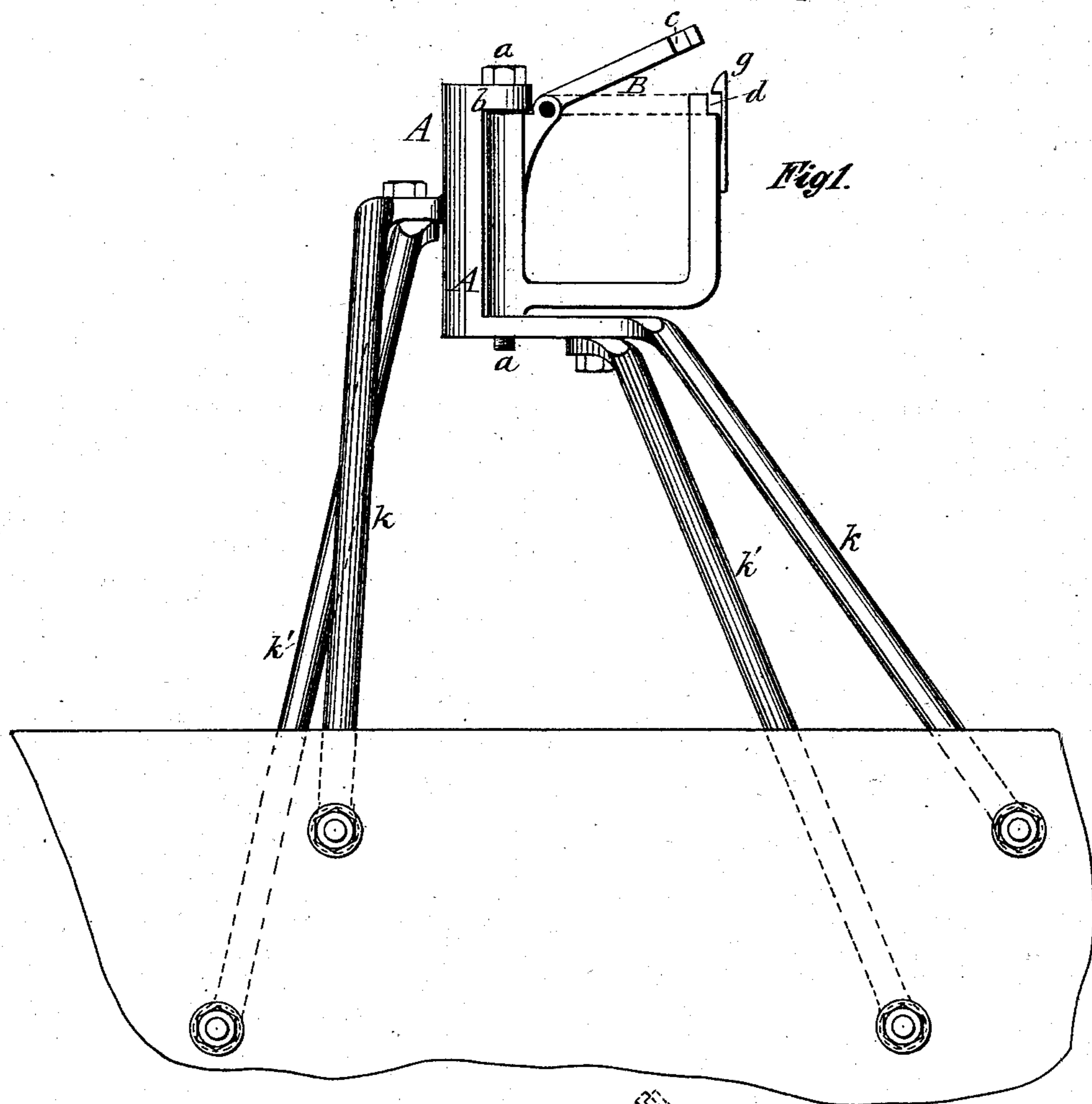


R. ROBERTS & J. L. KNIGHT.
 Outrigger and Rowlock for Boats.

No. 207,070.

Patented Aug. 13, 1878.



Witnesses:

Chas. M. Higgins,
 Wm. B. Smith.

Inventor.

Robert Roberts

J. L. Knight

by J. H. Wales & Son
 attorneys

UNITED STATES PATENT OFFICE.

ROBERT ROBERTS AND JOHN L. KNIGHT, OF NEW YORK, N. Y.

IMPROVEMENT IN OUTRIGGERS AND ROWLOCKS FOR BOATS.

Specification forming part of Letters Patent No. **207,070**, dated August 13, 1878; application filed July 5, 1878.

To all whom it may concern:

Be it known that we, ROBERT ROBERTS and JOHN L. KNIGHT, both of New York city, in the State of New York, have invented an Improved Outrigger and Rowlock for Racing-Shells, of which the following is a specification:

The main aim of our invention is to obtain greater strength and security in the rowlock portion of the outrigger, so as to prevent the springing or breaking of the rowlock under the stress of the oar, and to avoid the accidental unshipment of the oar while in action; and to this end our invention may be briefly stated to consist in constructing the end of the outrigger with an upright extension, formed solidly with the outrigger, rising parallel, or nearly so, with the pintle of the rowlock, and arranged to additionally support the upper end of the said pintle, while the arms or braces of the outrigger on the forward side are arranged to extend laterally from the said upright extension at or about the vertical center thereof, so as to give effective support to the rowlock-pintle at the top as well as the bottom, and to brace or stiffen the rowlock at the most effective or central position, which forms the center of resistance or fulcrum-point of the oar.

In the annexed drawing, Figure 1 presents a view of our invention as taken from within the boat and above the same. Fig. 2 is a direct plan view of the rowlock and extreme end of the outrigger.

In racing-shells it is of great importance that the outrigger and rowlock be not only quite light, but exceedingly strong and rigid, for any springing of the rowlock of course seriously detracts from the effectiveness of each stroke of the oar, and reduces the speed of the boat, while a breakage in the rowlock, and consequent unshipment of the oar, would cause the rower to lose entire control of the boat, and be precipitated into the water, which, of course, forms a severe disaster to the rower, which not only results in his losing the race, but gives his system a dangerous shock by contact with the cold water while in a high state of perspiration.

Now, as the outrigger and rowlock is usually constructed, the arms of the outrigger, which project from the gunwale of the boat, are extended uniformly from each side of the

rowlock at about the same elevation, while the pintle-support of the rowlock is formed separately from the outrigger, and is secured thereto at its lower end only by a small screw stem and nut. This connection is found to be quite yielding and weak, as the point of resistance or fulcrum of the oar in the rowlock is considerably above the point of attachment of the rowlock, and the resistance thus acts with considerable leverage to bend and open the rowlock, thus causing a serious loss in the force of each stroke, and not unfrequently in the breaking of the attached end of the rowlock, and a resulting disaster to the rower.

Now, in our invention, we construct the projecting end of the outrigger, where the arms *k k'* of the outrigger converge to sustain the rowlock, with an upright extension, *A*, formed solidly with the outrigger, and which rises on one side of the rowlock, and about parallel with the rowlock-pintle *a*, as seen in Fig. 1. The upper extremity of the extension *A* has a lateral lug, *b*, which sustains the upper end of the pintle *a*, the pintle being extended through the lug and through the rowlock, and its lower end firmly screwed into the plate of the outrigger at the base of the rowlock, as shown. It will thus be seen that the pintle *a*, in which the rowlock swings, is thus firmly supported both at top and bottom, and the supporting-extension *A* being formed solid with the outrigger, great strength and rigidity are thus imparted to the rowlock.

A still further and very important feature of the construction is that the arms or braces *k k'* of the outrigger, which extend from the rowlock at divergent angles to the sides of the boat, are, on the forward side of the outrigger, extended laterally from the upright extension *A* at or about the vertical center thereof, instead of being extended from the base of the rowlock on the same level at each side thereof, as is usual. This arrangement, as will be observed, disposes the center of strength and stiffness at the vertical center of the rowlock, which forms the center of resistance or fulcrum-point of the oar, and, as will be understood, imparts such superior strength and rigidity to the rowlock as to effectually prevent its breaking or springing under the stress of the oar, and thus enables the full effect of the

stroke to be utilized, and hence increases the speed of the boat and insures the safety of the rower.

The outrigger is preferably forged from fine steel, as usual, and two of the braces of the outrigger, one on each side, are preferably formed separate, as shown at *k'* in Fig. 1, and secured to the rowlock end by small bolts, as shown. The arms of the outrigger may be extended laterally from the top of the upright *A*, but their central position, as shown, is preferable; or one of the arms, *k*, may be extended from the top, and the other, *k'*, be extended from about the center of the upright.

The remaining feature of our invention relates to the construction of the locking cross-bar or arch of the rowlock which incloses the oar. This, as shown at *B* in Figs. 1 and 2, is hinged or pivoted to one side of the rowlock on a horizontal pin, so as to have a vertical swing, and its free end is formed similar to a dovetail tenon, *c*, which is adapted to engage with a corresponding socket or dovetail mortise, *d*, or what is equivalent thereto, on the opposite side of the rowlock, and also with a spring-latch, *g*, fixed to the rowlock over the entrance of the socket, the hooked head of which springs over the tenoned end of the bar when it fully enters the socket. This con-

struction, as will be seen, is quite simple and very secure, as it braces both sides of the rowlock firmly together, so as to prevent the spreading of the same during action, while it admits of the oar being removed only by intention, and then quite readily, as will be observed.

What we claim as our invention is—

1. An outrigger for racing-shells having its projecting end formed with the upright extension *A*, which braces the rowlock, and having its arms *k k'* extended laterally from the said upright at or about the vertical center thereof, substantially as and for the purpose set forth.

2. An outrigger having its rowlock end constructed with an upright extension, *A*, formed solid and integral with the outrigger, rising parallel or nearly so with the rowlock-pintle, and arranged to rigidly support the said pintle at the top, in addition to a further rigid support at the lower end in the plate of the outrigger, at the base of the upright, substantially as herein shown and described.

ROBERT ROBERTS.

JOHN L. KNIGHT.

Witnesses:

S. H. WALES,

CHAS. M. HIGGINS.