

M. F. DAVIS.  
Outrigger-Boat.

No. 209,960.

Patented Nov. 19, 1878.

Fig 1

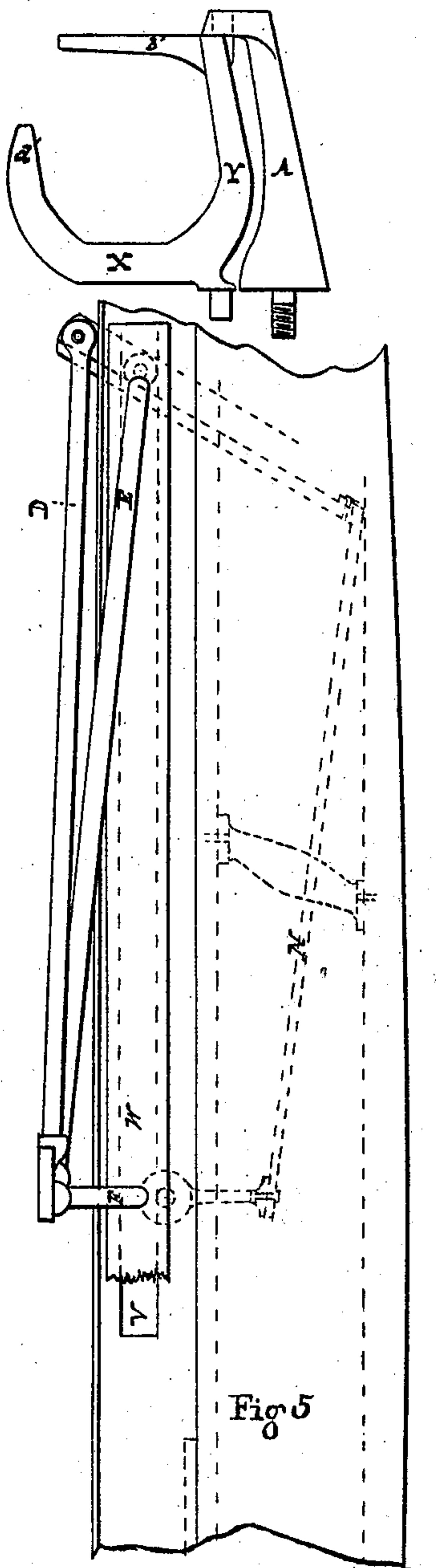


Fig 2

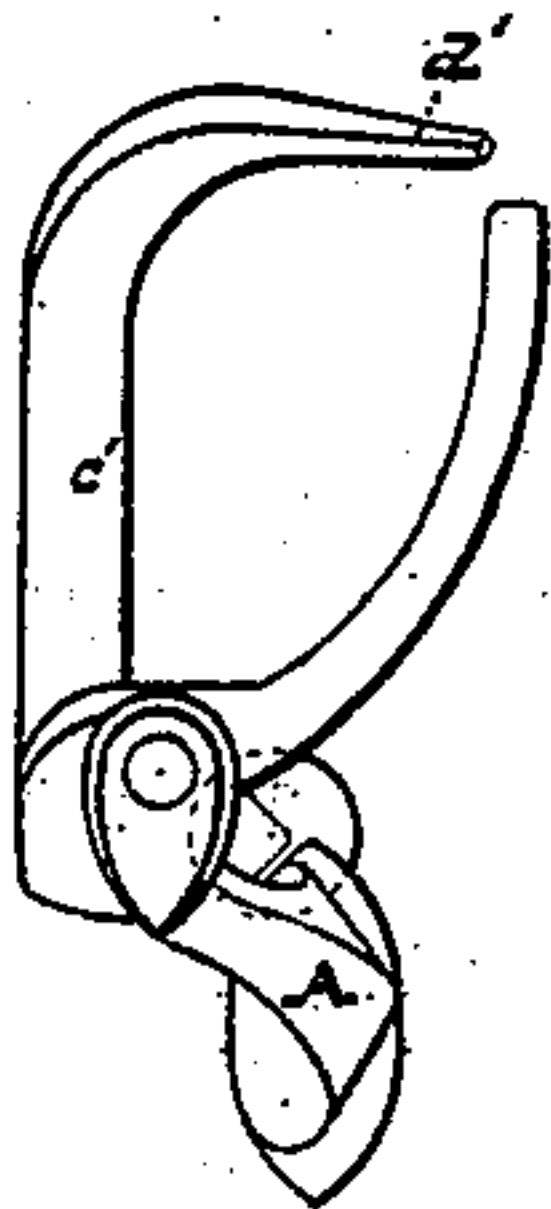


Fig 3

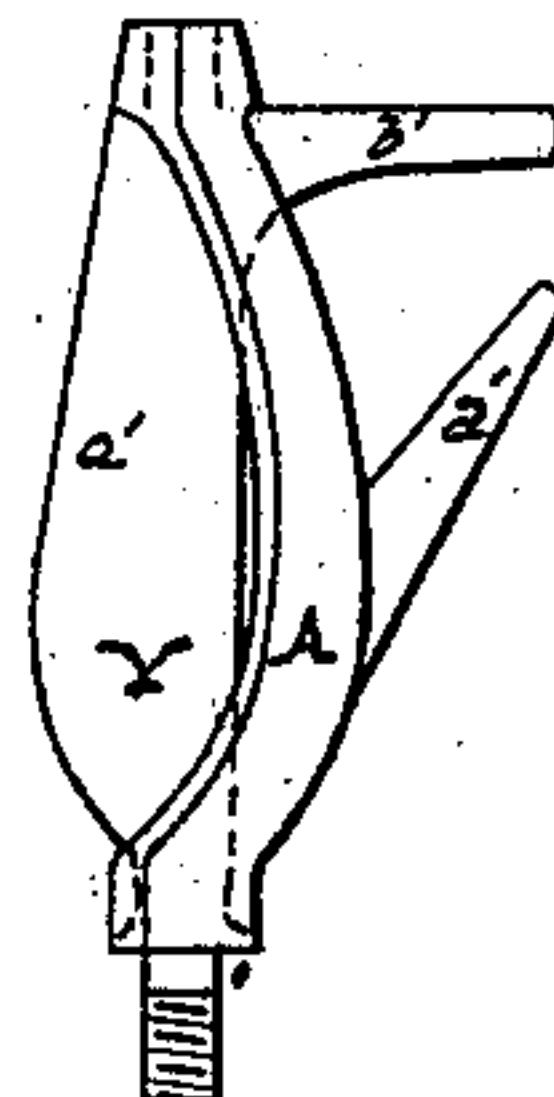


Fig 4

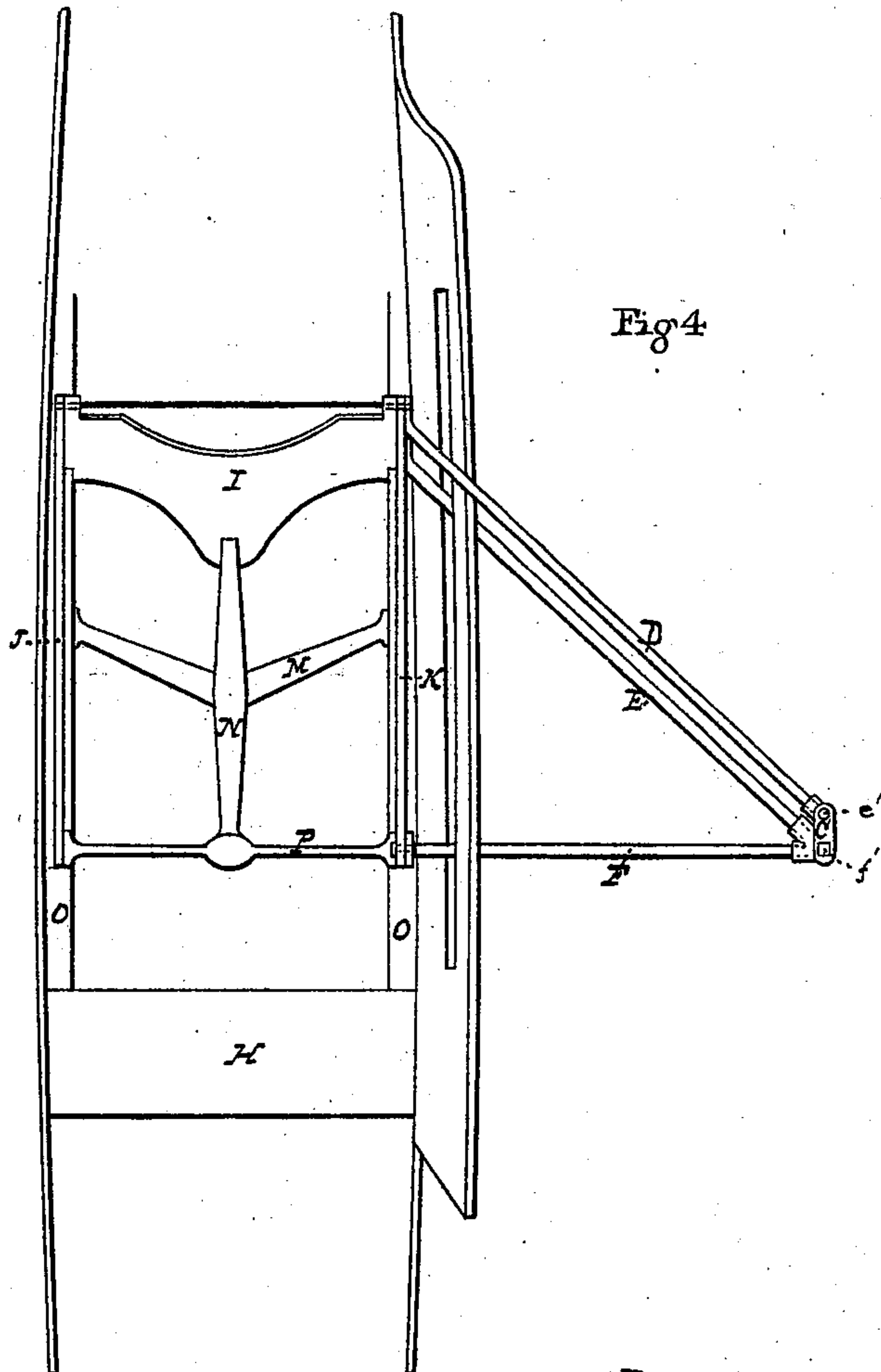


Fig 5

Witness  
J. H. Snow  
J. E. Bird.

Inventor  
Michael F. Davis

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Fig 6

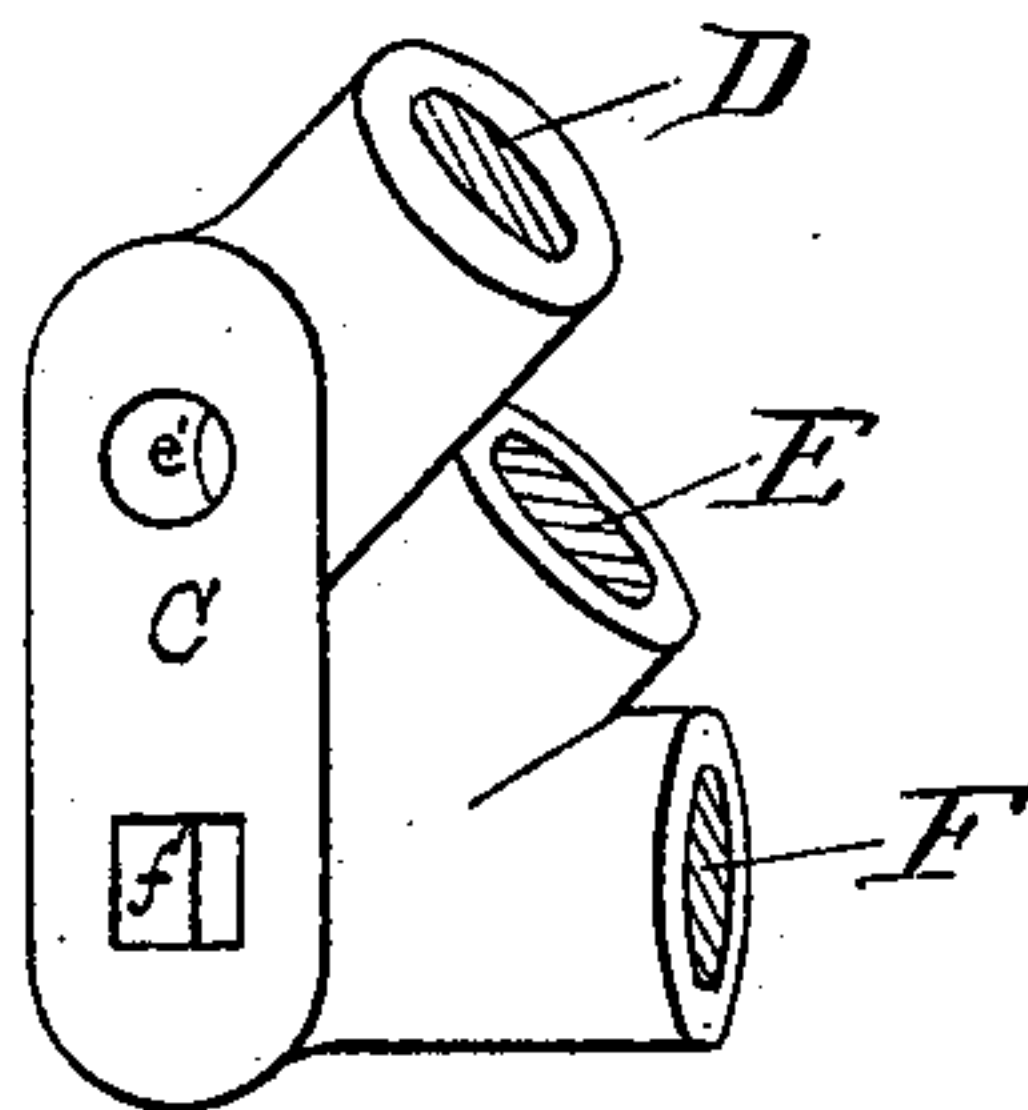


Fig 7

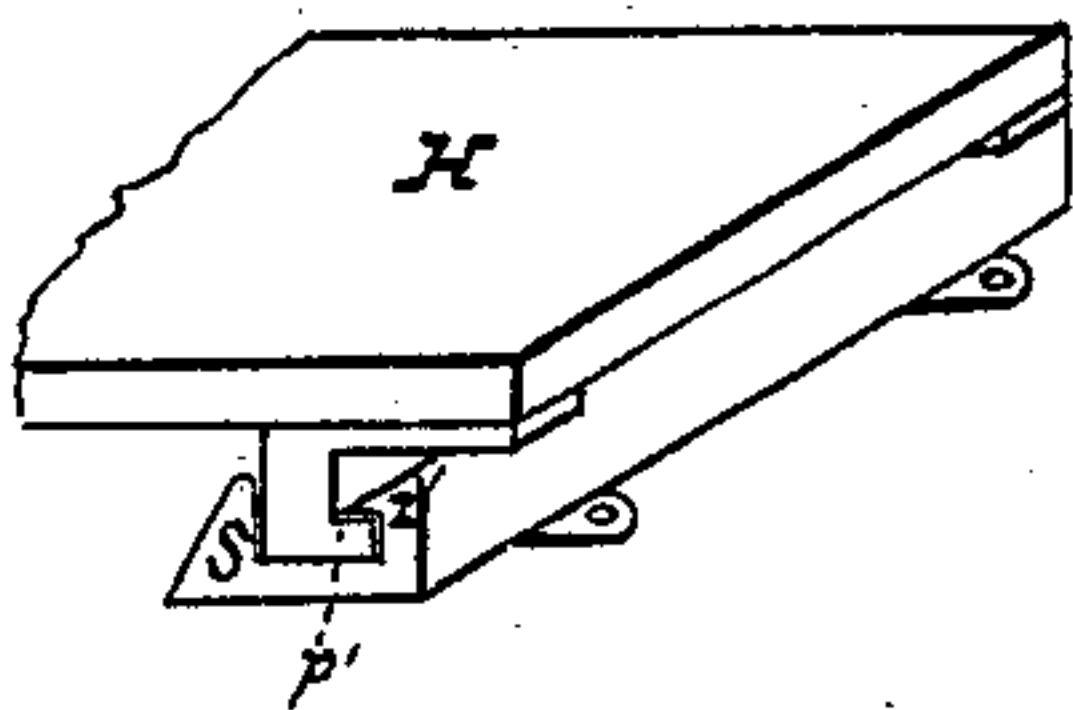


Fig 9

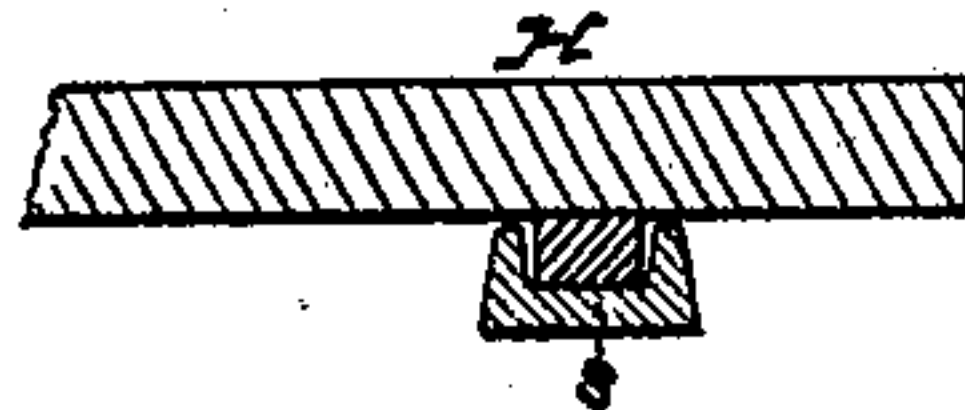


Fig 8

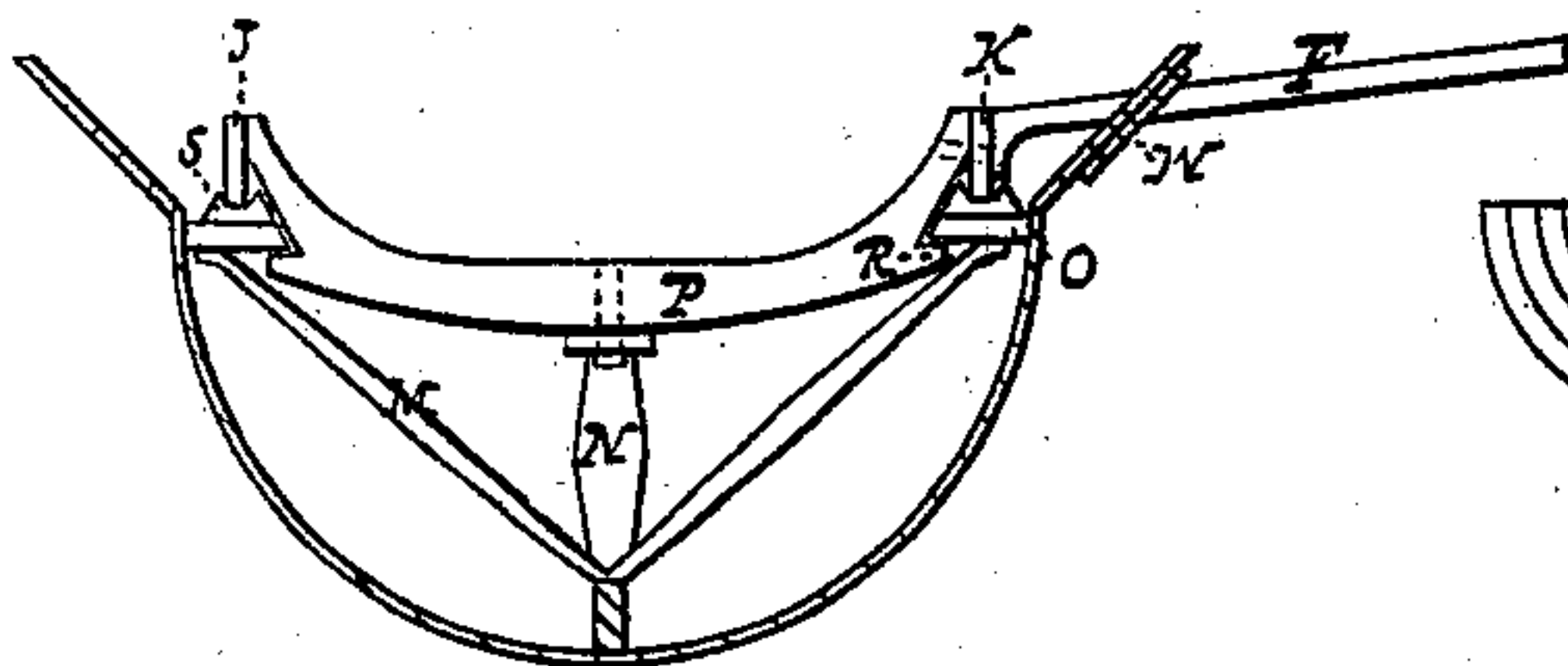


Fig 10



Witnesses  
T. J. Snow  
D. C. Bird.

Inventor  
Michael F. Davis



# UNITED STATES PATENT OFFICE.

MICHAEL F. DAVIS, OF PORTLAND, MAINE.

## IMPROVEMENT IN OUTRIGGER-BOATS.

Specification forming part of Letters Patent No. **209,960**, dated November 19, 1878; application filed April 4, 1877.

*To all whom it may concern:*

Be it known that I, MICHAEL F. DAVIS, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Boats; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view of the rowlock. Fig. 2 is a top plan of the same, and Fig. 3 an end view. Fig. 4 is a top plan of the boat, showing the seat, foot-board, and outriggers. Fig. 5 is a side elevation of the same portion of the boat. Fig. 6 is top plan of the piece C; Fig. 7, a perspective view of a sliding-seat runner and track; Fig. 8, a section of the boat, showing the brace P; Fig. 9 a transverse section of the slide and track; Fig. 10, a representation of the form of transverse sections of the boat, taken in various positions.

My invention relates more particularly to that class of boats known as "racing-boats" or "shells."

It consists of an improvement in the construction of the rowlock and outriggers, and of an improved slide or track for the sliding seat.

My improved rowlock is shown in Figs. 1, 2, and 3. It consists of a pin or standard, A, which is rigidly attached to the outrigger or gunwale, and of the swinging rowlock proper, which is pivoted at the top in the journal of the pin A, and at the bottom in the outrigger or gunwale. The standard A has an outward curvature, as seen in Fig. 3, the office of which is to receive the button of the oar, and thus lessen its friction and prevent binding when the oar is at the finish of the stroke, or parallel with the boat. The rowlock proper consists of the upright Y, the offset-arm  $b'$ , and the sill X, with its arm  $d'$ . The upright Y is constructed with an inward curvature or convexity, as shown in Fig. 3, for the purpose of allowing the button, when the oar is assuming a perpendicular, or nearly perpendicular, position, to slide up without friction over the top of the standard or pin, and also to lessen the friction of the button against the upright when

the oar is rotated. The sill X has an inset at  $c'$ , which should be, in regard to depth, in inverse proportion to the offset of the arm  $b'$ , for the purpose of allowing the oar to assume the position last indicated, so necessary in turning the boat, and also to relieve strain upon the arm  $b'$ . When the arm  $d'$  is made vertical, the oar, when held in the perpendicular position, above alluded to, required in turning the boat, is liable to slip up and be caught and held upon the point alone. In such position it can be maintained only at the cost of great exertion of the oarsman and strain upon the wrist. To obviate this difficulty, I turn the arm  $d'$  outward at an angle of about forty-five degrees, as seen in Figs. 3 and 2, thus enabling the arm  $d'$  to present a supporting-surface to the whole back of the oar at nearly right angles with its length.

The form of outrigger most common in use consists of two braces running forward from the rowlock and two running aft. My improved outrigger is shown in Fig. 4. and consists of two braces, or a double brace, D E, the upper one, D, running from the rowlock-plate to the top of the foot-board, the other, or lower, E, to the gunwale, their outer ends being welded to a plate, in which the rowlock is secured or bolted, and of a third brace, F, which is bolted or screwed into the rowlock-plate, while the inner end is bolted to the gunwale at right angles with it, or nearly at right angles. The lower of the after braces, E, and the brace F being bolted to the gunwale, no truss is required to which to attach them.

The above is the method of connecting the inner ends of the outriggers to the boat when the latter is of the ordinary construction—*i. e.*, with stationary foot-board and sliding seat. The only change necessary to be made when a stationary seat is used with a sliding foot-board is to connect the inner ends of the braces E and F to the sliding frame of the foot-board instead of to the gunwale. By this mode of construction greater lightness, strength, and compactness are secured in the outrigger, and greater space and lightness in the boat itself.

To obtain still greater lightness, it is advisable to use piping instead of rods; and, as one of the best and cheapest methods



of applying it, I make use of the casting C, (see Figs. 4 and 6,) which is provided with suitable holes,  $e'$  and  $f'$ , in which the rowlock is to be fastened, and three threaded holes for the reception of the piping, which is threaded at the outer ends, and flattened and welded, to enable it to be bolted to the boat. A great advantage is derived from this construction, in the fact that the point of attachment of the rod F is so far aft that the nut by which it is connected with the boat cannot strike or touch the hips of the oarsman; also, in the convenience arising from its use when taking the boat from and to the water. The outrigger is placed near the center of the boat, which is the point where it is necessary to grasp it when raising or conveying it, while with the old outrigger, nearly at the center, it is impossible to approach near enough to the boat to lift it with ease, it being necessary to do so at "arms' length." In present instances, the outrigger D E F forms an angle to the side of the boat in which the person moving or handling the boat can approach directly to it, and by means of which the boat can be placed close to his body.

The sliding seat in boats of the class to which this invention more particularly refers was introduced to increase the reach of the oarsman and secure greater power from the use of the legs; but as the whole weight of the body must be carried to and fro upon the seat the friction is necessarily very great, and the number of strokes in a given time less than with the stationary seat. To avoid this great amount of friction, and combine the advantages of both the stationary and sliding seats without the disadvantages arising from their use, is the purpose of this part of my invention. The means used to accomplish this result are a sliding foot-board and outriggers.

In the drawing, Fig. 4, H shows the seat, which is stationary; I, the foot-board; P, the brace, and J and K travelers connecting the foot-board and brace.

The foot-board I is of the ordinary form, but not attached to the sides of the boat, while the form of the brace P may be seen in Fig. 8, the shoulders R preventing its being withdrawn from under the gunwale, while they admit of its freely moving fore and aft. It may be constructed of any material; but I prefer steel, as combining the greatest lightness and strength. The upper surface of the gunwale O is provided with a track, S, (see Figs. 8 and 9,) in which the travelers J and K slide, their lower surface being provided with a steel runner, if required. The slide S should have flanges, as seen in Figs. 8 and 9, to retain the lubricating material. The foot-board and brace P are further strengthened and connected by means of the connecting-rod N, running from the brace to the lower part of the foot-board.

M shows the ordinary braces for connecting the keelson and gunwale.

Through a long slot, V, in the side of the

cockpit (see Fig. 5, where it is partly shown in dotted lines) the braces E and F are passed and bolted, the former to the foot-board and the latter to the brace P. The opening in the boat, or slot V, may be closed by a slide, W, (see Figs. 5 and 8,) attached to the braces E and F, and capable of moving with them, to prevent the entrance of water.

Should it be necessary in pair-oared boats, or those of a greater number of single oars, to provide more security for keeping the travelers in position, the slides may be furnished with an overset flange,  $z'$ , the traveler or slide having a shoulder,  $p'$ , as shown in Fig. 7. This form of slide may be used with a sliding seat to great advantage, the overset flange preventing the clothing from catching in the slide.

In operation, the oarsman being at the finish of the stroke, the feet draw the foot-board and rowlocks forward at the same time that the arms and body are passing aft. The oar is then dipped into the water, and as the arms and body pass forward in the stroke the boat is carried onward faster than the foot-board, so that when the stroke is finished the legs are again extended.

The advantages of this mode of construction and operation are, first, in the slight friction caused by the movement of the foot-board in comparison with the sliding seat weighted with the body; second, in the speedy recover and quicker pull, wherein the force of the arms is supplemented to the best advantage by that of the legs.

An approximation to this result may be secured by the use of a sliding seat and a rowlock attached to a lever pivoted between the seat and rowlock, and moved or operated by the motion of the seat, the body of the oarsman being secured to the seat, or the seat being provided with a back.

I am aware of Patent No. 184,031, November 7, 1876, granted W. N. Blakeman, jr., for sliding rowlock, and do not lay claim to what is shown therein.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the swinging rowlock and the pin or standard A, having the outward curvature, as herein described.

2. A rowlock, swinging or stationary, having an inward convexity upon the upright and an inset in the sill, as described.

3. A rowlock, swinging or stationary, having the outwardly-inclined arm  $d'$ , as and for the purposes set forth.

4. The outrigger herein described, consisting of the double braces D E and brace F, united at their outer ends, the said brace F being attached at its inner end to the center of the boat, and perpendicularly, or nearly so, to the side of the boat, whereby the latter can be grasped at its center for transportation, substantially as set forth.



5. In combination with a sliding seat or traveler, having a shouldered runner, the slide with an upright and an overset flange, as and for the purposes set forth.

6. In combination with a traveler, J K, the rack S, having upward-projecting flanges, as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of March 1877.

MICHAEL F. DAVIS.

Witnesses:

G. E. BIRD,  
T. T. SNOW.