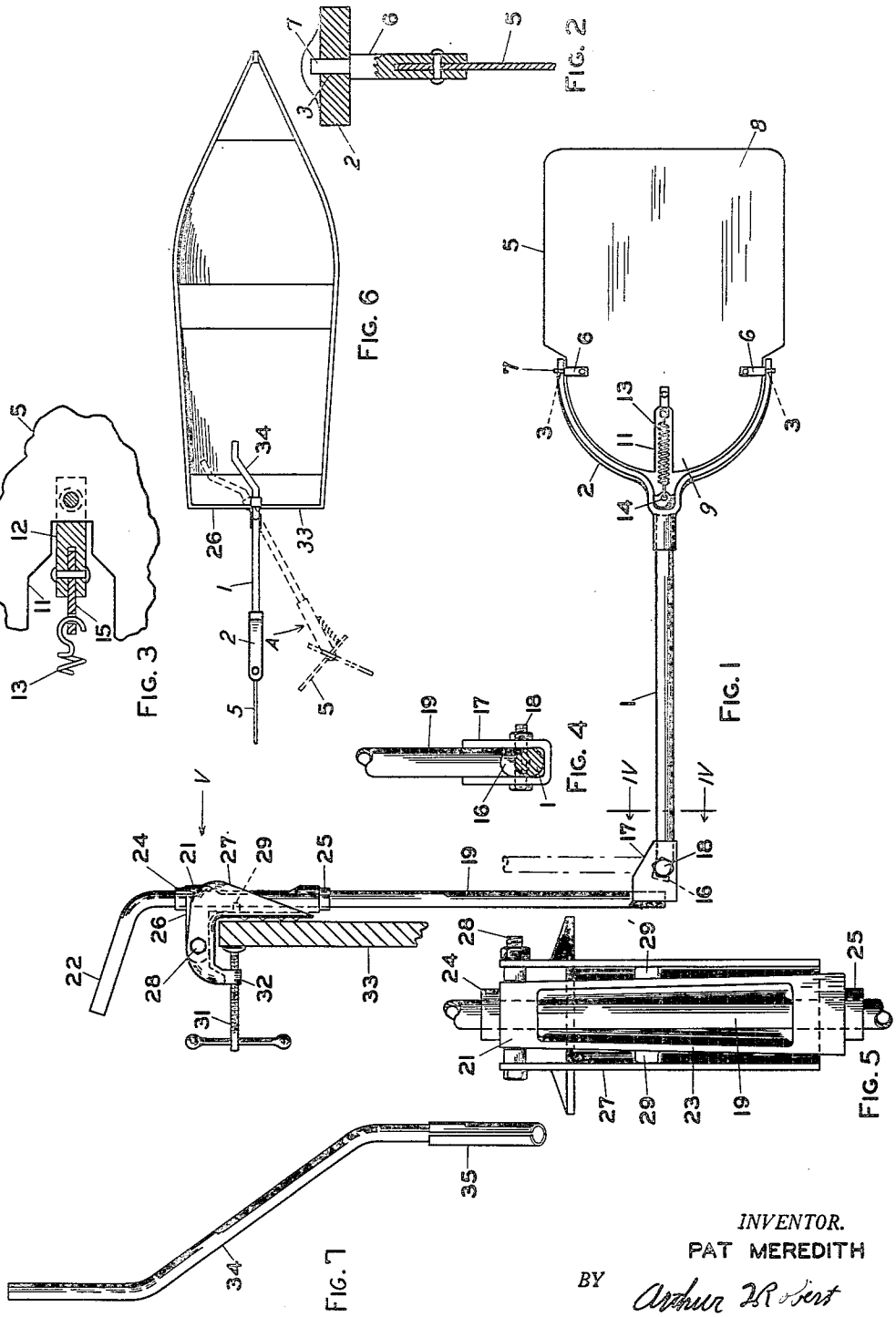
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BOAT SCULLING DEVICE

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# BOAT SCULLING DEVICE

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The present invention relates to a boat sculling oar.

In fishing where a boat equipped with a motor is employed, the motor is operated to propel the boat to the desired location for fishing. However, after the location is reached it is undesirable to use the motor because the noise tends to frighten the fish. Thus, for moving the boat a short distance in the fishing area, the boat may be propelled by oars.

It is an object of this invention to provide a boat sculling oar which has increased efficiency in driving the boat forward.

A further object is the provision of a boat sculling device which may be employed as a rudder in any of its various positions.

A further object is the provision of a boat sculling device which is of simple construction, and may be folded into a compact structure.

The invention is described in detail in the following specification taken in connection with the accompanying drawing illustrating a preferred embodiment by way of example, and wherein:

Figure 1 is a side elevation of the invention in operative position;

Figure 2 is a fragmentary section through a pivot pin;

Figure 3 is a section showing the spring attachment to the vane;

Figure 4 is a section taken on line IV—IV of Figure 1;

Figure 5 is an elevation view of the clamp and oarlock as seen in the direction of arrow V;

Figure 6 is a diagrammatic plan view illustrating the operation of the invention; and

Figure 7 shows a handle extension.

Referring to the drawing, the sculling device comprises an arm **1** at one end of which is suitably secured a yoke **2** having bores **3** near its ends. A vane **5** has bifurcated pivot pins **6** which may be riveted thereto, and the pivot pins have reduced ends **7** which are received in the bores **3**. The ends of the yoke may abut the shoulders of the pivot pin. The yoke is sufficiently springy so that, by spreading the ends of the yoke the pivot pins may be removed from the bores to release the vane.

The vane preferably has a generally rectangular shaped end **8** and a semi-circular portion **9** which has a middle slot **11** therein. A clevis **12** is riveted to the vane at the end of this slot, and a helical tension spring **13** is anchored at one end in the apertured web **14** of the yoke, and at the other end to an aperture in a link **15** swivelled on a cross pin in clevis **12**. The tension of this spring maintains the vane or fin **5** generally in alignment with rod **1**, and allows the vane to pivot, as required about the axis formed by pivot pins **6**.

The end of rod **1** opposite the yoke is slightly bent up, as indicated at **16** and is received in a clip **17** of general U-shape. A pivot pin **18** passes through the bent up end of the rod **1**. A shaft **19** is secured to the clip **17**, as by welding, and is disposed at a right angle to rod **1**. The upper end of shaft **19** passes through an



oarlock **21** and is bent over at an angle, as indicated at **22**.

The oarlock **21** comprises a yoke **23** bored to receive the shaft **19**, the shaft being rotatably held in the oarlock by collars **24**, **25** suitably secured to the shaft, as by set screws. The oarlock has a rearward arm **26** which is received in the channel portion of clamp **27**, and is pivotally secured therein by a cross bolt **28**. The channel portion of the clamp is of general C-shape, and in the position shown in Figs. 1 and 5 the channel sheaths the oarlock. The bosses **29**, **29'** on the sides of the oarlock engage the walls of the channel with a friction fit, which is maintained snug by the resiliency of the channel walls, so that the oarlock is firmly held sheathed in its operative position, but can be unsheathed by pivoting it about cross bolt **28**. The clamp member is of generally C-shape and a screw **31** passing through threaded boss **32** engages the stern **33** of the boat to hold the sculling device in operative position. Although, as shown in Figure 1, the shaft **19** lies substantially parallel to the stern of the boat, the clamp may be arranged to hold shaft **19** in slightly downwardly diverging relation to the stern.

An extension handle portion **34** provides a socket **35** which receives the bent end **22** of shaft **19**, and as shown, this extension handle is offset horizontally so as to allow better manipulation by the operator. The above described arrangement permits rod **1** to be folded back about pivot pin **18** parallel to shaft **19** as shown by the dot and dash lines, and by detaching handle **34** the device is rendered compact and easy to transport.

In Figure 6 I show the device schematically mounted on the stern of a boat in operative position. Ordinarily, in operation, the handle **34** is oscillated back and forth on both sides of the axis, the operator being seated in the stern facing forward, the offset of the handle allowing the stroke to be made on both sides of the axis. The stroke ordinarily will be through 47°, more or less on each side of the axis.

In the construction as illustrated in Figure 1, the pivotal axis of the vane, established by pivots **7**, divides the vane so that approximately 4/9 of its area is to the left of the axis and about 5/9 of its area is to the right of the axis. The vane **5** normally, or when at rest, is held in alignment with rod **1** by the spring **13**. When the rod **1** is moved in one direction as indicated by the arrow A in Figure 6, the reaction of the water, being greater on the area **8** of the vane than on the lesser area **9**, turns the vane on its axis. This turning action, however, is counteracted by the spring **13** so that when the vane assumes some position of balance generally diagonal to the desired path of movement of the boat as shown in dotted lines. In this balanced position the component of force exerted on the vane longitudinally of the boat axis, drives the boat forward. The transverse component of force is exerted in turning the vane against the spring so little if any side thrust is exerted to tend to rotate or turn the boat.

The spring **13** is always tending to move the vane into alignment with rod **1**, and only during stroking is there any force tending to move the vane about its axis. Hence, at the end of the stroke indicated by the dotted line position of arm **1**, the spring returns the vane to aligned position. Now, when the stroke is reversed, the vane pivots reversely, as shown by the dot and dash lines, and the reactive forces of the water act similarly on the vane, with the transverse component of force acting against the spring. The longitudinal force drives the boat forward. Thus, the transverse component of force does work on the spring and has little tendency to rotate the boat. The vane in all positions automatically assumes

a position to use the longitudinal component of thrust of the water, and it is silent in operation.

The spring arrangement thus accomplishes two important functions: In conjunction with the unequal areas of the vane, the water reaction causing the vane to turn on its axis is counterbalanced, to position the vane automatically to secure the most forward thrust from the stroke; and, the vane automatically assumes the aligned position so that it may be employed as a rudder in any position to steer the boat.

The drawing illustrates the preferred spring arrangement in which the point in the vane at which the spring is attached lies close to the turning axis of the vane. This leverage enables the use of a short, strong spring, as the elongation of the spring during turning of the vane is inversely proportional to the leverage. Also, the arrangement enables a single spring to operate effectively regardless of which way the vane is turned in operation.

I claim as my invention:

1. A boat sculling device comprising: an arm adapted to be mounted in submerged position on a boat for pivotal movement about one end; a vertical vane mounted adjacent the opposite end of said arm for pivotal movement about a vertical axis on the arm intermediate its front and rear ends, the area of the vane posterior of its axis being greater than the area anterior of its axis; a slot in the anterior portion of said vane extending to adjacent its axis; and a spring in said slot anchored at one end to said vane adjacent its axis, and at the other end to said arm.



2. A boat sculling device comprising: an arm adapted to be mounted in submerged position on a boat for pivotal movement about its front end, the rear end of the arm terminating in a yoke; a vertical vane having a vertical axis intermediate its front and rear ends, said vane being mounted between the outer ends of said yoke for pivotal movement about its vertical axis, the area of said vane anterior of its pivotal axis between the ends of said yoke being smaller than the area of said vane posterior of its axis; and a tension spring connected between the center of said yoke and a point on said vane anterior of its axis.

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