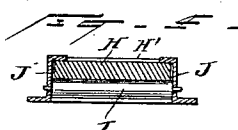
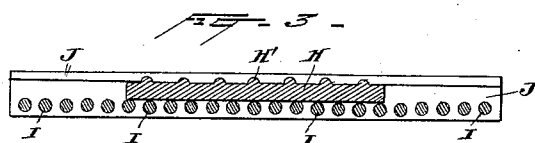
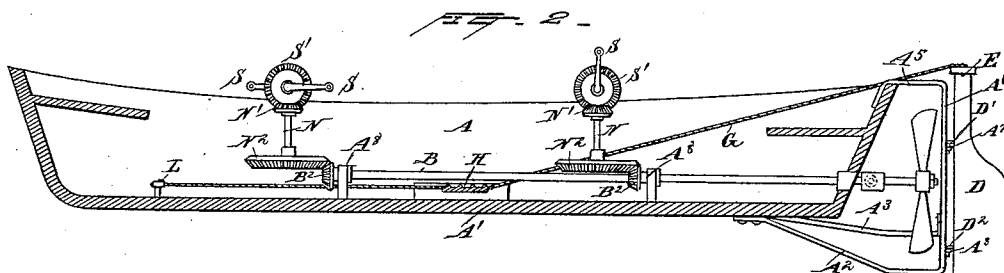
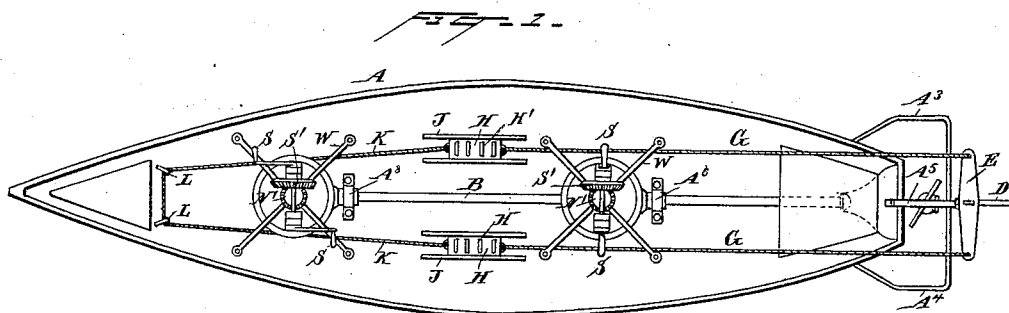


(No Model.)

J. SAVAGE.
STEERING MECHANISM FOR BOATS.

No. 475,420.

Patented May 24, 1892.



Witnesses
Irronris A. Clark.
Charles R. Searle.

Inventor
James Savage
By his Attorney
Thomas D. Preston

UNITED STATES PATENT OFFICE.

JAMES SAVAGE, OF CANARSIE, NEW YORK.

STEERING MECHANISM FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 475,420, dated May 24, 1892.

Application filed October 22, 1891. Serial No. 409,474. (No model.)

To all whom it may concern:

Be it known that I, JAMES SAVAGE, a citizen of the United States, residing at Canarsie, Kings county, in the State of New York, have invented a certain new and useful Improvement in Steering Mechanism for Boats, of which the following is a specification.

The invention pertains to means for steering, and may apply to small craft of many styles. I esteem it particularly applicable to pleasure-boats. I provide for operating the steering mechanism by the feet with convenience, transmitting much or little strain through the mechanism, as may be preferred, and for easily shifting the points of engagement of the feet with the steering mechanism, so as to accommodate operators of different lengths of limb and to allow of changes of position of the limbs as often desired.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a plan view of a boat having my invention. Fig. 2 is a longitudinal vertical section. The remaining figures are on a larger scale and show portions detached. Fig. 3 is a longitudinal vertical section, and Fig. 4 is cross-section of the ribbed slide and guides therefor.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the hull of the boat, of any ordinary or suitable pattern, certain portions being designated when necessary by supernumerals, as A'. It may have rowlocks, allowing it to be propelled by oars, when for any reason such may be desired.

A' is the keel. A series of curved braces A² A³ A⁴ are firmly fixed to the keel and extend rearward, downward, and also to a sufficient extent laterally to shield the large screw-propeller employed and defend it against contact with the bottom in any emergency. Above the propeller a rigid brace A⁵ extends from the hull A rearward. This brace A⁵ and the lower brace A² are connected by a vertical bar A⁶, the front edge of which may be sharpened to facilitate the movement through the water and the rear edge of which carries two eyes A⁷ A⁸, which receive the or-

dinary rudder-braces D' D² on the front edge of the rudder D. My rudder acts on a large surface of the water. The upper end of the rudder carries a removable cross-tiller E, sometimes called a "tiller-head." From each end of this cross-piece cords G G, of manila or other suitable material, extend forward and downward to a slide H, which is fitted to traverse in ways extending fore and aft. The upper face of each slide H carries a number of cross-ribs H'. The lower face of each slide rests and travels forward and backward on a set of anti-friction rollers I, which are connected by a slight harness J. Another cord K extends forward from one of the slides H, and passing around pulleys L near the bow extends aft again and connects to the other slide H. When the steersman sits in the stern-sheets looking forward, his feet, engaging with any of the cross-ribs H' on the two slides H, exert a force tending to stretch the cords G G and act directly on the respective arms of the cross-tiller E. The person who is to steer touches one of the slides H with one foot. He may touch one with each foot if he chooses, pressing one more forcibly than the other, and by shifting the slide forward or backward shifts the rudder at will without interruption of the propelling movement.

When the boat is to be impelled by oars in the ordinary manner, two or other number of rowers sit in the ordinary position looking aft. One engages his feet with the ribs H', and pressing the slides H rearward the cord K is available to connect the slides and allow the motion to be communicated in the obvious manner.

The tiller-head may be removed from the rudder, and the rudder may be unshipped by lifting it and both taken into the boat or otherwise disposed of when required. The slides H, with their anti-friction supports I and stout connecting-cord K and pulleys L, remain and may serve as the foot-rests or abutments to receive the strain of the feet in rowing. When the rudder is again shipped and the cords G are again made available to connect thereto, the slides H and their anti-friction mounting perform the double function of strong foot-rests for the rowing and easily-shifted attachment for the steering. It is easy by this mechanism to make the rapid succession of

very slight shifts of the rudder required for successful steering without subtracting at all from the energy required for vigorous rowing.

5 Modifications may be made without departing from the principle or sacrificing the advantages of the invention. One large pulley may take the place of the two pulleys L L at the front.

10 I do not in this patent claim the improvements in the propelling mechanism, such being made the subject of a separate application for patent filed July 7, 1891, Serial No. 398,656.

I claim as my invention—

15 The hull A, in combination with the rudder D and with the ribbed slides H H', capable

of traversing fore and aft, anti-friction rollers I, supporting the same, flexible connection K, connecting and extending forward around the pulley or pulleys L, and connections rearward from said slides to the rudder, 20 all arranged for joint operation as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JAMES SAVAGE.

Witnesses:

CHARLES P. SEARLE,
M. F. BOYLE.