Sept. 25, 1951 O. MALCHER 2,569,245

FORWARD ROWING MECHANISM

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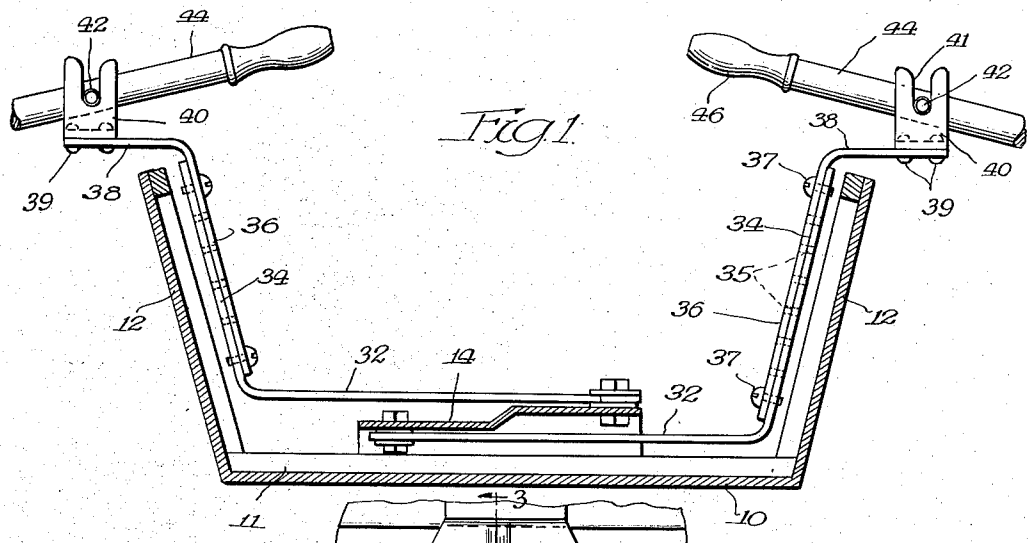


Fig. 1

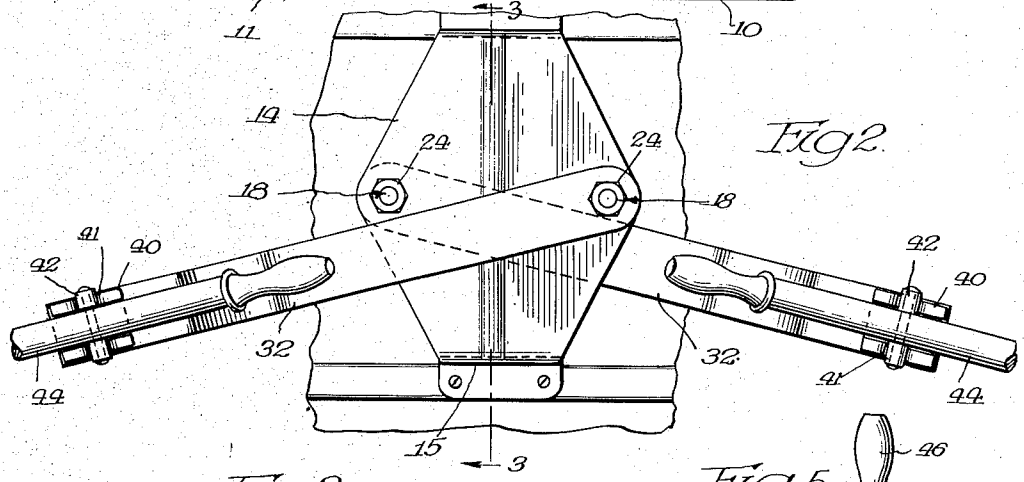


Fig. 2

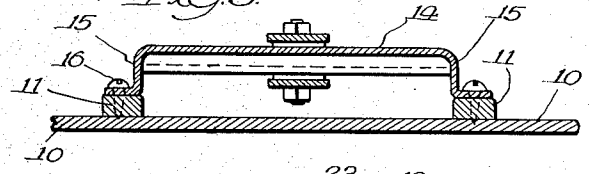


Fig. 3

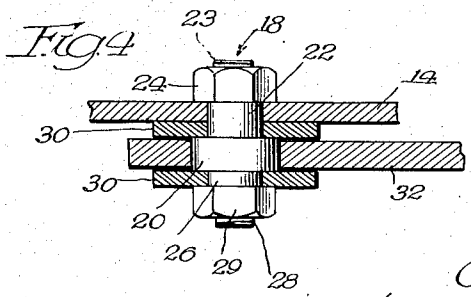


Fig. 4

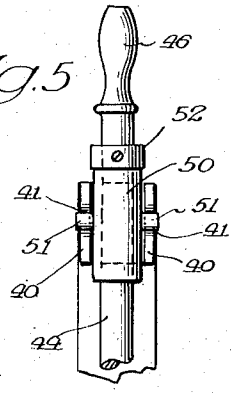


Fig. 5

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FORWARD ROWING MECHANISM

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13 Claims. (Cl. 9—25)

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This invention relates in general to rowing mechanism for propelling boats and is more particularly described as a forward rowing construction in which the operator faces forward in the boat and propels the boat forwardly by means of a rearward pull on the oars.

An important object of the invention is to provide a forward rowing mechanism which is simple in operation, easily applied to any boat, and easily connected with oars ordinarily provided for boat propulsion.

A further object of the invention is to provide improved means for mounting the mechanism in the bottom of a boat and for mounting the movable parts of the mechanism to swing freely and easily in the mounting mechanism.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a cross section of a boat having a mechanism in accordance with this invention applied thereto and connected to a pair of oars, the outer ends of which are omitted;

Fig. 2 is a plan view of the mechanism as shown in Fig. 1, omitting the sides of the boat;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is an elevation of one of the mounting pins showing the connected pieces in section; and

Fig. 5 is a detail view showing a tubular connection for feathering movement of the oars.

Forward rowing mechanism has been proposed heretofore in which each oar is connected to a compound lever mechanism at one side of the boat, requiring that the handles be separated from the blade of the oars and thus necessitating the use of particular formed oars.

In the present invention, the mechanism may be applied to any boat, the oars commonly used may also be used with the mechanism whether they be of the pivoted type rocking up and down about the pivot or whether the oars be of the feathering type which allow the oar to be turned about its longitudinal axis in moving the oar into and out of the water.

Referring now more particularly to the drawings, a boat is shown in cross section having a bottom 10 with spaced cross pieces 11 and attached sides 12.

A mounting plate 14, preferably having offset ends 15 is connected by screws 16 or other suitable fastening devices to the cross pieces 11 at the bottom of the boat to offset the plate upwardly from the bottom. In opposite sides of the plate are bearing pivots 18, the one projecting upwardly and the other projecting downwardly

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from the plate. Each bearing pivot has a central circular bearing portion 20, a reduced circular portion 22 at one side and a further reduced threaded extremity 23 for receiving a nut 24. At the other side of the bearing portion 20 is a portion 26 of reduced diameter and a reduced threaded extremity 28 for receiving a nut 29. At opposite sides of the bearing portion 20 are washers 30 which are drawn tightly against the opposite sides of the bearing portion 20 by the nuts 24 and 29. the reduced portion 22 also extending through the mounting plate 14 so that the bearing pivot 18 is tightly connected to the plate.

One bearing pivot 18 is secured to the plate 14 so that it extends downwardly therefrom and the other pivot is secured to the plate so that it extends upwardly therefrom. Upon each pivot, a swinging arm 32 is mounted which is slightly less in thickness than the thickness of the bearing portion 20 so that it is supported between, but swings freely with respect to the washers 30 upon the enlarged bearing portion 20 which forms a substantial support and a suitable bearing for swinging the arm thereon. Thus one arm extends below the plate from one bearing pivot 18 to the opposite side of the boat, and the other arm extends above the plate from the other bearing pivot 18 to the opposite side of the boat.

Each arm has an upwardly bent portion 34 which extends close to the adjacent side of the boat and this portion is provided with a number of threaded perforations 35. An adjusting strap member 36 is attached to the upward extending portion 34 by fastening screws 37 which extend through suitable holes therein and into the threaded holes 35 of the extending portion 34. By this means, the adjusting strap members 36 may be raised or lowered with respect to the sides of the boat. At the upper end of each member 36 is an outwardly bent portion 38 which may extend beyond the side of the boat. Attached to the outer portion by means of bolts or rivets 39 is an open channel 40 having a notch 41 in opposide sides for seating the ends of a cross pivot pin 42 which is secured to and projects from opposite sides of an oar 44. The oar has a grip or handle 46 at its end and is pivotally mounted to swing upon the pin 42 relatively up and down with respect to the boat and in the channel 40. The oar fits closely in the channel so that there is no lateral side movement and each oar therefore swings as a continuation of the arm 32 in which it is mounted, but the blade of the oar may be raised and lowered by correspondingly opposite movements of the handle.

If it is desired to feather the oars in rowing,

that is to rotate the oar upon its own axis as the oar is moved to and fro in the water, it is only necessary to substitute or add a sleeve **50** as shown in Fig. 5 or into the channel **40** of Figs. 1 and 2, to insert the handle end of the oar therethrough to mount the sleeve on outwardly projecting trunnions **51** which are seated in the channel notches **41**, and to attach a collar **52** of leather or some other suitable material, to the oar adjacent the inner end of the sleeve to keep the oar in place.

With this construction, each oar instead of being swung about a pivot intermediate its ends, is swung about a pivot beyond the inner or handle end of the oar. The motion of an operator in rowing is the same as in rowing with an ordinary set of oars: the oars are pushed and swung forwardly about their bearing pivots **18** by depressing the handles and pushing the oars forwardly out of the water. At the forward end of the stroke, the handles are raised, dipping the blades of the oars in the water, and the handles are pulled rearwardly, swinging the entire oar not about a pivot intermediate the oar itself, but upon the pivot **18** within the boat. Thus the oars have an effective length of the oar plus the arm **32** and the combined oar and arm are pushed and pulled about a point intermediate the combined oar and arm rather than about the end of an oar as in ordinary rowing. Thus an advantage is gained in the length of throw of the oar operating about a greater length than when the oar only is used.

This apparatus is quickly installed and applied; it may be bodily removed from a boat by simply removing the fastening screws **16** which attach the plate to the cross piece of the boat and the oars may be disengaged from the arms and the extensions thereof by simply removing the pins **42**, or in case of the feathering type, the collars **52** may be removed and the oars slipped from the engagement. By making the parts adjustable, they may be applied to boats of different sizes and also may be taken apart for more compact assembly in storage and shipment, if desired.

While the preferred construction has been described in detail, it should be regarded as an illustration and example rather than a restriction or limitation of the invention as various changes in the construction, combination, and arrangement of the parts may be made without departing from the spirit and scope of the invention.

I claim:

1. A forward rowing mechanism for boats, comprising a pair of arms each pivoted at one side of the center of the bottom of a boat and having a portion extending across the center and upwardly above the opposite side, one arm extending below the pivot of the other arm and the other arm extending above the pivot of the first arm, and an oar having its handle end pivoted near the end in the extending portion of the arm for relative up and down movement of the oar, but the oar being fixed in the upwardly extending portion of the arm for forward and rearward movement with the arm about its pivot within the boat.

2. A forward rowing mechanism, comprising a pair of arms pivoted in the bottom of the boat on opposite sides of the longitudinal center line, each arm extending along the bottom to the opposite side of the boat and having an upwardly extending portion projecting above and outwardly over the said opposite side of the boat,

and an oar fixed in the outwardly extending portion against relative lateral movement with respect to the arm, but the oar being pivoted near its handle end for relative up and down motion in the extending portion with the handle of the oar projecting inwardly within the boat.

3. A forward rowing mechanism for a boat, comprising a pair of arms each pivoted in the bottom of a boat at one side of the longitudinal center line and extending oppositely over the center line, and having a portion extending upwardly above the opposite side, and an oar secured to the upwardly extending portion of the arm for bodily movement forwardly and rearwardly therewith and with the handle extending inwardly therefrom for manual engagement, the oar being pivoted for relative up and down motion near the handle end, and the arm and oar forming a lever engaged between its ends for rowing a boat.

4. A forward rowing mechanism for a boat, comprising a pair of arms pivoted within the bottom of a boat at opposite sides of the longitudinal center line and each arm extending along the bottom across the center toward the said opposite side and having an upwardly extending portion projecting above and outwardly over the said opposite side, an oar secured in the outwardly projecting part of the upwardly extending portion and maintained in line with the arm, the oar being mounted for up and down pivotal movement in the arm to swing about a point near the handle end of the oar, and the handle of the oar extending inwardly from the extending portion so that the arms and the oars form levers which are manually pulled rearwardly when the oars are in the water to propel the boat forwardly.

5. In a forward rowing mechanism for boats, a plate for attachment in the bottom of a boat, a pair of arms pivoted on opposite sides of the plate and on opposite sides of the longitudinal center line of the boat and each extending over the center to the opposite side of the boat, one arm pivoted at the bottom of the plate and the other arm pivoted at the top of the plate, each arm extending along the bottom to the said opposite side and having a portion to extend upwardly adjacent the side and outwardly over the side of the boat, an oar pivoted near its handle end to swing up and down in the outwardly extending portion of the arm and fixed in alignment with the arm against relative lateral movement but to move forward and back therewith.

6. In a forward rowing mechanism, a plate for attachment to the bottom of a boat, a pair of pivots at opposite sides of the plate and located at opposite sides of the longitudinal center line of a boat, a pair of arms, one connected to each pivot, one arm located above the plate and the other arm located below the plate, each arm extending along the bottom of a boat to the side opposite the pivot and having a portion extending upwardly adjacent the side and outwardly above and over the said opposite side, an oar having a handled end and means attached to the outwardly extending portion for mounting the oar to swing relatively up and down about a pivot near the handle end of the oar and also holding the oar in alignment with the arm for relative swinging movement about its pivot at the opposite side of the bottom.

7. In a forward rowing mechanism for boats, a plate having offset ends for attaching it to

cross pieces to project upwardly in a boat, pivots at opposite sides of the plate and located relatively at opposite sides of the longitudinal center line of a boat, one pivot extending upwardly and the other pivot extending downwardly from the plate, an arm mounted in each of the pivots and extending along the bottom across the center line to the said opposite side of a boat, one arm being mounted below the plate and the other arm being mounted above the plate, each arm having a portion extending upwardly at the side of the boat and bent outwardly over the top of that side, an oar having a pivot connected near the handle end, and means in the extending portion of the arm for engaging the pivot so the arm will swing up and down in the arm but will be held in alignment with the arm and against relative lateral movement with respect thereto to move bodily with the arm in a forward and rearward rowing movement.

8. In a forward rowing mechanism for boats, a plate attachable at the bottom of a boat, a pair of pivots located in the plate at opposite sides of the longitudinal center line of the boat, an arm mounted upon each pivot and extending across the center line therefrom along the bottom of the boat toward the relatively opposite side and having a portion extending upwardly along the side and outwardly over the top thereof, and an oar mounted in the outwardly extending portion of the arm to swing upwardly and downwardly but held against relative lateral movement with respect to the arm, each pivot for mounting the arm having a relatively large central bearing portion for engaging one of the arms, the width of the bearing portion being slightly greater than the thickness of the arm, the pivot having reduced portions at opposite sides of the bearing portion, a pair of washers mounted upon the reduced portions of the rivet and engaging the sides of the bearing portion and fastening nuts at the ends of the rivets for clamping the washers tightly against the sides of the bearing portion and holding the rivets tightly in the bottom plate, leaving the arm mounted for free movement upon the bearing pivot.

9. In a forward rowing mechanism for boats, a bottom plate, a pair of pivots mounted at opposite sides of the bottom plate, each pivot having a central enlarged bearing portion with reduced portions at each side thereof and fastening nuts at the ends, a pair of arms each mounted upon the central bearing portion of one of the pivots, a pair of washers engaging the opposite faces of the central bearing portion for loosely confining the arm on the central bearing portion, one of the pivots extending upwardly and the other pivot extending downwardly from the plate so that the arms may extend relatively from the pivot on one side of the center line along the bottom of the boat across the center line toward the opposite side and having a portion extending upwardly at the said opposite side and outwardly over the top thereof, and an oar mounted in the outwardly extending portion, having a transverse pivot upon which it may be rocked in an up and down direction, and means

for confining the oar and the pivot to a forward and back swinging movement in alignment with the arm in rowing the boat.

10. A forward rowing mechanism for boats, comprising a pair of arms each pivoted at the bottom of the boat and on opposite sides of the center line and having portions extending upwardly and outwardly above the sides of the boat across the center line, an oar for each arm, and mounting means for retaining one oar on each extending portion to pivot the oar near its end for relative up and down swinging movement and encircling the oar so that it is freely rotatable about its own axis in the mounting means for feathering movement, and the mounting means and the oar being fixed in the extending portion of the arm for movement with the arm in swinging about its pivot within the boat.

11. A forward rowing mechanism for boats, comprising a pair of arms each pivoted on the inside of the bottom of the boat and at opposite sides of the center line and having portions extending upwardly and outwardly above the sides of the boat across the center line, and an oar having its handle pivoted near the end in the outwardly extending portion of the arm for relative up and down movement of the oar, but the oar being fixed in the said outwardly extending portion of the arm for bodily forward and rearward rowing movement with the arm about its pivot within the boat.

12. In a forward rowing mechanism for boats, a pair of arms and means pivoting both arms at the bottom of the inside of the boat and at opposite sides of the center line thereof, the arms having portions extending outwardly and upwardly above the sides of the boat, one of the arms passing over the pivoting means of the other arm, and the other arm passing below the pivoting means of the first arm.

13. In a forward rowing mechanism for boats, a pair of arms, means pivoting the arms at the inside of the bottom of the boat and at opposite sides of the center line thereof, said arms having portions extending outwardly and upwardly above the sides of the boat and said means comprising a plate to which each arm is pivoted, one arm extending across the center line and over the plate and the pivoting means of the other arm, and the other arm extending oppositely across the center line and below the plate and pivoting means for the first arm.

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