This invention relates to a means for propelling a boat, and more particularly to a foot pedal operated mechanism for conveniently propelling and steering a boat through a body of water.

The primary object of this invention is to provide a lightweight ruggedly constructed highly efficient boat propulsion mechanism which can be readily folded or moved to collapsed position when it is not being used so that the entire unit will occupy a minimum amount of space for storage, shipment or the like, and wherein when the device of the present invention is to be used, it can be readily moved to open operative position to permit propulsion of a boat in the desired manner.

A further object is to provide a boat propulsion mechanism which can be used on existing or standard boats such as rowboats, aluminum boats or the like, and wherein the device can be quickly demounted and collapsed for transportation or storage in a small space such as in the trunk of a vehicle, and wherein the device can be made substantial lightweight aluminum construction or the like so that the entire unit will have a minimum amount of weight, and wherein the present invention will permit a boat to be operated or propelled quietly and in a splash-proof manner so that it can be conveniently used by various types of persons such as military personnel, duck hunters, fishermen or the like.

Still another object is to provide such a boat propulsion mechanism which can be used for recreational and health purposes and can be made in a size to permit use in a swimming pool and small shallow water pools or ponds, and wherein with the present invention, power transmission and steering is accomplished by means of a pair of hand levers for operating their respective clutches.

Still another object is to provide such a boat propulsion mechanism that is economical to manufacture and efficient in operation and which is rugged in structure and foolproof in use.

The present invention comprises a support section which includes a pair of spaced parallel support pieces 61 that are hingedly or pivotally mounted on the rod 58 for a purpose to be later described. Each of the pair of sprocket members 59 have the same construction and each comprises inner and outer toothed sprocket sections 62 and 63 which have separate chains 64 and 65 arranged in engagement therewith.

The numeral 66 indicates a rod or shaft that is mounted in the upper ends of the frame members 50, and sprocket members 59 are arranged contiguous to the ends of the rod 58. The numeral 66 indicates a support section which includes a pair of spaced parallel support pieces 61 that are hingedly or pivotally mounted on the rod 58 for a purpose to be later described. Each of the pair of sprocket members 59 have the same construction and each comprises inner and outer toothed sprocket sections 62 and 63 which have separate chains 64 and 65 arranged in engagement therewith.
therein the keys 68. The numeral 78 indicates a pin or bolt which is slidably mounted in the sleeve 75, and the end of the bolt 78 is adapted to engage the recess 71 in the corresponding sprocket 67, and the circular flange member 79 is affixed to the outer end portion of the bolt 78.

Each of the sleeves 74 has a collar or bracket 80 integral with the outer end portion thereof, and a pair of straps 81 are arranged in crisscross relation with respect to each other and are suitably secured to the collar 83, and as shown on the drawings the straps 81 include inner portions 82 and outer portions 83 which are arranged at an angle relative to the portions 81, and the numerals 84 indicate blades or paddles which are suitably affixed to the portions 83 in any suitable manner, as for example by means of securing elements 85.

The numeral 86 indicates a spacer which extends between the support pieces 61 and which is secured thereto in any suitable manner.

The numeral 87 indicates each of a pair of small plates which are suitably secured to the inner surfaces of the frame members 50, and a spacer 88 of tubular construction is adapted to extend between the plates 87 and be secured thereto. The numeral 89 indicates a rod which extends between the pair of plates 87 and which is supported thereby, and the rod 89 has a C clamp 90 mounted thereon, and the C clamp 90 is adapted to engage the transom 32 of a boat such as the boat 31, and the clamp 90 may be provided with the usual pressure screw member for releasing or tightening pressure of the clamping jaws of the clamp on the transom. Bearings 92 are mounted on the ends of the rod 89, and the bearings 92 are adapted to be engaged by the chains 64 so as to help guide these chains and maintain the parts in their proper position.

Lugs 93 are suitably secured to the plates 87, and a crosspiece 94 extends between the lugs 93 and is secured thereto, there being a stop member 95 on the intermediate portion of the crosspiece 94. The numeral 96 indicates lugs which are secured to the support pieces 61, and a cross member 97 extends between the lugs 96 and is suitably secured thereto. The numeral 98 indicates a manually operable screw member or pressure screw which extends through the cross member 97 for engaging the stop member 95, so that by manually adjusting the screw 98, the inclination of the support section 60 can be changed or adjusted as desired whereby the position of the paddle units in the water can be regulated or adjusted as desired or required.

The numeral 99 indicates a tubular element or spacer which is interposed between the frame members 50. As shown in FIG. 4, when the device is in folded position, the hand 171 of a person is adapted to engage a tubular member which tubular member can be used as a convenient carrying handle when the device of the present invention is folded or collapsed. In FIG. 2 the numeral 172 indicates a portion of a person using or operating the present invention, and the numeral 173 indicates the feet of the person 172, and the feet 173 are adapted to engage the foot pedals 45, and the operator or person is shown in dotted or broken lines in FIG. 2.

There is also provided a pair of legs 100 which are arranged in crisscross relation with respect to the frame members 50, and there is provided a tubular spacer 101 which extends between the upper ends of the legs 100, and a pair of spaced parallel brushes 102 extend between the spacers 101 and 99 and are suitably connected thereto.

The numeral 103 indicates a seat, and when the device is not being used the seat can be removed and collapsed to also occupy minimum space. The seat 103 includes a base portion 104 and back rest 105. Guide members 106 are secured to the lower surface of the portion 104 of the seat for engagement with the braces 102, and the guide members 106 are adapted to be provided with a plurality of notches or slots for selective engagement with the tubular element 101 in order to provide for different adjustments of the seat. Ears or lugs 107 are secured to or formed integral with the elements 106, and guide members 108 are secured to the lower surface of the back rest 105, and the guide members 108 are pivotally connected as at 109 to the lugs 107 and this construction permits the back rest to be adjusted to different positions for maximum comfort and also permits the seat to be folded to a collapsed position when not being used. Hook members 110 are pivotally connected to the guide members 108 as at 111, and the hook members 110 are provided with slots or notches 112 therein for engaging studs 113, and the studs 113 are supported by brackets 114 which are suitably affixed to the frame members 50.

The numeral 115 designates each of a pair of spaced parallel links which are pivotally connected to the bars 35 as by means of pivot pins or bolts 115, and the links 115 are provided with slots or notches 117 therein for engaging screws or securing elements 118 which are connected to the legs 100.

The shaft 52 includes a central portion 119, and as shown in the drawings a pair of clutches 120 and 121 are operatively associated with the shaft 52, and a similar pair of clutches 122 and 123 are operatively associated with the shaft 56. The shaft 52 includes the central portion 119 and the shaft 52 also includes end portions 124 of reduced diameter, there being a sleeve 140 loosely mounted on the reduced diameter end portion 124 of the shaft 52. The clutch 121 includes a disk 125 having a gripping surface 126, and the disk 125 is integral with or fixedly secured to the central portion 119 of the shaft 52. The sleeve 140 has a disk 127 integral therewith, and the disk 127 has gripping material 128 thereon which is mounted for movement into and out of engagement with the gripping material 126. An annular shoulder 129 is formed integral with the disk 125, and a similar annular shoulder 130 is integral with the disk 127. The numeral 131 indicates a sprocket which is fixedly secured to the sleeve 140, and an endless chain 132 is arranged in engagement with the sprocket 131, and the chain 132 also engages a sprocket 133 on a sleeve 134, and the sleeve 134 is slidably and loosely mounted on the reduced diameter end portion 141 of the shaft 56, the shaft 56 also including an intermediate portion 142. The sleeve 134 has a disk 135 affixed thereto and gripping material 136 on the disk 135 which is adapted to move into and out of engagement with the gripping material 137 on a disk 138, and the disk 138 is integral with the central portion 143 of the shaft 56. The shoulders 143 and 144 are integral with the disks 138 and 135.

There is further provided a pair of shift levers 145 which have knobs 146 on the ends thereof for facilitating the manual movement thereof, and the pair of levers 145 are mounted for movement of travel between elements 148 and 149, and securing elements 150 and 151 are provided for maintaining these parts in their proper assembled position. Lugs 152 are secured to the levers 145, and straps or connectors 153 are suitably affixed to the lugs 152. Fingers 154 are suitably secured to the members 153, and the fingers 154 are pivotally mounted on a rod 155, and the rod 155 is adapted to be supported by lugs 156 which are suitably secured to the legs 100. Straps or bars 157 are secured to the fingers 154 and have spacers 158 associated therewith, and bearing units 159 and 160 are suitably journaled on the ends of the members 157 for selectively engaging the shoulders of the clutch disks, as the corresponding shift levers 145 are manually actuated.

In FIG. 6 the numeral 159 indicates a coil spring which is interposed or arranged between the disks of the clutches for normally urging or biasing the disks away from each other.

As shown in FIG. 6, the sleeve or element 134 is free or loose on the reduced end portion 135 of the shaft 56, and the sleeve 134 has the sprocket 165 fixedly mounted thereon in any suitable manner, and the sprocket 165 has the chain 64 arranged in engagement therewith. Inasmuch as the construction and operation of the lower
and upper clutches 121 and 122 on one side of the device is generally the same as the construction and operation of the lower and upper clutches 120 and 123 on the other side of the device, a description of one will suffice for both, and in FIG. 6 there is shown in detail the construction of the clutches 121 and 122. It is to be understood that the clutches 120 and 123 function in the same manner as the herein described clutches 121 and 122.

A hook member 166 is pivotally connected to an arm 43 as at 167, and the hook member 166 has a slot or notch 168 therein.

In use, with the parts arranged as shown in the drawings, when a boat such as the boat 31 is to be propelled through the water by means of the present invention, the boat propulsion mechanism 39 of the present invention is adapted to be arranged as shown in the drawings so that the clamp 90 engages the transom 32 of the boat 31, and the screw member 91 is adapted to be tightened in order to maintain the clamp 90 firmly connected to the transom 32. In the drawings certain of the parts shown in solid lines are in position for causing the boat to operate in a reverse direction while in the dotted line position there is illustrated the position of the parts for causing the boat to move in a forward direction. The rest 42 is adapted to rest on or engage the bottom 53 of the boat, and in FIG. 2, the pair of paddle units 74 are adapted to be arranged so that they engage the water. The position of these paddle units 74 relative to the water can be adjusted by manually rotating the screw member 98 so that the support section 60 can be raised or lowered to thereby raise or lower the pair of paddle units 74 to the desired position whereby the depth of water encountered by the blades or paddles 64 can be properly adjusted. Thus, when the screw member 98 is rotated in the desired direction, the screw member 98 will bear against or engage the element 95 on the crosspiece 94 so that the support section 60 which carries the paddle units 74 can pivot about an axis extending through the rod 58.

The seat member 103 is adapted to comfortably support the person operating the device, and the seat member 103 includes the bottom portion 104 and the back rest 105, and when the device is being used, the guide members 106 are adapted to snugly engage the braces 102 to maintain the seat properly in position, and the guide members 106 are adapted to be provided with a plurality of notches or slots for engaging a tubular spacer element that is connected to the upper ends of the legs 107. The seat 103 further includes the pivotal connection 109 between the guide members for the back rest 105 and the guide members for the bottom portion 104 so that when the seat is not being used it can be folded about an axis extending through the pivot 109 in order to permit the seat to occupy a minimum amount of space for storage, shipment or the like. The back rest 105 has the elements 110 pivotally connected to its guide members 108 as at 111, and the members 110 have notches or slots 112 therein for selective engagement with studs 113 whereby by shifting the position of the members 110 so that different of the notches 112 engage the studs 113, the inclination of the back rest 105 can be adjusted to the most comfortable desired position.

With the operator positioned on the seat 103, and with the feet in engagement with the foot pedals 45, it will be seen that by rotating the foot pedals with the feet, the axle 44 will be rotated to turn the sprocket 46, and this will result in movement of the chain 47, and since the chain 47 is arranged in engagement with the sprockets 53 and 57, and since the sprockets 53 and 57 are fixedly secured or integral with the shafts 52 and 56, it will be seen that this rotation of the foot pedals 45 will result in rotation of the pair of shafts 52 and 56.

The shaft 52 has the pair of clutches 121 and 122 thereon, and the shaft 56 has the pair of clutches 123 and 122 thereon, and the construction and function of these clutches is generally the same so that a description of one will suffice for all.

The levers 145 are provided for selectively actuating these clutches, and the pair of levers 145 have knobs 146 thereon for facilitating the manual movement thereof, and the pair of levers can be adjusted or positioned so that the pair of paddle units 74 will rotate in unison in a forward direction or else the pair of paddle units 74 can be made to rotate in unison in a reverse direction, or else either or both of the paddle units can be permitted to remain idle, and this construction permits the boat to be readily propelled in a forward direction, reverse direction, or to permit convenient turning or steering of the boat in the desired manner. In other words, to steer the boat, one of the paddle units 74 can be operated in a forward direction, while the other paddle unit 74 can be idle or operated in a reverse direction and this permits or provides a convenient means for steering the boat.

With the pair of foot pedals 45 being rotated by foot pressure as previously stated to cause rotation of the pair of shafts 52 and 56, it will be seen that the levers 145 can be manually moved to operate the clutches 120, 121, 122 and 123 and for example by positioning the levers 145 in an intermediate position, the clutches will have their disks away from each other so that power will not be transmitted to the paddle units 74 whereby the paddle units will idle.

In FIG. 2 of the drawings, the levers 145 are shown in solid lines in lowered position whereby the boat can be reversed, and in FIG. 2 in dotted lines, the raised position of the parts is illustrated, as for example when the boat is being propelled in a forward direction. Also, in FIGS. 1, 3 and 6, the levers 145 are shown in lowered position to cause the boat to back up or reverse.

Thus, by shifting the levers 145 to a raised or lowered position, the paddle units can be rotated in a forward or reverse direction. Assuming for example that it is desired to have the boat move forward, the levers 145 are rotated in a forward direction, and this rotation is directed to FIGS. 1, 2, 3 and 6 wherein the levers 145 are illustrated in a lowered position, and lowering of the both levers 145 will cause both the pair of cross elements 153 to pivot on the rod 155 so that the fingers 154 will pivot on the rod 155 in view of the fact that the fingers 154 are affixed to the member 153. The fingers 154 have the straps or carrier 157 suitably secured thereto whereby as the fingers 154 move to a lowered position, the carriers 157 will similarly move downward to bring the bearings 159 into engagement with the seat shoulders such as the shoulders 129 and 130 so that pressure from the bearings 159 on the shoulders 129 and 130 will urge the disks 127 and 125 together whereby the gripping material 128 and 126 will cause the disks 127 and 125 to rotate in unison, as shown in FIG. 6. Since the disk 138 is integral with or secured to the central portion 142 of the shaft 55, and since the disk 125 is integral with or affixed to the shaft portion 119 of the shaft 52, it will be seen that with the sprocket 131 affixed to the sleeve 140, and the sprocket 133 affixed to the sleeve 134, and with the chain 64 in engagement with the sprocket 165, the chain 64 will move to rotate the sprocket members 89 in view of the fact that the chains 64 are arranged in engagement with the inner sections 62 of the sprocket members 59. Since the outer sprocket sections 63 are integral with or affixed to the inner sprocket sections 62, as the inner sprocket sections 62 rotate, the outer sprocket sections 63 will likewise rotate, whereby with the chain 65 in engagement with the sprocket sections 63, and with the chains 65 also in engagement with the sprocket 67, it will be seen that the sprocket 67 will be rotated whereby the paddle units 74 will be rotated in a clockwise direction, FIG. 2, and move the boat in a reverse direction.

When the levers 145 are rotated downwardly, the bearings 160 will move away from and out of engagement with the shoulders 143 and 144 whereby the springs 139
will urge the disk 136 away from the disk 138 so that even though the shaft 56 is rotating, the sleeve 134 will not be driven through the clutch 122 but will be driven by parts including the clutch 121. Also, with the lever 145 in an intermediate or neutral position, the bearings 157 and 160 are not in engagement with either of the lower shoulders so that the foot pedals can be rotated as an exercising device for health purposes without causing the boat to move in either a forward or reverse direction. Or, either of the levers can be used or moved independently of the other for effecting quick steering or turning of the boat when the lever 56 is in the up position.

By moving either or both of the shift levers 145 downwardly, the corresponding paddle units 74 can be made to rotate in a direction to cause the boat to reverse or back up, and with the shift levers 145 in raised position, the boat is propelled forward, and this arrangement permits the boat to be moved forward, or rearwardly or steered or turned. Thus, with the shift levers 145 in raised position, the cross members 153 will be moved upwardly to rock or pivot the fingers 154 on the support rod 155, the rod 155 being supported by the legs 156 which are suitably attached to the legs 156. As the fingers 154 are moved upwardly, they cause the struts 157 to move upwardly so that the bearings 160 will move into engagement with the shoulders 143 and 144 whereby the disk 135 will be moved toward the disk 138 so that the gripping material 156 will engage the gripping material 137 whereby as the shafts 52 and 56 are rotated by action of the foot pedals 45, the sleeves 134 will be caused to rotate in unison with the central portion 142 of the shaft 56 whereby the sprocket 155 will be rotated, and with the chain 64 in engagement with the sprocket 155, and with the chain 64 also engaging the sprocket 62, it will be seen that this will cause corresponding movement of the chain 65 which will rotate the sprocket 67 to turn the paddle units 74 in a counterclockwise direction, FIG. 2, to cause the boat to move in a forward direction. The shafts 52 and 56 always turn in the same direction due to the arrangement and engagement of the chains 47 with the sprockets 53 and 57 that are mounted on the shafts 52 and 56. In the drawings, the numeral 92 indicates small idlers or bearings for helping to maintain tension of the proper degree on the chain 64.

The parts can be made of any suitable material and in different shapes or sizes. When the present invention is being used, the links 115 are positioned so that the slots 117 therein engage the securing elements 118 on the legs 100, and the securing elements 118 may be of the type which can be tightened in order to maintain the links in their proper connected position, and this arrangement serves to help maintain the base section 34 in its proper extended or operative position, as shown in FIG. 2.

Attention is directed to FIG. 4 of the drawings wherein the present invention is shown in folded or collapsed position illustrating the ease of carrying the device as for example when the present invention is not being used, and when it is desired to collapse or fold the device of the present invention, the links 115 are pivoted about their pivot pins 116 so that the slots 117 move out of engagement with the securing elements 118, and the base section 34 can then be folded or pivoted about an axis extending through the pins 51 so that the base section 34 can be arranged contiguous to the legs 100 and frame members 50. Also, the rotating elements 73 which hold the paddle units 74 in place are loosened so that the paddle units 74 can be removed from the support section 60, and the support section 60 can then be pivoted about an axis extending through the rod 58 so that the support section 60 will overlie the folded base section and frame whereby the entire unit will occupy a minimum amount of space for storage or shipment and with the device thus folded, the device can be placed in a suitable loca-
tion such as in the trunk of a vehicle. With the device in folded position, the hook member 166 is adapted to be pivoted on its pivot pin 167 so that the slot 168 in the hook member 166 will engage the intermediate portion of the shaft 66 in order to maintain the entire device in its folded position and wherein unfolding thereof will be prevented until it is desired to again open the device for use. The member such as the tubular member 51 is adapted to be used as a convenient handle grip or handle for carrying the device in folded position as shown in FIG. 4. Also, the lower portions of the device are co-planar when the device is in folded position so that the device can be supported on a suitable surface in folded position with the lower ends of the members functioning as supporting feet or the like.

The spacer element or brace 165 is adapted to be connected between the support pieces 61, and the spacer 165 may be of the type whose length can be adjusted whereby the distance between the support pieces 61 can be slightly varied or adjusted as desired or required. With further regard to the paddle units 74, the blades or paddles 84 are arranged at an angle relative to a longitudinal axis extending through the sleeves 75, and this angle is such that as the paddle units 74 are turned, the boat will be propelled with maximum efficiency. In other words, the paddles or blades do not strike or hit the water but cut into the water and slide out of the water.

The present invention is light in weight and can be made of tubular construction and used only be made heavy enough to support the weight of the user. The seat member is adjustable, and the entire device can be collapsed and carried conveniently in a vehicle such as an automobile. Also the device can be used on existing boats such as an existing rowboat, and has a compact rugged construction. When the device is being used, the weight from the person thereon helps hold the device in its proper location on the boat. Also due to the construction of the paddle units, there will be a minimum amount of splash, and noise, and very little waves will result.

The present invention can be used as an exercising device for health purposes and can be made to sell for low cost. Instead of using the chain drive, a belt drive, gearing or the like can be used. The device can also be used by sportsmen such as duck hunters or the like since due to the quiet action, the duck hunter can readily approach the ducks. After the shift levers 145 are moved to the desired location, hand pressure can be released so that the user's hands are free to fish or perform any other tasks desired. The device can also be used by military personnel and this is advantageous due to the quiet action. Also, instead of using the foot pedals to propel the device, a suitable motor can be used to provide power. Due to the provision of the independently operating paddle units 74, no separate steering mechanism is required. Different types of clutch mechanisms can be used as desired or required, and the parts can be die cast, stamped, or made of plastic. Also, when the device is being used, the boat does not have to operate in deep water, and the device can be made for use in swimming pools, and the device can be operated by young people as well as older people.

The hardwood floor can be used on the bottom of the device if desired. Suitable bearings, braces and the like can be used wherever desired or required. The pedal paddler of the present invention is instantly inflatable and collapsible for transportation or storage in a small space, and can be made of tubular aluminum construction so that the entire device will weigh less than thirty pounds. The device will furnish pleasure and recreation to the user as well as being useful to operate, and the device can be used in the out-of-doors where one is fishing or where the water is very shallow. Also, due to the lightweight construction of the device, it can be conveniently dropped in conjunction with life rafts and sea-air
rescue services. The device is quiet and splashproof so that it can be conveniently used by duck hunters, as well as by fishermen engaged in trolling for game fish, and the device can be mass produced at low cost. The type of clutches, chain or belt drives can be varied as desired or required. The present invention when mounted on a boat, can be maneuvered and steer the boat, whenever the water is deep and wide enough to float the boat, and a boat provided with this device can turn 360° in its own length. All power transmission and steering is accomplished by means of two hand levers operating the respective clutches. Smaller versions of the device can be made for smaller boats to be used for recreation, fun and health factors in swimming pools, and in small shallow water ponds.

Also, by causing one of the paddle units to rotate in a forward direction and the other paddle unit to rotate in a reverse direction, quick steering in a small circle can be accomplished. Or, for a slower steering effect, only one of the paddle units can be rotated by proper positioning of the levers 145 corresponding thereto. As previously stated however, in order to obtain quick turning in a minimum amount of space, one paddle unit can be made to turn in a clockwise direction while the other paddle unit can be rotated in a counterclockwise direction. In the changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:
1. A boat propulsion and steering mechanism, a frame including a pair of spaced parallel frame members, legs arranged angularly with respect to said frame members and secured thereto, a support section pivotally connected to said frame and including a pair of spaced parallel support pieces, a pair of paddle units detachably connected to said support section, a base section including a pair of spaced apart bars pivotally connected to said frame members, foot pedals operatively connected to said base section, drive means operatively connected to said foot pedals and supported in said frame, and means operatively connecting said drive means to said paddle units.

2. In a boat propulsion and steering mechanism, a frame including a pair of spaced parallel frame members, legs arranged angularly with respect to said frame members and secured thereto, a support section pivotally connected to said frame and including a pair of spaced parallel support pieces, a pair of paddle units detachably connected to said support section, a base section including a pair of spaced apart bars pivotally connected to said frame members, foot pedals operatively connected to said base section, drive means operatively connected to said foot pedals and supported in said frame, and means operatively connecting said drive means to said paddle units, braces affixed to said legs and frame members, and a collapsible seat adapted to be supported on said braces, clutch means supported in said frame, manually operable levers for actuating said clutch means to cause forward, reverse and idling of the paddle units upon rotation of said pedals, means for adjusting the inclination of said support section, and said paddle units each including a plurality of blades that are arranged in spaced apart angular relation with each other.

7. A boat propulsion and steering mechanism comprising a base section including a pair of bars, a pair of spaced parallel arms affixed to said bars, an axle supported by said arms, foot pedals connected to said axle, a first sprocket on said axle between said arms, a first chain engaging said first sprocket; a frame including a pair of spaced parallel frame members pivotally connected to said bars, first and second shafts journaled in said frame members, a central sprocket on each of said first and second shafts engaged by said first chain, a pair of clutches on each of said first and second shafts, said clutches each including disks mounted for movement toward and away from each other, said clutches further including sleeves having sprockets affixed thereto, chains connecting the sprockets of the sleeves of the first and second shafts together, sprockets on the ends of the sleeves of the second shaft, a support section including a pair of spaced parallel support pieces pivotally connected to said rod, a rod member extending between the lower ends of said support pieces, sprocket elements contiguous to the ends of the rod member, chains trained around said sprocket elements and the outer sprocket on said sprocket members, a pair of paddle units detachably connected to the sprocket elements on the ends of the rod member, each of said paddle units including a plurality of angularly arranged blades, plates affixed to the inner surface of the upper ends of the frame members, a crosspiece supported adjacent said plates, a stop member on said crosspiece, a cross element operatively connected to said support section, a manually operable screw member extending through said cross element for engagement with said stop member, a rod extending between said last named plates and having a clamp thereon for engaging the transom of a boat, tubular elements connected to said frame members and legs, braces connected to said tubular elements; a collapsible seat member including a back rest and a bottom portion; links having their lower ends pivotally connected to said bars and said links having slots in the other ends for engaging securing elements on the legs, shoulders on said links of the clutches, carrier pieces having bearings on the ends thereof for engaging said shoulders, straps affixed to said carriers, a rod having said straps pivotally supported thereon, bars affixed to said straps, and manually operable shift levers operatively connected to said bars.

References Cited in the file of this patent

UNITED STATES PATENTS

453,704 Pease ---------------- June 9, 1881
520,944 Thomas ---------------- June 5, 1894
1,820,866 Bruguiere -------------- Aug. 25, 1931
2,399,500 Montalbano ------------ Apr. 30, 1946
2,940,412 Schwarzer ------------ June 14, 1960