SMALL FOLDABLE SINGLE-SEATER ACQUATIC PEDAL-BOAT, TRANSFORMABLE INTO TROLLEY FOR TRANSPORT THEREOF

The invention concerns a small single-seater aquatic pedal boat, having at least one small front paddle-wheel, and the special feature that it folds along a axis transverse to the craft, halving the length thereof, so that it is easily transported by the user as if it were a suitcase with wheels, by means of a handle or handles and some lower wheels positioned laterally and/or in the keels of the floats. The pedal boat also has a backrest which is inclinably adjustable, pedals which are movable to suit the user, and for storing items side chests whose lids serve as armrests for the passenger. The pedal boat is made almost completely of plastic materials and the main advantage thereof is that it can be folded or unfolded in a few seconds, transforming securely into the relevant position and ready for use as a watercraft, for movement on land or transport in a vehicle or trailer, or for storage thereof.
Description

[0001] The invention is a small foldable single-seated, human-powered boat, propelled by pedals and at least a single front paddlewheel, designed mainly for leisure purposes in calm waters. It is made mostly in plastic materials for avoiding or minimizing maintenance and corrosion. Its main feature is that is foldable along an axis transverse to the boat, becoming a kind of trolley or wheeled cart with a handle for dragging it by land, shortening its length to next to the half when folded. By this way it is easily transportable by the user on land, or even on irregular terrain or stairs when folded. The storage and stacking is too easy, so it can be placed into a cabinet, trunk or any kind of small space. It has too an adjustable backrest and movable both pedals and paddlewheel to suit the user, and two optional side boxes or chests for storing objects, whose lids can serve as armrests for the passenger once sit on the boat. Two levers at both sides control the two rear rudders with a string, and because both levers and wheels have the same rotation axis, these levers are automatically placed between the two main half floating bodies of the boat when it is folded and they are protected against hits by both transport wheels.

[0002] For improving stability in navigation, the foldable pedal boat is preferable a catamaran, with their two main half floating bodies having two lateral main floats at both sides, with a central platform or bridge connecting both of them in a whole main half folding piece or body that folds over the other one. This platform or bridge gives too a seat for the passenger.

[0003] The main advantage of the foldable pedal boat is the ability to be folded and unfolded in only few seconds, being firmly fixed in both open and closed positions and ready for navigation or for storage or transport by land. It uses one or two symmetrical U-shaped tube bars whose arms can slide longitudinally into holes molded, shaped or practiced in both the two main half bodies of the boat, and they are fixed with pins for fixing them in both folded and unfolded positions. In the unfolded position, both U-shaped bars are movable between two stoppers for adjusting the backrest and the pedals to the passenger in several positions, but with no possibilities that they can be accidentaly loosen or released and the boat folded in navigation. These symmetrical U-shaped tube bars serve too as a handle and as a locking device for maintaining folded the boat into a trolley form, and for chaining, stacking or hanging it if necessary.

[0004] The small size and capabilities for saving time and for easy transport have the price to limit their uses into relatively calm waters such as lakes, pools, or calm beaches or rivers. It can be interesting for individuals who want to save leisure time or to have a very small portable boat by land, as for recreational and hotel companies or water parks that want to have a number of these easily storable boats for their guests or customers in specially equipped recreational areas.

[0005] They are many human-powered boats (mainly pedal boats) described of many sizes, structures, materials and number of seats. The most of them are designed for individuals and have foldable, collapsible, inflatable or detachable elements, mainly floats or inflatable structures based on frames with rods, screws and a lot of pieces for assembly and linkage, that are cumbersome to assemble and with low structural strength. These inventions have three types of main drawbacks:

a) A large number of metallic parts and components (frames, screws, washers, clamps, chains, etc..), which have corrosion problems that plastic components do not have, and because of that they require continuous maintenance and replacements or be manufactured with marine alloys.

b) The presence in many of them of inflatable floats made in plastic or rubber, that have a high compactness, but also a low durability and low safety for easy puncture, aging or tear.

c) The need of time for assembling and disassembling the structure, and/or the inflation and deflation of floats every time the boat is used, which means less time for leisure.

[0006] Other models are usually large and heavy pedalos with two seats or more, with no compacting or folding capabilities, that are mainly oriented for hotels, beaches, waterparks or other leisure companies. They are designed to be durable, robust and with low maintenance, not for easy transport or for saving time.

[0007] Although there are several folding boats described yet, and some of them are convertible into carts or have attachable wheels, the invention presented in this document have characteristics that are not presented in previous inventions. We must mention first the most notorious previous patent documents and then identify the new features that provide the presented invention.

[0008] The documents US3175234A1, SU1754568A1, US5353733A1 and US3594834A1 describe foldable single-hull boats or foldable dugout canoes splitted in two foldable halves, with the peculiarity that they are foldable along a middle axis transverse to it, to which can be attached optionally wheels or a frame with wheels for transforming them into a kind of tow for being transported by a motor vehicle. The document ES2128887A1 describes a motorized catamaran for sailing that is foldable along an axis transverse to the boat with a frame convertible in a tow for transportation by a vehicle. The document DE3302276A1 describes a motorized catamaran for sailing that is foldable along an axis transverse to the boat with a frame convertible in a tow for transportation by a vehicle. The document DE3302276A1 describes a motorized single hull vessel that can be folded by a central transverse axis, and whose prow section has retractable wheels for converting it into a trailer and be towered by a vehicle. The document US3061845A1 describes a collapsible amphibian catamaran, in which the floats are splitted in two halves and can be folded one over another. Its main par-
ticularity is that the floats are mounted on a frame with pivoting wheels that, being lowered by levers, convert the catamaran on a trailer towable by a car. All of these are single-hull foldable boats, when this invention is a catamaran-type foldable boat.

The document US5870966 "Folding Pontoon Boat" describes a collapsible foldable boat with two floats, each one divided into two halves. The floats have two side wheels each one, leaving them up and above the water level when the boat is opened, and down when it is closed, transforming it into a kind of four-wheeled cart. The two side floats are folded rotating symmetrically 90° around two symmetrical longitudinal axis in relation of the vertical longitudinal symmetry plane of the boat, fitting under an horizontal frame that is as primary platform which has a seat for the passenger. The floats are divided too transversely in two parts, allowing a second folding of the structure along an axis perpendicular to the first ones, housing the seat between some holes especially practiced in both prow and stem of the floats, so that the whole boat is compacted into a wheeled box whose dimensions are half the length and half the width of the boat when this is opened.

The main previous inventions that are most seemed to the presented here are the following:

The document US2745118 "Catamaran" describes a collapsible catamaran. It has two floats attached to a horizontal platform that is foldable according to this transverse axis, made of wood or any solid material, which can fold like a book, below of which the floats are attached. The floats are split into three cross sections (forward, middle and rear), so that when the middle section of such floats is attached simultaneously to both folding sides of the main folding platform, the folding movement is not possible due to rigidity. For these reasons it is not a foldable catamaran vessel, but a catamaran whose main platform is foldable and to which two detachable floats must be attached. The boat is detachable but not foldable as the presented invention.

The document US3083382 "Watercraft" describes a collapsible catamaran in which a metal tube frame with a seat are supported on two parallel side floats that are split in three sections (forward, middle and rear), with the main feature that in each float both prow and stem sections can pivot around some transverse hinges that hold them together to the middle section of the float, so by folding these sections below this middle section it is possible to shorten the length of the boat. After this operation the boat allows an horizontal sliding of the middle sections of the floats inwards along the transverse bars or crossbars until they come into mutual contact at the vertical longitudinal symmetry plane of the boat, reducing the width by compaction, not by folding movements. This invention is also not a folding catamaran as the invention presented here, but a catamaran compactable with some parts that are foldable over other ones, and where the whole are not foldable.

The document US3613136 "Catamaran" describes a collapsible catamaran according to a middle axis that is transverse to the forward direction of the craft, so that the invention is constituted by two floating canoe-type bodies, both of them cross-linked by a hinge that allows a mutual folding. These two floats remain together in parallel by a series of crossbars that bind them in a single structure.

A removable support with a leaf spring suspension system and wheels, which can change its position on the foldable boat, allows the conversion to a tow cart for being towed by a motor vehicle. A longitudinal platform or box anchored simultaneously to each of the two folding parts maintains rigid the structure in the unfolded position. The main difference with the invention of this document is the securing elements of the unfolded boat. The presented invention obtains ridicity by two sliding U-shaped tube bars, front and rear, that can be introduced longitudinally and simultaneously into parallel holes practiced inside the other folding half platform of the boat. Also, the wheels in the previous invention are detachable and not coincident with the folding axis, while the presented invention has a common axis for folding movement, the steering levers and the transport wheels. Then, the invention presented in this document has no detachable elements because the compaction movements are by folding and sliding, with no necessity of removing pieces of the structure as this previous invention.

The document US2005/0034649A1 "Collapsible Watercraft" describes a catamaran-type watercraft with two side floats which are divided transversely into two halves. These floats are attached to a supporting horizontal metal tube frame that serves to place a passenger. This frame is divided into two equal parts, consisting of two rectangular frames, which can be folded one over the other like a book, by a middle hinge placed transversely in relation to the forward direction of the boat. As the splitted floats are attached to both two rectangular frames, (the front ones to the front folding frame and the rear ones to the rear folding frame), all the structure can be folded around the transverse hinge. After this first folding movement the splitted floats can pivot separately 180° inwards around longitudinal hinges placed at the central frame so that the boat is finally packed in a box whose dimensions are about half of the length and half the width of the craft unfolded. This invention has two phases of folding instead of one, and resembles in this aspect the document US870966. The invention presented in this document too differs mainly from this one by the sliding elements that give rigidity to the structure when unfolded, as the previously cited.
The most seemed previous invention is described in the document DE2009278A1 "Wassersportgerät". It describes a very simplified foldable pedal boat, constituted by pair of floats, splitted transversely in two halves and characterized by a stem half that is thicker than the prow half, so there is an increased buoyancy in the area where the passenger is placed. A simple fabric or a string mesh disposed between them serves as a seat for the passenger. The halves of the prow and stem of the floats are attached to a metal main frame tube, which has two U-shaped tube frame halves that fold one over another by a hinge placed in the central axis which is transverse to the direction of advance of the boat.

Thus, the folding of the two frame parts gives the folding of the entire structure and the floats being attached to them. The strengthening of the structure is obtained by an inner rod or the ends of the U-shaped tube that can be inserted into the junction of the two halves, secured with a screw, preventing bending in navigation. A crankshaft with two pedals and two symmetrical paddlewheels, which are placed on the outer sides of both floats, propel the boat. The crankshaft with pedals and paddlewheels can be placed on three pairs of symmetric notched floats, which let you select the most suitable position of the pedals for the user. The simple steering control is a paddlewheel placed at one side in one of the floats, which is operated by a crank, enabling the rotation of the craft depending on the direction of rotation given to the paddlewheel. These two U-shaped tube bars are responsible for rigidization and fixation of the structure, but in both folded and unfolded positions. In the previous invention commented the two U-shaped tube bars are responsible for maintaining joined both floats and for preventing accidental folding at time.

In difference, in the invention presented in this document have some differences. The two folding platforms or halves are entirely manufactured in molded plastic, and the folding axis is placed into a big central transversal hinge. The splitted floats can be manufactured in the same piece that these folding platforms or in separated pieces that must be attached later to them. There are no main metal tube frame structure for maintaining joining the floats, and the U-shaped metal tube bars are placed for preventing the mutual rotation of the two floating platforms. They are responsible for fixing the boat in both folded and unfolded positions. Another important difference is that the two U-shaped tube bars can be independent and not be mutually joined in a the junction with screws as the previous invention cited. Much more, each one of these U-shaped tube bars can be independently movable along two planes placed at different heights, not necessarily in the same horizontal plane as the commented invention. The pedals and the backrest are adjustable by longitudinal sliding of these two bars. In addition, there are many possible embodiments for the invention. The embodiment of the commented previous invention only responds to one of the possible embodiments. Finally, other features that make novelty are pointed here. The U-shaped metal tube bars gives rigidity to both folded and unfolded positions, and in folded position they gives a handle for easy dragging and transporting of the boat by land. This invention can be converted into a trolley seemed to a wheeled suitcase as a main feature by these U-shaped metal tube bars as any previous invention. The invention has a common rotation axis for folding movements, for the transport wheels and for the rotation planes of the steering levers, simplying all the structure. All compacting and decompacting movements, and all adjusting movements to suit the passenger are all due to rotating and sliding movements, so they are no detachable pieces (except the securing pins), so the folding and unfolding movements are quick and easy and the most of the elements are always joined during the use.

**DESCRIPTION OF THE FIGURES.**

The described invention has several possible embodiments of the symmetrical U-shaped tube bars that can be manufactured, all of them with the same inventive concept. From Figure 1 to Figure 18 they are shown several drawings of one of the possible embodiments of the foldable pedal boat, while Figures 19, 20, 21 and 22 show simplified sections for other possible embodiments.

Figure 1 shows a perspective front view from above of the foldable pedal boat in unfolded position, with the five steps required for folding the boat, marked with arrows and sequentially letters.

Figure 2 shows a perspective front view from above of the foldable pedal boat in folded position.

Figure 3 shows a perspective rear view from above of the foldable pedal boat in unfolded position.

Figure 4 shows a perspective rear view from above of the foldable pedal boat in folded position.

Figure 5 shows a side view of the pedal boat in unfolded position, showing the main one of the several possible embodiments of the two symmetrical U-shaped tube bars responsible for fixing the structure to open and closed positions. They are showed the pins that allows the fixation, releasing and limitation of the longitudinal displacement of these symmetrical U-shaped tube bars, and also the holes practiced in both half floating bodies of the pedal boat where they fit.

Figure 6 shows a side view of the pedal boat in folded position, showing the embodiment of the two symmetrical U-shaped tube bars and their fixation pins. The dotted line shows the position of the backrest when the pedal boat is folded.

Figure 7 shows a rear view of the foldable pedal boat in unfolded position.

Figure 8 shows a front view of the foldable pedal boat in unfolded position.

Figure 9 shows a top view of the foldable pedal boat showing the symmetrical U-shaped tube bars and the differ-
ent pieces for displacing and adjusting the pedals and backrest.

Figure 10 shows a bottom view of the pedal boat showing the symmetrical U-shaped tube bars and the different pieces for displacing and adjusting the pedals and backrest.

Figure 11 shows two views of the pedal boat when folded.

Figure 12 shows an exploded view of the pedal boat.

Figure 13 shows from above the two floating bodies that fold over each other.

Figure 14 shows from the side the two floating bodies that fold over each other.

Figure 15 shows a detail from the side of the box or drawer with its lid, a rudder control lever with its rope in several positions, and the notches for leveling the backrest.

Figure 16 shows from above a detail of the seat and the rear floats without the frame of the symmetrical U-shaped tube bars.

Figure 17 shows in side and top views the front symmetrical U-shaped tube bar and the pieces that supports, adjusts and locks pedals and paddlewheel.

Figure 18 shows in side and top views the rear symmetrical U-shaped tube bar and the pieces that supports, adjusts and locks the backrest.

Figure 19 shows simplified drawings of the top view and side view of the forms A1, A2 and A3 for implementing and manufacturing the invention. The top view is the same for all three of them.

Figure 20 shows simplified drawings of the top view and side view of the forms B1, B2 and B3 for implementing and manufacturing the invention. The top view is the same for all three of them.

Figure 21 shows simplified drawings of the top view and side view of the form C1 for implementing and manufacturing the invention.

Figure 22 shows simplified drawings of the top view and side view of the forms D1 and D2 for implementing and manufacturing the invention (with the symmetrical U-shaped tube bars on pointed lines).

**DESCRIPTION OF THE INVENTION.**

[0015] The foldable boat has a single inventive concept in relation to its frame fixing system structure in folded and unfolded positions, but several compatible possible embodiments and embodiments with this, using the same parts and elements but changing the embodiment and placement along the boat. We describe in detail the most likely way of manufacturing and then later we will describe the rest of combinations based on the description of the first one.

[0016] The foldable boat consists, as shown in Figure 13 and Figure 14, of two floating platforms or halves, front (1) and rear (2), which can be folded one over the other, coincidentally, according to a middle axis (3) transverse to the boat. They are seemed but not necessarily identical. Both floating platforms or halves (1) and (2) are made in one or several separate pieces (in this case properly glued, screwed, riveted or connected by any method, for obtaining a single rigid and robust structural unit). The most probably manufacturing method for these two floating platforms or halves (1) and (2) would be the roto-moulding of plastic materials, in a single piece or in detached pieces that must be joined later. Both of these floating platforms (1) and (2) are symmetric in relation to a longitudinal vertical plane of symmetry passing through the center of the boat.

[0017] Both floating platforms or halves (1) and (2) have each one a middle central piece or platform, like a tray, a front one (4) and a rear one (5), both symmetrical in relation to the longitudinal vertical symmetry plane passing through the center of the craft, which serve as a junction or bridge for both symmetrical front floats (6) and rear floats (7), placed at the sides of each floating platform or half (1) and (2). Both pair of symmetrical front floats (6) and rear floats (7) are symmetrical in relation to the longitudinal vertical symmetry plane passing through the center of the craft.

[0018] The central posterior bridge (5) or tray of the rear floating platform or half (2) have some moldings that prevent slipping (8) and serves as a seat for the passenger, having an appropriate shape for being comfortable when sitting in. The central bridge or tray (4) of the front floating platform (1) can be smaller than the previous one, and serves as a union between the two front symmetrical front floats (6), as the central bridge or tray (5) of the rear floating platform or half (2) makes the same between the rear floats (7).

[0019] Floating platforms (1) and (2) have tubes in way of hinge (9) and (10), inside of which is threaded, transversely to the craft, a rigid and thick cylindrical rod (11), which gives the folding axis of the craft, which is fixed with a washer (12) and a pin (13), as shown in Figure 12, Figure 13 and Figure 14. As shown in Figure 5 and Figure 6, when the boat is folded, the front floating platform or half (1) rests and coincides with the rear floating platform or half (2), touching between them on some parts of the floats or on attached elements or stoppers.

[0020] When the boat is unfolded, both pair of symmetrical front floats (6) and rear floats (7) are aligned to constitute two elongated continuous side floats in the boat, making it a small foldable catamaran. The cutting section between the front float (6) and the rear float (7) at each side of the boat is continuous and with no voids or protrusions, giving a streamlined profile that makes the sliding of the boat in the water easy. Each one has at its bottom, longitudinally and symmetrically, a keel-shaped thickening (14), which confers strength and resistance to impact or friction against the ground during transport, ending in a rear fin (15), fused to the rear float (7). These fins (15) are responsible for efficient channeling of waterfow to the rudder (16), to increase the maneuverability of a boat so small. They are reinforced to prevent breakage due to shock or friction with the
ground, as they also serve to protect both rudders (16) when transported by land.

[0021] As shown in the exploded view in Figure 12, the bar (11) of the folding axis of the pedal boat threads by their ends two symmetrical steering levers (17), two equal and symmetrical lateral transport wheels (18) that protect the steering levers (17) from impact or friction to the ground when the boat is folded and dragged by land, and two friction washers (19) that smooth the movement of these steering levers (17).

[0022] To avoid the accidental folding of the pedal boat in navigation, two symmetrical U-shaped tube bars with rounded, square, rectangular or polygonal section, (front (20) and rear (21)), which may be hollow or solid, maintain aligned and rigidly fix the two floating platforms or halves, front (1) and rear (2).

[0023] As shown in Figure 9 and Figure 10, the front flotation platform or half (1) has at least a couple of pieces, or bumps, protrusions or widenings of the float itself (22), placed on the inside, on the outside or on top of the front floats (6), according to the embodiment of the invention.

[0024] Such pieces, bumps, protrusions or widenings of the float (22) are arranged symmetrically about the longitudinal vertical symmetry plane passing through the center of the craft. Each one of these pieces, bumps, protrusions or widenings of the float itself (22) is traversed lengthwise by a hole (23). The central platform or bridge (4) of the front floating platform (1) is also traversed symmetrically by a pair of holes (24), performed longitudinally and symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the craft (on the inside, on the outside or on top of the front floats (6), according to the embodiment of the invention).

[0025] The rear floating platform or half (2) is also traversed by one or two pairs of parallel holes (25), longitudinally and symmetrically practiced in relation to the longitudinal vertical symmetry plane passing through the center of the boat (on the inside, on the outside or on top of the rear floats (7), according to the embodiment of the invention). The rear floating platform or half (2) is also traversed by one or two pairs of parallel holes (29), longitudinally and symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the craft (on the inside, on the outside or on top of the rear floats (7), according to the embodiment of the invention), with the difference that at least a pair of holes (28) and a pair of holes (29) are practiced at the same height.

[0026] The pairs of holes (23), (24) and (25) have all of them the same cross section as both U-shaped tube bars (20) and (21). The two arms of the front U-shaped tube bar (20) can be introduced consecutively so on through the holes (23), (24) and (25) at both sides of the boat. They can slide longitudinally to the boat between two limits made by two stoppers, but always keeping the two floating platforms or halves (1) and (2) unfolded and unable to be folded, when their ends are inserted into the pairs of holes (29) of the front floating platform or half (1). By pulling the ends of the U-shaped tube bar (21) from these pairs of holes (29), the folding of the boat is allowed, at least by the front floating platform or half (1). This is shown in Figure 5 and Figure 6.

[0027] As shown in Figure 9 and Figure 10, the rear flotation platform or half (2) has at least a couple of pieces, bumps, protrusions or widenings of the float itself (26), placed on the inside, on the outside or on top of the rear floats (7), according to the embodiment of the invention. Such pieces, bumps, protrusions or widenings of the float (26) are arranged symmetrically about the longitudinal vertical symmetry plane passing through the center of the craft. Each one of these pieces, or bumps, protrusions or widenings of the float itself (26) is traversed lengthwise by a hole (27). The central platform or bridge (5) of the rear floating platform (2) is also traversed symmetrically by a pair of holes (28), performed longitudinally and symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the boat (on the inside, on the outside or on top of the rear floats (7), according to the embodiment of the invention). The rear floating platform or half (2) is also traversed by one or two pairs of parallel holes (29), longitudinally and symmetrically practiced in relation to the longitudinal vertical symmetry plane passing through the center of the craft (on the inside, on the outside or on top of the rear floats (7), according to the embodiment of the invention), with the difference that at least a pair of holes (28) and a pair of holes (29) are practiced at the same height.

[0028] The holes on the right side and on the left side of the boat are perfectly aligned, and those responsible for housing the rear U-shaped tube bar (21). The pairs of holes (27), (28) and (29) have all of them the same cross section as both U-shaped tube bars (20) and (21). The two arms of the rear U-shaped tube bar (21) can be introduced consecutively so on through the holes (27), (28) and (29) at both sides of the boat. They can slide longitudinally to the boat between two limits made by two stoppers, but always keeping the two floating platforms or halves (1) and (2) unfolded and unable to be folded, when their ends are inserted into the pairs of holes (29) of the front floating platform or half (1). By pulling the ends of the U-shaped tube bar (21) from these pairs of holes (29), the folding of the boat is allowed, at least by the rear floating platform or half (2). This is shown in Figure 5 and Figure 6. By having not just one but two U-shaped tube bars (20) and (21) keeping both the pedal boat unfolded, there is greater safety although one of them could be broken, released or loosen in navigation.

[0029] As shown in Figure 17 and Figure 18, the front U-shaped tube bar (20) has a pair of pedals (30) housed in a pair of bearings (31) that are transversely screwed to the symmetrical arms of this front U-shaped tube bar (20).

[0030] The pedals (30) are joined to at least a single central paddlewheel (32), whose size allows the easy folding of the structure of the pedal boat by introducing itself into the space between the pairs of front floats (6) and the rear floats (7). The rear U-shaped tube bar (21) has two hinges (33) transversely screwed to their both arms, inside of which a bended rounded bar (34) is
placed, which supports and allow the adjusting of the backrest (35) for suiting the passenger.

[0031] The front U-shaped tube bar (20) has drilled in their both symmetrical arms a pair of vertical holes (36), equal and symmetrical to the longitudinal vertical symmetry plane passing through the center of the craft, and a pair of longitudinal slots (37), also equal and symmetrical to the longitudinal vertical symmetry plane passing through the center of the craft. Both into the pair of holes (36) and into the pair of longitudinal slots (37) can be placed a pair of pins (38), that cross vertically the pieces, bumps, protrusions or widenings (22) of the pair of front floats (6). When the pair of holes (36) is crossed by the pair of pins (38), the front U-shaped tube bar (20) is locked and can not slide longitudinally. If it is positioned in a way that that their ends are not inserted into the pair or pairs of holes (25) of the rear floating platform or half (2), the rotation is not impeded and the foldable pedal boat can be folded around its axis (3).

[0032] When the pair of pins (38), through the pieces, bumps, protrusions or widenings (22) of the pair of front floats (6), are placed into the pair of longitudinal vertical slots (37), the front U-shaped tube bar (20) can displace longitudinally in the direction of the boat a distance equal to the length of this pair of longitudinal vertical slots (37). This allows that the pedals (30) and the paddlewheel (32) can be adjusted to the size of the passenger but always with the ends of the arms of the front U-shaped tube bar (20) introduced into the pair or pairs of holes (25) of the rear floating platform or half (2), impeding the accidental folding of the pedal boat in navigation.

[0033] For fixing intermediate positions of the front U-shaped tube bar (20), the pair of pedals (30) and the paddlewheel (32) in relation to the passenger, two small pivoting and / or sliding closures or locks (39), symmetrically placed in both arms of the frame front U-shaped tube bar (20), can rotate and / or slide into some small hinges or supports (40), fitting into preset positions disposed in two rows of notches or holes (41), symmetrically practiced on the inside, on the outside or on top of the front floats (6), according to the embodiment of the invention. The passenger uses both hands to unlock such pivoting and / or sliding closures or locks (39) and pushed them forward or backward the pedals by using the feet, locking them the front U-shaped tube bar (20) in the desired position.

[0034] The rear U-shaped tube bar (21) has drilled in their both symmetrical arms a pair of vertical holes (42), equal and symmetrical in relation to the longitudinal vertical symmetry plane passing through the center of the vessel, and a pair of longitudinal vertical slots (43), also equal and symmetrical in rotation to the longitudinal vertical symmetry plane passing through the center of the craft. Both into the pair of holes (42) and into the pair of longitudinal slots (43) can be fitted vertically a pair of pins (44) which can be introduced at time through the pieces, bumps, protrusions or widenings (26) of the pair of rear floats (7).

[0035] When the pair of pins (44), placed across the pieces, bumps, protrusions or widenings (26) of the rear floats (7), are too placed across the pair of holes (42), the rear U-shaped tube bar (21) is fixed and can not slide longitudinally, being positioned so that their ends are inserted into the pair or pairs of holes (29) of the front floating platform or half (1), so this does not prevent the folding of the boat around its axis (3).

[0036] When the pair of pins (44), placed across the pieces, bumps, protrusions or widenings (26) of the rear floats (7) are too placed across the pair of longitudinal slots (43), the rear U-shaped tube bar (21) is not fixed and can slide longitudinally along the axis of the boat the same distance that the length of the pair of slots (43). This allows the displacement of the support bar (38) of the backrest (35) in relation to the position of the passenger, but so that at any position the arms of the rear U-shaped tube bar (21) are always inserted into the pair or pairs of holes (29) of the front floating platform or half (1), so that the pedal boat can not be folded around its axis (3).

[0037] For obtaining intermediate positions of displacement of the rear U-shaped tube bar (21) and inclinations of the backrest(35), two L-shaped horizontal bars (45), that are bolted, riveted or glued to the rear U-shaped tube bar (21), have at their extremes two handles with locking pivoting and / or sliding devices that can be placed into two symmetrical rows of notches or holes (47), performed on the outer sides of the pair of rear floats (7). These two symmetrical rows of notches or holes (47) fix the two L-shaped horizontal bars (45) in preset positions and adjust the backrest (35) in inclination. They can be easily caught by the passenger to unblock, move and relock the whole using both hands at once.

[0038] When the pedal boat is folded, the two U-shaped tube bars front (20) and rear (21) can be joined by two ending plastic pieces (48), placed both of them at the transverse middle segment of the two U-shaped tube bars front (20) and rear (21). These two ending plastic pieces (48) have a lock device for a secure joining and have a shape with a handle for dragging or pushing the folded pedal boat as a trolley or cart. The backrest (35) is joined to the rear floating platform or half (2) by a straight bar (50) and an ending washer (51) with a pin (52) that crosses and threads it by using the tube hinges (53) and (54). The backrest (35) can then rotate freely around the axis provided by this straight bar (50) when the pin (52) is secured, but is always joined to the boat. A pair of rear hooks (55) can be coupled and uncoupled to the supporting and adjusting bended bar (34) of the backrest (35), allowing the backrest (35) to be folded downwards when the boat is folding, making space for allowing the coupling of the paddlewheel (32).

[0039] The bearings (30) and the hinges (31) are screwed to the U-shaped tube bars front (20) and rear (21), respectively, and they can be used as stoppers for their displacements. These elements stops the pieces, or bumps, protrusions or widenings of the float itself (22)
and (26), so unless they are unscrewed they prevents the U-shaped tube bars front (20) and rear (21) from be releasing out from the pairs of holes (23) and (24), and from the pairs of holes (27) and (28), respectively, and be lost. However, they do not prevent that the U-shaped tube bars are front (20) and rear (21) can be out from the pair of holes (25) and (29), so the pedal boat can be folded around its axis (3), because the pins (38) and (44) are the responsible of avoiding this fact.

[0040] The floating platform or half (2) have at each one of the stems of their floats (7) a vertical hole (56) for housing a rudder (16) which is confined on this position by a fixing piece that has an horizontal pulley (57). A single a rope or string (58) connects the two horizontal pulleys (57) of both rudders (16), and the two steering levers (17), synchronizing all of them. As shown in Figure 15, by pushing forward any of the two steering levers (17), the rope (58) is strained, both rudders turns at time in this direction, and the other steering lever (17) is pulled to to back. Pushing back any or the two steering levers (17), the rope (58) is loosen, which have the advantage of allowing to fold the boat without disengage or unhook it, saving time. The steering levers (17) are protected from contact with the ground by the side transport wheels (18).

[0041] The boat has two side chests or boxes (59), consisting of two small openings or hollows (64) symetrically practiced on top of the rear floating platform or half (7), so that they are placed at both sides of the seat and the backrest (35). Each one is closed with a small lid or cover (60) which rotates on a transverse hinge (61). A small stopper (62) limits the opening angle of the cap or cover (60) and a small handle (63) makes more easy to open and to close it. The covers or lids (60) have a shape with a curved upper surface that allows them to be used as armrests. When the boat is folded these covers or lids (60) and the top of the chests or boxes (59) fit into two hollows (64) practiced sinetically at the top of the floats (6) of the the front floating platform or half (1), so that do not impede the folding of the structure. Both the chests or boxes (59) and the hollows (64) have small holes for water drainage.

[0042] To fold the pedal boat, they are five steps. For opening the pedal boat the process is the inverse one:

a) By unlocking the pairs of pivoting and / or sliding handles (39) and (46), the pairs of pins (38) and (44) must be removed both from the pair of vertical holes that cross the pieces, bumps, protrusions or widenings (22) and (26) of the pair of front floats (6) and rear floats (7), respectively, as from the pair of longitudinal slots (37) and (43) of the U-shaped tube bars front (20) and rear (21), respectively.

b) By pulling out the U-shaped tube bars front (20) and rear (21), and by matching their pairs of holes (36) and (42) with the vertical holes that cross the pairs of pieces, bumps, protrusions or widenings (22) and (26) of the floating platforms or halves (1) and (2).

c) By passing the pairs of pins (38) and (44) through the vertical holes practiced in the pieces, bumps, protrusions or widenings (22) and (26) of the pair of front floats (6) and rear floats (7), respectively, and through the pairs of holes (36) and (42) of the U-shaped tube bars front (20) and rear (21), respectively.

[0043] Following the inventive concept previously described, there are several possible embodiments of the invention, which simplified drawings can be seen from Figure 19 to Figure 22. In a group A of three possible embodiments of the invention, the arms of the two U-shaped tube bars front (20) and rear (21), the pieces, bumps, protrusions or widenings (22) and (26) of the pair of front floats (6) and rear floats (7), and the pairs of holes (23), (24), (25), (27), (28), (29), are located on the inner sides of the pair of front floats (6) and rear floats (7).

[0044] The arms of the two U-shaped tube bars front (20) and rear (21), and the elements that allow their housing and longitudinal displacement can be placed at different heights in two different horizontal displacement planes for each one (case of the embodiments A1 and A2), or at the same height, with a single horizontal displacement plane for both U-shaped tube bars front (20) and rear (21) (case of the embodiment A3). In the last one, the arms of the two U-shaped tube bars front (20) and rear (21) are finished in tube ends that fit mutually between them. For that the pieces, bumps, protrusions or widenings (22) and (26) and the pairs of holes (23), (24), (25), (27), (28), (29) are placed at the same height, with the peculiarity that the pairs of holes (24) and (29) and the pairs of holes (25) and (28) are now the same because they are in the same plane.

[0045] In a group B of three possible embodiments of the invention, the arms of the two U-shaped tube bars front (20) and rear (21), the pieces, bumps, protrusions or widenings (22) and (26) of the pair of front floats (6) and rear floats (7), and the pairs of holes (23), (24), (25), (27), (28), (29) are located on the outer sides of the pair of front floats (6) and rear floats (7). The arms of the two U-shaped tube bars front (20) and rear (21), and the elements that allow their housing and longitudinal displacement can be placed at different heights, with two different horizontal displacement planes for the two U-shaped tube bars front (20) and rear (21) (case of the embodiments A1 and A2), or at the same height, with a single horizontal displacement plane for both U-shaped tube bars front (20) and rear (21) (case of the embodiment A3).
In the last one, the arms of the two U-shaped tube bars front (20) and rear (21) are finished in tube ends that fit mutually between them. For that the pieces, bumps, protrusions or widenings (22) and (26) and the pairs of holes (23), (24), (25), (27), (28), (29) are placed at the same height, with the peculiarity that the pairs of holes (24) and (29) and the pairs of holes (25) and (28) are now the same because they are in the same plane.

[0046] In a group C of a single possible embodiment of the invention, the arms of the two U-shaped tube bars front (20) and rear (21) are placed in the same displacement horizontal plane, displacing both of them inside slots and holes aligned horizontally in the top surface of the pairs of front floats (6) and rear floats (7), along its vertical longitudinal plane of symmetry and below the tubes (9) and (10) of the hinge of the folding axis (3) of the pedal boat. In case of passing above this hinge the pedal boat could not be folded. The pieces, bumps, protrusions or widenings (22) and (26) of the pair of front floats (6) and rear floats (7), and the pairs of holes (23), (24), (25), (27), (28), (29), are all of them placed at the same height and aligned at each one of the sides of the boat, along the vertical longitudinal plane of symmetry of each front float (6) or rear float (7). The ends of the arms of the two U-shaped tube bars front (20) and rear (21) are finished in solid or hollow extremes, as in the embodiment A3, so that each end is embedded and stuffed into the opposite one to form together a rectangular frame movable and extensible. As they are a single displacement horizontal plane as in the embodiment A3, the pairs of holes (24) and (29) and the pairs of holes (25) and (28) are also the same.

[0047] In a group D of two possible embodiments of the invention D1 and D2, the two U-shaped tube bars front (20) and rear (21) are placed in the same displacement horizontal plane, in longitudinal grooves and holes practiced at the top surface of the pairs of front floats (6) and rear floats (7), as in the embodiment C1. But in this case the ends are not mutually embedded or stuffed, and the pairs of holes (23), (24), (25) are all of them aligned at each side of the boat, but not with the pairs of holes (27), (28), (29). Both U-shaped tube bars front (20) and rear (21) have different widths. In the D1 embodiment the rear U-shaped tube bar (21) is wider than the front U-shaped tube bar (20), and in the D2 embodiment to the contrary.

[0048] The C and D embodiments have the inconvenience of eliminating the drawers or boxes (59) at sides and their armrests (60).

[0049] The requirement for avoiding the folding of the boat is that each pair of holes (24) and (25), and (28) and (29), must be aligned with each other to allow the introduction of the arms of the two U-shaped tube bars front (20) and rear (21). In the A, A2, A3, B1, B2, and B3 embodiments the arms of the two U-shaped tube bars front (20) and rear (21) are straight, so that on each side of the boat the holes (23), (24) and (25) are aligned, and the holes (27), (28) and (29) too.

[0050] Other different embodiments of the invention A1', A2', A3', B1', B2', B3', differ from the previous ones in that the two U-shaped tube bars front (20) and rear (21) have their arms bended in a vertical and / or horizontal plane, so that the pairs of holes (23) are not aligned with the pairs of holes (24) and (25) and / or the pairs of holes (27) are not aligned with the pairs of holes (28) and (29). These curves can serve as a stopper for the front U-shaped tube bar (20) against the projections pieces, bumps, protrusions or widenings (22) of the pair of front floats (6), so it is not released from its place.

[0051] By the same way, they can serve as a stopper for the rear U-shaped tube bar (21) against the pieces, bumps, protrusions or widenings (26) of the pair of rear floats (7), so it is not released from its place too. In the position of these stoppers the folding of the boat is allowed so the only way to extract the frame is disassembled by unscrewing or pairs of protrusions or widenings (22) and (26), and then necessarily they must be manufactured in separate pieces from the floating platforms or halves (1) and (2).

[0052] They can also be mixed combinations, in which the embodiment of elements of the floating platforms or halves front (1) and rear (2), and the U-shaped tube bars front (20) and rear (21), have two different ways for securing the locking of the pedal boat in unfolded position, but making more expensive and complicate the foldable boat. It is possible to combine them in pairs, applying them to the front floating platforms or halves (1) and rear (2) those realizations where the arms of the U-shaped tube bars front (20) and rear (21) are not mutually introduced, as can be the ways A1, A2, B1, B2, A1', A2', B1', B2', D1', D2', which give a large number of possible combinations. We said before that there might be one or two pairs of holes (25) mutually parallel to each other, and one or two pairs of holes (29) mutually parallel to each other. In the previous mixed combinations of different floating platforms or halves (1) and (2), they are needed two pairs of parallel holes (25) and two pairs of parallel holes (29) for placing inside the arms of the two U-shaped tube bars front (20) and rear (21) of different width and / or height.

Claims

1. Small single-seated pedal boat foldable around a central transverse axis, constituted by a front floating platform (1) and a rear floating platform (2), which are not necessarily equal to each other and/or symmetrical in relation to a transverse plane of symmetry vertical passing through the center of the boat, but symmetrical in relation to a longitudinal plane of symmetry vertical passing through the center of the boat, which can be manufactured in a single piece or multiple (assembled or disassembled, but properly bolted, riveted, glued, or bound by any method that allows to obtain forms a single robust and strong structural unit), so that such floating platforms (1 and 2)
can be folded and matched one over the other coincidentally, pivoting relatively to each other 180° around a central axis transverse to the boat (3), which consists of at least one bar or cylindrical tube (11), housed and confined by stops (12) and pins (13) within the transverse hollow tubes (9 and 10) placed coaxially aligned, so that one or more are united to any of the two floating platforms (1 or 2), and the rest to the other floating platform (1 or 2), serving then as a hinge for folding the boat, and thus allowing to shorten the length of the boat in half.

2. Small single-seated pedal boat foldable around a central transverse axis described by the claim 1, in which each of the two floating platforms (1 and 2) consists of a platform or central horizontal surface (4) and (5), placed above the water level, that connect rigidly two floating longitudinally elongated bodies or floats, two front ones (6) in the front floating platform (1) and two rear ones (7) in the rear floating platform (2), both of them symmetrical in relation to a longitudinal vertical symmetry plane passing through the center of the boat, so that when the pedal boat is unfolded from its folded position by turning 180° around the central axis (3) one of the two floating platforms (1 or 2), the front float (6) and the rear float (7) of each side of the boat constitute together the external shape of a single continuous hydrodynamic longitudinal elongated float (but splitted in two half parts transversely), whose surfaces are continuous, with no breaks or discontinuities between them for improving the water flow during navigation. They have the particularity that once the pedal boat is unfolded, the two platforms or central horizontal surfaces (4 and 5) of the two floating platforms (1 and 2), constitute an approximately horizontal flat surface with small bumps or slopes, allowing to be used or adapted as a seat or as a surface for lying down a passenger.

3. Small single-seated pedal boat foldable around a central transverse axis described by the claim 2, in which the ends of the cylindrical tubes, tubes, bar or bars (11) which serves as folding axis (3) of the boat, protrude laterally by both sides an additional distance, so that it is possible to thread in such ends two side transport wheels (18), attached to side stoppers or washers (12) and secured with pins (13) to the bar(s) or tube(s) (11), so that such side transport wheels (18) allow the boat to be easily dragged or pushed by land as a wheeled suitcase or trolley when folded or even when unfolded is they have enough size.

4. Small single-seated pedal boat foldable around a central transverse axis described by the claim 3, in which there are two steering control levers (17) at each side of the boat that are placed on both outer sides of the floating platforms (1 and 2) and can pivot around the tube(s) or bar(s) (11) of the common axis (3) for folding the boat and for transport wheels (18), or placed on an additional axis parallel to the previous one (3), Each steering control lever (17) is constituted by a rod or plate that turns perpendicularly to the folding axis (3) crossed by it. Each one have on the top a handlebar or knob for an easy handling by the passenger, and on the bottom a ring, hole, closing or crimping on which one of the ends of a single string, cable or rope (58) for dragging the rudders (16) can be tangled, knotted or fixed. This string, cable or rope (58) passes horizontally inside tube-shaped guides or rings along the outer edges or the rear floats (7) and/or the rear floating platform or half (2). By this way by pushing forward one of the two steering control levers (17) the string, cable or rope (58) drags both parallel rudders (16) to the desired direction at time synchronically, and the other steering control lever (17) is pulled back at time. By pushing back one or the two steering control levers (17), the string, cable or rope (58) for dragging the rudders (16) is loosen. In order to facilitate this effect of maintain tight or loose the string, cable or rope (58) for dragging the rudders (16), the steering control levers (17) can be bent an angle previously calculated. This effect make no necessary to disengage the rudder control system to fold the boat because the rudder control lever (17) pivoted back into this operation and their upper ends with handlebars are automatically hosted, protected and locked between the floating platforms or halves (1) and (2) at each side of the boat, and their lower ends protected from contact with the ground by the side transport wheels (18).

5. Small single-seated pedal boat foldable around a central transverse axis described by the claim 4, in which there is at least one of two possible U-shaped tube bars, one to the front (20) and the other to the rear (21), both of them of square, rectangular, polygonal, circular, or elliptical cross-section and bend in a U shape, and being symmetrical in relation to the longitudinal vertical symmetry plane passing through the center of the craft and as in relation to their own longitudinal vertical symmetry planes passing through the center of each one of them. Both of these U-shaped tube bars (20) and (21) can slide longitudinally, either into a same horizontal plane or in two different parallel horizontal planes, one for each of them, and introduce each of the two ends of each U-shaped tube bar (20) and (21) successively in at least three holes, slots, hollows or openings, all or some of them disposed longitudinally and mutually parallel on the boat along some pieces, bumps, protrusions or widenings (22) and (26) of the floating platforms or halves (1) and (2), and having the same cross-section that the U-shaped tube bars (20) and
6. All of these pieces, bumps, protrusions or widenings (22) and (26) of the floating platforms or halves (1) and (2) are placed symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the craft. Each end of each U-shaped tube bar (20) or (21) can be introduced firstly into a hole, hollow, groove or slot (23) or (27) placed in a piece, bump, protrusion or widening (22) or (26) placed near the prow or the stem of the floating platform or half (1) or (2) considered (preferably in the front floats (6) or the rear floats (7)), and then by horizontal longitudinal sliding through two consecutive holes, slots, grooves or hollows (24) and (25) or (28) and (29), which all of them are parallel but not necessarily aligned with the first holes (23) and (27) and between themselves. The first pair (24) or (28) is drilled, molded or practiced by any method longitudinally in the side of mutual contact between the two floating platforms or halves (1) and (2), and crossing them completely in longitudinal direction, and the second one (25) or (29), respectively, placed aligned consecutively in the adjacent floating platform or half (1) or (2). By this way, by unfolding the boat the pairs of consecutively holes, slots, grooves or hollows (24) and (25) and the pairs of consecutively holes, slots, grooves or hollows (28) and (29) constitute a single and continuous hole, hollow, groove or slot crossing both floating platforms or halves (1) or (2). By this way, the consecutive introduction by longitudinal sliding of both arms of at least one of the U-shaped tube bars (20) and (21) into the three consecutive holes, slots or hollows (in the sequence (23), (24) and (25) in the case of the front U-shaped tube bar (20), and in the sequence (27), (28) and (29) in the case of the rear U-shaped tube bar (21)) prevents the folding of the pedal boat. When by longitudinal sliding the ends of the arms of both U-shaped tube bars (20) and (21) are out of the holes, slots or hollows (25) or (29) of the other adjacent floating platform or half (1) or (2), the folding of the boat is allowed. In the case that the two U-shaped tube bars (20) and (21) have the same horizontal sliding plane, at least the pairs of symmetrical holes, hollows, grooves or slots (24) and (29), and (28) and (25) are placed too in the same plane so they are coincident and then the same. In this case, the ends of the arms of the two U-shaped tube bars (20) and (21) must be finished in an embodiment that allow their mutual plug in or coupling.

7. Small single-seated pedal boat foldable around a central transverse axis described by the claim 6, in which each U-shaped tube bar (20) and (21) has two parallel longitudinal vertical slots (37) and (43), respectively, that each one cross vertically completely each arm of each U-shaped tube bar (20) and (21) being parallel to them, and disposed symmetrically to the longitudinal vertical symmetry plane passing through the center of the boat. Inside and crossing these two pairs of parallel longitudinal vertical slots (37) and (43) two pairs of fixation vertical pins (38) and (44) can be inserted. By this way, if these pairs or fixation pins (38) and (44) cross consecutively the vertical holes practiced or drilled across the pieces, bumps, protrusions or widenings (22) and (26) of the floats, and these parallel longitudinal vertical slots (37) and (43) of the U-shaped tube bars (20) and (21), respectively, each U-shaped tube bar (20) or (21) can move and displace longitudinally a distance equal to the length of the pair of parallel longitudinal vertical slots (37) or (43) practiced on it, between two positions determined by the position and length in the correspondent U-shaped bar (20) or (21) where the pair of longitudinal slots (37) or (43) is drilled or practiced, serving then these pairs of parallel longitudinal vertical slots (37) and (43) as stop-
8. Small single-seated pedal boat foldable around a central transverse axis described by the claim 7 where, once the pedal boat is folded, the central transverse segment of both U-shaped tube bars (20) and (21) fits into or to the other one, and such U-shaped tube bars (20) and (21) may be bended or curved if convenient to facilitate this coupling. Such U-shaped tube bars (20) and (21) can be mutually united and anchored by pieces of plastic (48) with hooks, closures, clasps or anchoring tabs which serve both as a handle for dragging the pedal boat by land, as a closure system which prevents mutual rotation of the floating platforms (1 and 2) around its transverse central axis (3) avoiding the accidental opening and unfolding on land.

9. Small single-seated pedal boat foldable around a central transverse axis described by the claim 8 in which, optionally, the front floats (6) and the rear floats (7) of both floating platforms or halves (1) and (2) have a keel-shaped thickening (14) lengthwise, along their longitudinal vertical symmetry planes, serving as a protection against collisions and frictions with the ground and underwater objects, and which ends in a rear fin (15) too strengthened for managing efficiently the water flow to the rudder (16) located at the stern of the same float.

10. Small single-seated pedal boat foldable around a central transverse axis described by the claim 9, in which they are arranged vertically downward, placed at the vertical longitudinal plane of symmetry of each front and rear float (6) and (7), at least a small wheel (49), placed symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the craft, which help the transport on land when the boat is unfolded, but whose small size gives little drag or resistance to advance when navigating. They also allow that the pedal boat can stand without falling by relying simultaneously on the two side transport wheels (18) and the pair of lower small wheels (49).

11. Small single-seated pedal boat foldable around a central transverse axis described by the claim 10, in which when the pedal boat is unfolded and the pair of pins (38) and (44) are inserted simultaneously into their corresponding and respective pairs of slots (37) and (43) of the U-shaped tube bars (20) and (21) and too into the pairs of vertical holes practiced or drilled across the pieces, bumps, protrusions or widenings (22) and (26) of the floats, both U-shaped tube bars (20) and (21) can move, displace longitudinally and be adjusted at intermediate distances between two displacement limits imposed respectively by the length of each one of the pairs of slots (37) and (43). The intermediate displacement positions are due to a pair of closures, pins or latches (39) and (46) for each U-shaped tube bar (20) and (21), placed symmetrically in relation to the vertical symmetry axis that crossing the center of the boat and the own U-shaped tube bars (20) and (21) too, which can be either tilting around small transversal hinges (40), or sliding by using pins to prevent them from leaving their holes. Those pairs of closures, pins or latches (39) and (46) can be inserted or fitted in preset intermediate positions by using two rows of grooves, slots or holes (41) and (47), (depending on if they are tilting or sliding), so that each of these pairs of rows are placed on each one of the floating platforms or halves front (1) and rear (2), symmetrically in relation to the longitudinal vertical symmetry plane passing through the center of the craft. With this embodiment, in order that the user can use his or her hands to catch easily the tilting or sliding closures or latches (46), a pair of connection bars (45), either straight, bended, curved in L-shape, or curved in Z-shape, are bolted or riveted to the rear U-shaped tube bar (21) and contain the tilting or sliding closures or latches (46) in order to be inserted or fitted into the row of grooves, slots or holes (47), practiced on the rear floating platform or half (2) for adjusting the backrest (35).

12. Small single-seated pedal boat foldable around a central transverse axis described by the claim 11, in which a crankshaft with two pedals (30) can rotate freely around an horizontal axis transverse to the boat by placing their ends into a pair of bearings (31) symmetrically screwed or fixed to the front U-shaped tube bar (20) and being capable of moving with it to suit the passenger, and where these pedals (30) are joined to at least a central paddlewheel (32), placed between both pedals (30) and / or, in case that the horizontal displacement plane of the axis of the crankshaft would be placed above the front floats (6) and the boat in this embodiment would be folded with no interferences with these elements, two lateral paddlewheels (32) placed at the enlarged ends of the crankshaft that can protrude laterally at both sides of the boat outside the front floats (6).

13. Small single-seated pedal boat foldable around a central transverse axis described by the claim 14, in which a foldable and detachable backrest (35) pivots freely around an horizontal axis transverse to the
boat, being constituted this axis by at least a cylindrical rod or bar (50) fixed with caps and washers (52) and pins (51), that thread a series of transverse coaxial parallel tubes (53), fixed or practiced on the back end of the central platform (5) of the rear floating platform or half (2), and other parallel coaxial transverse tubes (54), fixed or practiced in the bottom of the backrest (35), with the particularity that such folding backrest (35) has some rear hooks on which the middle part of a U-shaped bar of circular section (34) may be hooked or fixed, whose lower ends pivot into a pair of transverse hinges (33) symmetrically screwed to the rear U-shaped tube bar (21), to prevent the backrest (35) can fall under its own weight or the weight of the passenger. With this embodiment, the inclination of the backrest (35) can be adjusted with the horizontal displacement of the rear U-shaped tube bar (21).

14. Small single-seated pedal boat foldable around a central transverse axis described by the claim 13, in which there are arranged at both sides of the top of the rear floating platform or half (2) and the rear floats (7), and at both sides of the seat and the passenger, two chests or boxes, arranged longitudinally in relation to the boat, opened on the top, which can serve as side receptacles (59) for storing objects. They can be moulded in the same mold or piece of the rear floating platform or half (2), or as a detachable element fixed with pins or screws. They have little holes for water drainage and a lid (60) that pivots on a hinge (61), at side or at the rear, which doses on its corresponding chest or box (59), fitting in some perimetral closures. These lids (60) can have an optimized shape to make possible the role of armrests for passenger’s accommodation. If required, each side drawer (59) with its lid (60) have a receptacle (64) where can fit perfectly when the boat is folded into a hollow or hole (64) performed at the top of the front floats (6) of the front floating platform or half (1), allowing the full folding of the pedal boat.
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