July 23, 1963 A. M. COREY ETAL 3,098,245

BOAT AND TRUNDLING MECHANISM

Filed Sept. 6, 1960

Fig. 1.

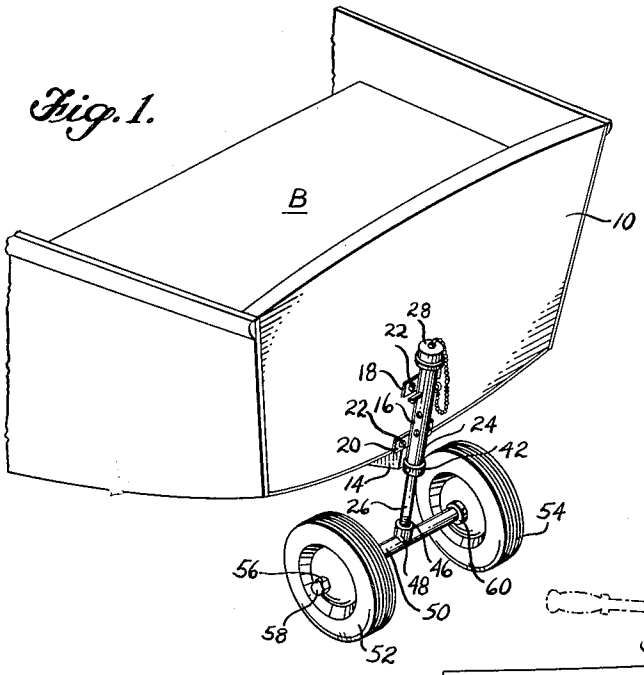


Fig. 2.

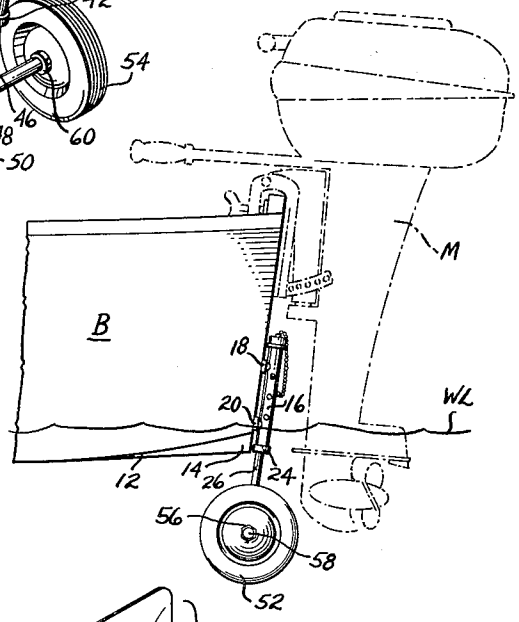
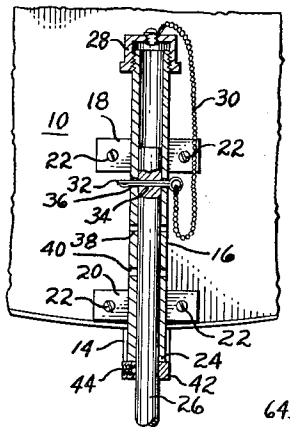


Fig. 3.



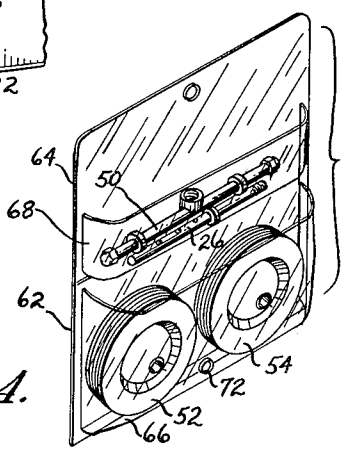


Fig. 4.

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BOAT AND TRUNDLING MECHANISM

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The present invention relates to small boat handling devices, and more particularly to small boat wheeling or trundling attachments particularly suited for porting, launching and beaching operations where a boat is moved over land or beach terrain in a manner analogous to a wheelbarrow.

Small boats, particularly of the pram or so-called "car top" type now in popular usage by sport fishermen, often present serious portage problems. Such boats are typically 8′ or 10′ long, for example. Getting the boat, usually loaded with gear, to and from the car to the water is often a rather vexing job, particularly when the gear includes an outboard motor for the boat. It is not uncommon for the closest available parking facilities to be a mile or more away from the water, and the portage of the boat and gear often requires several trips over relatively rough terrain. Further, even when at the beach, the job of launching and beaching a boat can be rather troublesome, with attendant risk of damage to the boat hull finish and the boat's outboard motor.

In general, prior devices for dollying or otherwise wheeling small boats includes side mounted wheels such as shown in David 2,410,570 and West 2,421,671, hull well mounted wheel arrangements, such as shown in Lenci et al. 2,507,793, or relatively elaborate stern or prow mounted devices such as shown in Du Brie 2,455,048, Newell 2,551,040, Choplin 2,624,591, Dahlkvist 2,673,991 and Elmore 2,792,232. However, none of such prior devices is of a type which can be left on the boat for waterborne use of the boat, if desired, nor can such be readily stowed on board the boat during waterborne use of the boat. This latter disadvantage is quite important from a practical point of view because unless the mechanism for wheeling the boat can be conveniently carried along on the boat after the portage to the water, it must be either left unattended on shore or returned to a secure place, such as the car of the user, which latter requirement actually necessitates two extra portage trips from the car to the water, i.e. a trip to return the wheel device to the car after the boat is delivered to the beach, and a trip to the car to get the device when portage back to the car is desired.

To overcome these problems incident to the complexity and difficulties in use of prior boat wheeling devices, the trundling mechanism characteristic of the present invention provides a much simpler, readily fabricated, inexpensive, lightweight, yet strong and sturdy means which can be simply left on the boat when the boat is in use, or quickly removed and easily stowed on board the boat, as desired. Further, the trundling mechanism of the present invention is readily and adjustably adaptable to accommodation of various sized outboard motors on the boat, either in portage or in waterborne use, and is unobtrusive and non-interfering with operation of the outboard motor even if left on the boat. As a further related feature, the present device when left on a waterborne boat provides an inherent safety feature in terms of protecting the motor from encountering unobserved underwater obstacles. As a further feature and advantage of the trundling mechanism of the present invention, a boat thus equipped need not be inverted to be trundled, and can thus be used to carry the boat motor and any other desired gear or equipment on or in the boat during a portage operation. Further, the readily detachable portion of the trunding mechanism here presented is compactly packageable and easily stored or handled in channels of commerce, the article of commerce involved comprising a particularly advantageous carrying case arrangement for the mechanism.

These and other objects, features and advantages and characteristics of the trundling mechanism of the present invention, and the unique combination and arrangement of such with a small boat, will be apparent from the following description of a typical and therefore non-limitive form of the invention, as presented by the accompanying drawings, wherein like alphabetical and numerical designations refer to like parts, and wherein:

FIG. 1 is an isometric fragmentary view of the stern portion of a small boat of the pram type, with the trundling mechanism of the present invention in place thereon;

FIG. 2 is a side view of the boat portion and trundling mechanism shown in FIG. 1, presenting the relation thereof to a typical outboard motor installed in the conventional manner at the stern of the boat, the arrangement shown in such FIG. 2 also diagrammatically indicating the relative arrangement and depth in the water of the immersed portions of the trundling mechanism and the outboard motor;

FIG. 3 is a view in vertical cross section, with certain portions shown in elevation, of the tube and post portions of the trundling mechanism shown in FIGS. 1 and 2; and

FIG. 4 is an isometric view of a carrying case adapted for packing the readily detachable and disassembleable portions of the trundling mechanism shown in FIGS. 1 and 2, to illustrate the compactness thereof when disassembled and stored.

As shown in FIGS. 1 and 2, boat B is of a pram type conventional per se, of either plywood or glass fiber reinforced resin construction, a plywood construction being shown by way of example. For terms of reference in connection with the following description of the present invention, it will be understood such boat B comprises a stern transom 10, on which is mountable an outboard motor M (FIG. 2) in a manner also conventional per se, and that sailboat B typically has a keel 12 and a keel heel 14 protruding slightly below transom 10 of the boat.

As shown in FIGS. 1–3, the trundling mechanism of the present invention as installed on boat B comprises a mounting tube 16 affixed as a permanent attachment on the boat by suitable means such as laterally extending plates 18 and 20 mounted as by welding on said tube 16 and in turn attached to transom 10 by suitable means such as bolts or screws 22. An arrangement important to the present invention is the positioning of the lower end 24 of said mounting tube 16 at substantially the level of keel heel 14. In such position, the mounting post 16 is low enough on transom 10 to permit use of a relatively short detachable post 26, as discussed more fully hereinafter with respect to the readily detachable elements of the trundling mechanism here involved, yet not so low as to protrude below the line of keel 12. Post 26 is thus essentially protected if the boat is on occasion dropped or drug along a beach without the detachable portion of the trundling mechanism on the boat.

At the upper end of tube 16, an end closure such as threaded cap 28 is preferably provided, to prevent water spouting up through the tube because of the slight rearward cant of the tube, which would otherwise cause some water to pass up through the open tube when the boat is moved forwardly through the water at substantial speed. Advantageously, said cap 28 can also suitably mount a retaining chain or line 30, at the free end of which is provided a locking means such as pin or key 32 to retain post 26 in tube 16. As best shown at FIG. 3, post

26 can be set at various levels in tube 16, by means of transverse hole 34 in post 26, and a series of pairs of transversely aligned holes 36, 38 and 40 in tube 16, the locking arrangement simply involving insertion of locking pin 32 through a selected pair of holes 36, 38 or 40 and through hole 34 aligned therewith. Such vertical adjustment of the extent to which post 26 enters tube 16 also involves placement of weight supporting ring 42, which is adjustable along post 26 by suitable means such as an Allen lock screw 44, at the proper position to maintain a weight bearing relation to lower end 24 of tube 16 and thus keep the weight of the boat while being trundled from possibly shearing locking pin 32. In view of the disclosed nature of the arrangement shown at FIG. 3, it will also be apparent that locking pin 32 when in a selected position also keeps post 26 from rotating in tube 16, it having been found preferably to not swivel the wheeled portion of the mechanism, to improve wheeling stability during portage, particularly where the boat B and any gear contained therein are relatively heavy and the terrain being covered during portage is relatively rough.

Post 26 terminates at its lower end in a male thread 46 (see FIG. 1), which is thereby sturdily attachable to a short female sleeve 48 centrally disposed on and forming a part of axle 50, such post and axle thereby providing a generally T-shaped constructional arrangement. Said axle 50 is preferably of solid, unitary construction throughout for strength purposes, and has rotatably and readily detachably mounted at the ends thereof a pair of preferably rubber rimmed wheels 52 and 54, said wheel 52 being retained at the end of said axle 50 by means of an inboard collar (not shown except at FIG. 4), and an outboard nut 56 threaded on the end 58 of said axle 50, said wheel 54 being likewise rotatably placed and readily detachable at the other end of said axle 50 by means of inboard collar 60 and an outboard nut (also not shown except at FIG. 4) threaded on the other end of axle 50.

By virtue of the elemental arrangement of post 26 and axle 50 along with spaced wheels 52 and 54, such as shown at FIG. 1, it is an important characteristic of the mechanism of the present invention that the entire trundling mechanism is disposed so as to not interfere with normal operation of outboard motor M, even when left installed at the stern of the boat when the boat is waterborne and being propelled by outboard motor M. Somewhat diagrammatically, such arrangement and the order of clearance in a typical instance between outboard motor M and the trundling mechanism is illustrated at FIG. 2, a typical waterline occurrence also being there shown at WL. Further, as also observable at FIG. 1, the normal water flow under the boat and past the propeller of outboard motor M is not materially disturbed in that the portions of the mechanism directly in front of the propeller (post 26, sleeve 48 and axle means 50) are all of an essentially round cross section, and in that wheels 52 and 54 are sufficiently spaced at the sides of the primary water flow past the propeller so as to not significantly interfere therewith.

The practical utility of the trundling mechanism as here presented is further demonstrated by the quick detachability and reattachability of the post, axle and wheel portion thereof should removal thereof when underway be desired. Such removal from the stern of the boat is simply accomplished by grasping of the device, say at axle 50, and removing locking pin 32, whereupon the detached portion can be brought aboard and stowed "as is," or disassembled and packaged for compact storage, such as by placement in the carrying case hereinafter discussed in connection with FIG. 4. Obviously, reattachment of the lower portion of the mechanism simply involves a reinsertion of post 26 into tube 16 and reinsertion of locking pin 32 through the tube and post. When keeping the wheels, axle and post on the stern of the boat

when underway, it may be considered desirable to attach thereto a short retainer line (not shown) from the boat, to safeguard against inadvertent loss of the mechanism should pin 32 jar out or the mechanism otherwise become free.

When the lower portion of the trundling mechanism is left on the boat and the boat is motor propelled in the water, the presence of rotatable wheels 52 and 54 below and forward of the motor propeller serves in effect as a guard means for the propeller in that some underwater obstacles or shallow ground would first encounter wheels 52 and 54 which would then roll over same. Of course, some obstacles would be of a type that might shear off the trundling mechanism, but even in such event a trundling mechanism would still serve substantially to protect the propeller and lower end of the motor since the trundling mechanism first encounters and takes some of the shock of the obstacle.

FIG. 4 serves to illustrate a very important practical advantage of the trundling mechanism of the present invention; namely that the readily detachable portion thereof is of a design and construction to be very compactly stored and carried when not in use. Thus, a particular carrying case arrangement for the readily detachable portion of the mechanism, by means of which such can be readily carried in a glove compartment or in any suitable small storage area, can be a flap case 61, fabricated from suitable material such as plastic or fabric, and having a back panel 62, and a fold-over flap 64. Back panel 62 has attached thereto a pocket part 66 and the flexed portion of flap 64 also has attached thereto a second, smaller pocket part 68. Pocket part 66 is dimensioned to snugly receive wheels 52 and 54 in rim to rim relation, and pocket part 68 is dimensioned to receive post 26 and axle 50 when in disassembled condition, containing such substantially axially parallel of each other, as shown. The configuration of pocket parts 66 and 68 are such that 68 will fold down into the top of pocket part 66 when flap 64 is folded over and a fastener means such as snap head 70 and snap base 72 are joined. As will be apparent, case 61, when containing the wheels, axle and post portions of the mechanism, and with flap 64 folded over, makes a compact package substantially only as thick and wide as the wheels of the device, and substantially only about twice as long as the diameter of said wheels. Obviously, with the readily removable portion of the trundling mechanism thus packaged, such can be readily kept aboard the boat when the boat is underway, and can be readily stored in the glove compartment or trunk of a car when the boat is car borne.

To illustrate by way of typical example the dimensional relations involved in an illustrative form of the invention, the trundling mechanism shown in the accompanying drawings comprises a tube 16 which is 8½ inches long, including cap 28, and is made from metal pipe stock of ⅝ inch inside diameter, straps 18 and 20 being ¾ inch wide and 2½ inches long, and welded to tube 16. Holes 40, 38 and 36 are respectively 2 inches, 3 inches, and 4 inches from the lower end of tube 16. Post 26 is of solid, ½ inch metal stock, as is axle 50. Post 26 is 10 inches long and hole 34 is 1 inch from the top thereof, and axle 50 is 11½ inches long. Wheels 52 and 54 are suitably of a type commercially available per se, having a solid rubber tire size 6 x 1.50 with a 1½ inch bearing. The trundling mechanism thus dimensioned is specifically designed for use with boats in the 8 to 10 foot size range, and it will be apparent that such dimensional considerations can readily be varied to adapt the mechanism to somewhat larger or even somewhat smaller boats or the like, as desired.

From the foregoing, these and various further modifications, arrangements and constructional features, as well as the characteristic features, advantages and attributes thereof will be apparent to those skilled in the art, within the scope of the following claims.

What is claimed is:

1. In combination with a small boat having an outboard motor mounted on the stern transom of the boat; a hollow mounting tube affixed to the stern transom of said boat with an open, lower end contiguous to and at substantially the level of the keel heel of the boat, a trundling mechanism comprising a post snugly and removably insertable into said tube, means non-rotatably locking said post in said tube, a support ring adjustable along the length of said post, situated thereon to contact the lower end of said tube when said post is locked therein, axle means across said post at the lower end thereof, and wheels rotatably mounted on said axle means at the ends thereof, the said post, axle and wheels when on the boat being dimensioned to place the trundling mechanism forwardly with the wheels somewhat below the lower outboard portion of the outboard motor mounted on the transom of the boat, said trundling mechanism thereby not interfering with normal operation of the outboard motor even though such mechanism be left on the boat when the latter is waterborne.

2. In combination with a small boat having an outboard motor mounted on the stern transom of the boat; a hollow mounting tube affixed to the stern transom of said boat with an open, lower end contiguous to and at substantially the level of the keel heel of the boat, a trundling mechanism comprising a post snugly and removably insertable into said tube, means non-rotatably locking said post in said tube, axle means across said post at the lower end thereof, and wheels rotatably mounted on said axle means at the ends thereof, the said post, axle and wheels when on the boat being dimensioned to place the trundling mechanism forwardly with the wheels somewhat below the lower outboard portion of the outboard motor mounted on the transom of the boat, said trundling mechanism thereby not interfering with normal operation of the outboard motor even though such mechanism be left on the boat when the latter is waterborne.

3. The combination of claim 2, wherein the means non-rotatively locking said post in said tube comprises a series of vertically arranged, opposed holes in said tube and a hole laterally through said post, and a locking pin insertable through a selected set of opposed tube holes and through the post hole, the said combination further comprising a weight supporting ring adjustable along the length of said post and placeable in a position to contact the lower end of said mounting tube irrespective of which set of the series of opposed tube holes receives said locking pin.

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