May 19, 1942. R. H. SAMDAHL 2,283,648

BOAT TRAILING EQUIPMENT

Filed June 18, 1941

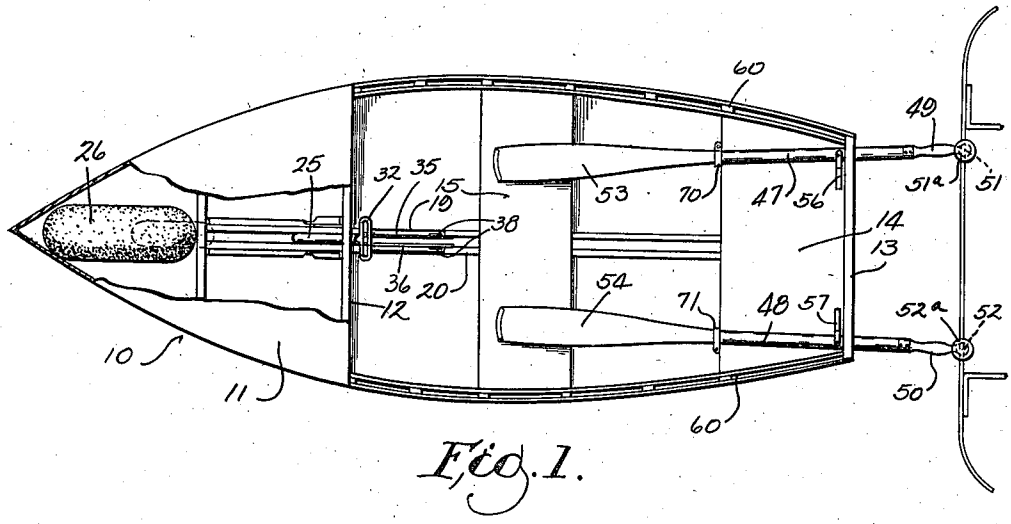


Fig. 1.

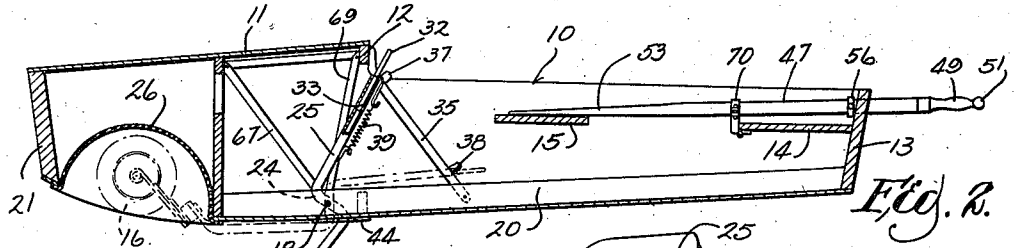


Fig. 2.

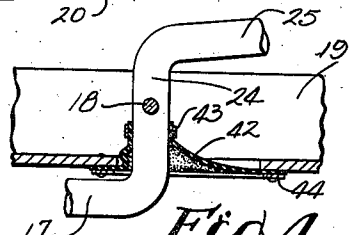


Fig. 4.

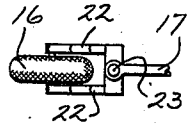


Fig. 5.

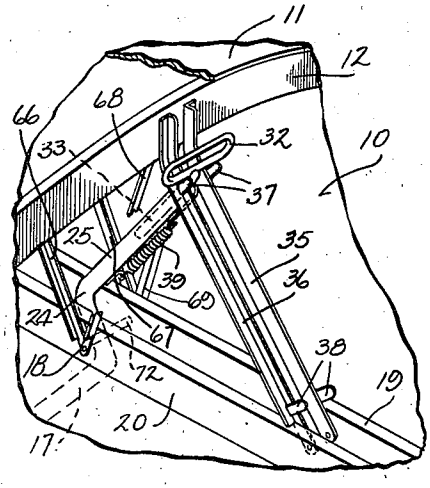


Fig. 3.

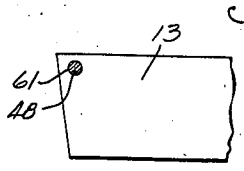


Fig. 6.

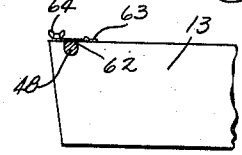


Fig. 7.

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BOAT TRAILING EQUIPMENT

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11 Claims. (Cl. 9—1)

This invention relates to boats, and more particularly it relates to improved means for trailing a boat behind a vehicle.

It is an object of the invention to provide a trailing wheel beneath a boat hull, and to employ a pair of oars as trailing hitch members connecting the hull, stern foremost, to the rear of a vehicle.

Another object is to provide a single trailing wheel below the hull, the wheel being movable from a trailing position beneath the hull to a position above the effective waterline during propulsion of the boat.

Another object is to provide trailing wheel means movable from a position within the hull or adjacent thereto to a position below the hull, and means locking said means in either position.

A further object is to provide a boat hull with a pivotally mounted wheel and a wheel receiving chamber, and means extending through the hull and pivoted thereto for swinging said wheel from a retracted position within said chamber to a trailing position below the hull, and vice versa.

Still another object is to provide improvements in a retractible trailing wheel device adapted for manipulation by an operator within the boat, from a retracted position to a trailing position beneath the hull, thereby enabling an operator to lower the trailing wheel while the boat is in the water, thus eliminating the necessity for completely removing the boat from the water for attachment to a vehicle.

Another object is generally to improve and simplify the construction and operation of boat trailing equipment for one or more of the purposes above mentioned.

Further objects and advantages will be apparent to those skilled in the art upon examination of the drawing, description and claims.

In the drawing:

Figure 1 is a plan view of a boat having my invention incorporated therein, and attached in trailing position to the rear bumper of the motor vehicle.

Figure 2 is a view in vertical section of the boat shown in Figure 1.

Figure 3 is a fragmentary view in perspective showing the trailing wheel control lever and its associated mechanism within the hull.

Figure 4 is a fragmentary section, showing the pivotal connection of the trailing wheel lever arm to the hull at a point adjacent the keel.

Figure 5 is a fragmentary view, in plan, showing the trailing wheel and its associated spring type support arm.

Figure 6 is a fragmentary elevation of a stern transom provided with an aperture to allow the shank portion of an oar to project therethrough.

Figure 7 is similar to Figure 6, showing the transom provided with a notch and a clamp member for the projection of an oar shank therethrough.

Like parts are identified by the same reference characters throughout the specification and in the drawing.

For the purpose of examplification, the drawing discloses the invention incorporated in a boat of the type adapted to be manually propelled by oars or by an outboard motor attached to the stern transom thereof. It will become evident as the description proceeds that various features of the invention are applicable to many types of boats, but for the purpose of employing the oars as trailing hitch members the boat is preferably of the type provided with a transom at the stern to allow the hull to be closely connected to a trailing vehicle, although boats having blunt sterns without transoms may be successfully trailed in the manner taught herein.

Referring to Figures 1 and 2, the numeral 10 generically designates a boat hull of the type having a pointed bow provided with a deck portion 11 extending sternwardly to the carlin 12, a stern transom 13, an aft seat 14 adjacent the transom, and a seat 15 at the mid section. A trailing wheel 16 is mounted at the lower end of a lever arm 17 which extends through a suitable aperture in the bottom of the boat, to be pivoted at 18 to the hull within a keel box formed by a pair of spaced upwardly projecting members 19 and 20 which extend longitudinally of the boat from the transom 13 to the bow and terminate short of the prow 21. A spring yoke 22 is disposed intermediate the lower end of lever arm 17 and wheel 16 to provide shock absorbing means, said yoke being pivoted at 23 to the lever arm, whereby to facilitate trailing behind a vehicle. Lever arm 17 is offset at 24 and has an upward extending portion 25 to provide manipulation of the wheel from within the boat.

A downwardly open chamber 26 is provided at the bow intermediate the prow 21 and the keel box in a position to receive wheel 16 and yoke 22 when lever arm 17 is pivoted to move wheel 16 upwardly, as shown in Figure 2.

To provide means for locking the trailing wheel either in the trailing position, shown in heavy lines in Figure 2, or in the retracted posi-

tion as shown in dotted lines, the upper portion 25 of lever arm 17 is provided with a handle-like clamping device 32 having an elongated portion 33 slidably engaged with lever arm portion 25. Handle device 32 and the upper lever arm terminus are disposed within a guideway comprising guide members 35 and 36 extending from the carlin 12 diagonally downwardly toward the stern to engage the keel box. Stop members 37 and 38 project from guide members 35 and 36, respectively, to provide spreader means cooperating with the clamping device 32 for locking lever arm 17 in either of said positions. Handle 32 is biased toward the lever arm by coil spring 39 connected intermediate the device and arm portion 25 to provide clamping engagement with the guide members. To shift the trailing wheel, the operator merely pulls handle device 32 outwardly past one set of stop members, against the tension of spring 39, and swings arm portion 25 beyond the other set of stop members, whereupon release of device 32 engages the handle portion against the spreader arms and adjacent the stop members to prevent return to the opposite position.

When the handle is in the trailing position shown, the upward curvature of guide arms 35 and 36 adjacent the carlin 12 prevents any substantial movement of lever arm portion 25 in an upward direction, and when the lever arm is in a wheel retracting position, any substantial downward movement is prohibited by contact of device 32 with the keel box.

The walls of the bow chamber 26 are of course of waterproof material, the margins of said chamber walls being in water sealing relation to the boat hull. While I prefer to employ flexible material such as rubber for this purpose, a rigid material such as metal or a semi-flexible material such as plastic, or a treated fabric, may be employed with equal success. A suitable water seal between lever 17 and the margins of the aperture through which the lever extends is shown in Figure 4. A flexible boot 42 of waterproof material engages lever arm 17 at 43, and the margins of the aperture at 44, to allow free movement of the lever arm while providing an efficient sealing means therebetween.

The trailing connection between the vehicle and hull is accomplished through the use of a pair of oars 47, 48, attached to the hull to extend sternwardly of the transom, and provided with metal hand grip and vehicle-connecting portions 49, 50, having integral ball termini 51, 52, for engagement with sockets 51*a* and 52*a*, mounted on the vehicle, the oars being otherwise conventional with elongated shanks and integral paddle surfaces 53, 54. Oar locks 56, 57 are pivoted to the respective shanks.

Transom 13 is provided with apertures at each side to allow the projection of oar portions therethrough. The apertures are positioned at either side of the transom preferably adjacent the hull combing 60. The apertures may be either bores, as illustrated at 61, Figure 6, or the top margin of the transom may be notched as at 62, Figure 7, and provided with a lock member 62 detachably engaging the transom as by wing nut 64. The oars may, however, be clamped in any suitable manner to the top of the transom.

To connect the hull to the vehicle, the shank termini of the oars are projected through the transom apertures until the oar locks abut the interior wall of the transom, the apertures being too small to allow passage of the oar locks therethrough. A pair of clamp brackets 70, 71, attached to seat 14, are then brought into engagement with the respective shanks to position the oars with the paddle portions thereof flat against seal 15 to prevent rotation of the oars as well as to prevent withdrawal of the oars from the transom.

The bow of the hull 15 may be provided with strengthening supports 66, 67, 68 and 69, their employment depending entirely on the strength of the hull used. While the present construction includes the keel box formed by members 19 and 20 and the bottom of the boat, lever arm 17 being fulcrumed thereto on the pintle bolt 72, other suitable means may be employed for the pivotal attachment of the lever arm to the hull as well as for the attachment of the bottom ends of the guide bars 35, 36, thereto.

While the preferred embodiment of the invention as disclosed herein contemplates the employment of a single trailing wheel, plural wheels may be used if desired. The wheel or wheels may, of course, be detachably mounted instead of being retractably mounted, or they may be mounted in a position to permit their movement from a trailing position beneath the boat hull to a position either at the side, above the deck, or completely within the hull. While I prefer to locate the trailing wheel at the bow, it may, of course, be located substantially centrally of the hull. I have found that if the wheel is so located as to place part of the weight of the hull on the rear end of the vehicle, the tendency for the boat to weave and bob is minimized. For small boats, good trailing is obtained when the wheel is so positioned at the bow that approximately 60% of the hull weight is sustained by the wheel and 40% by the vehicle. Trailing wheel 16 may be of the relatively small high-speed type which is commercially available, thereby minimizing the size of the bow compartment 26.

I have found that the illustrated construction does not substantially retard the speed at which the boat is propelled in water, and especially so if an outboard motor is used, because during normal operation of the boat, the bow is tilted upwardly at an angle of sufficient inclination to position the bow compartment and the retracted wheel above the effective water line. Even though the wheel is partly submerged when the boat is not being propelled, periodic lubrication of the wheel and the suspension mechanism prevents rusting of these parts.

I claim:

1. Apparatus for trailing a boat behind a vehicle, comprising a single trailing wheel in supporting position for the bow of the boat, a pair of oars mounted on the boat and projecting from the stern at either side thereof, and means securing the projecting ends of said oars to the rear of the vehicle.

2. In a boat, the combination with a rigid elongated member extending through the bottom wall thereof in pivoting, sealing relation thereto, a trailing wheel mounted at the lower end of said member, and a downwardly open chamber provided in a bottom portion of the boat bow in a position to receive the trailing wheel when said elongated member is pivoted to a wheel-retracted position.

3. The combination with a boat and a vehicle, of means for trailing the boat behind the vehicle, said means including a trailing wheel connected below the boat and a pair of oars connected to the boat to extend sternwardly at opposite sides

thereof, and means detachably connecting the extended ends of the oars to the vehicle.

4. The combination with a boat having a transom provided with an aperture through each side thereof above the water line, of a pair of oars having blade portions, and shank portions provided with oar locks, means for clampingly engaging the oars to the boat with the shank portions thereof projecting sternwardly through the apertures, and means for detachably connecting the ends of the extending portions with a vehicle, whereby portions of the oar shanks provide trailing-hitch members between the boat and the vehicle.

5. In a boat provided with a stern transom, the combination with means for attachment to a vehicle comprising a pair of oars attached to the stern portion thereof and having portions projecting sternwardly from said transom, the projecting ends of said oars provided with means for detachable connection to the vehicle, and trailing-wheel means extending below the boat for the support thereof above a roadway.

6. In a boat, a retractable bow wheel device including a rigid elongated lever arm extending through the bottom of the boat at the bow and substantially midway between the sides thereof, means pivoting said arm to the bottom of the boat, a trailing wheel mounted at the lower end of the arm, and a chamber disposed within the bow and opening downwardly therefrom, said chamber being positioned to receive the trailing wheel when the arm and wheel are pivoted into a wheel-retracting position.

7. A device as set forth in claim 6, wherein said chamber is provided with walls of waterproof material, the margins of said walls being in water-sealing relation to complementary portions of said boat.

8. A device as set forth in claim 7, including flexible water-sealing means between the boat and said pivoted lever adjacent the pivot, whereby to allow free pivoting of the lever in respect to the boat while preventing water from entering the boat during the normal use thereof.

9. A boat including bottom and side walls, and a keel, spaced members within the boat at each side of the keel, an aperture provided in the boat bottom between said spaced members, an en elongated lever between the members and extending through the aperture and having a trailing wheel attached to the projecting end thereof, and means for locking the lever in either a trailing or in a wheel retracting position.

10. In a device of the character described, the combination with a boat hull, of a lever arm having an upper portion within the hull and a lower portion extending through the bottom thereof and having a trailing wheel connected thereto, said lever arm being pivotally connected to the hull adjacent the bottom thereof, a downwardly open compartment provided in the hull at a position to receive said wheel when the lever is pivoted to a wheel-retracted position, a guideway within the hull, the upper end of the lever arm being disposed within said guideway, and clamp means carried by said upper lever arm portion for engagement with said guideway to provide means for locking the lever arm in a wheel-retracting position or in a trailing position below the hull.

11. A device as set forth in claim 10, wherein said guideway is provided with a pair of spaced stop members to constitute a spreader, and said clamp means comprises a handle-like device spring biased against said spreader for locking engagement therewith adjacent a stop member.

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