LOCK FOR MOTOR BOAT
2 Claims, 5 Drawing Figs.

ABSTRACT: For use in a motor boat having a motor, a fuel container, means for providing fluid communication between the motor and the container, and connecting structure including a fuel orifice and a connector adjacent the orifice located on one or both of the motor and fuel container, a lock comprising a locking portion lockably engageable with the connector and a sealing portion arranged to cover the fuel orifice when the locking portion is thus lockably engaged. Such locks may be used both on the motor and on the fuel container.
LOCK FOR MOTOR BOAT

This invention relates to locking motor boats. The principal object of this invention is to provide simple and economical locking means for outboard motor boats which can be retrofit onto existing motors without altering those motors.

Another object is to discourage theft of motor boats and valuable parts thereof by versatile locking means which render not only the motor but also the fuel container therefor unusable.

In accordance with the invention, flow of fuel is prevented between the fuel container and the motor by utilizing conventional connecting structure already located on one or both of the motor and the fuel container. This connecting structure, e.g., is of the type connecting a fuel line between the motor and the fuel container and comprises a fuel orifice and a connector adjacent the orifice for securing the motor or the fuel container to the fuel line.

The invention features a lock comprising a locking portion lockably engageable with this conventional connecting structure and a sealing portion which covers the fuel orifice when the locking portion is thus lockably engaged, whereby access to the fuel orifice is prevented.

In a particular embodiment, the connector is a protruding shaft having a shoulder, and the locking portion of the lock engages this shoulder; this locking portion is, for example, a rotatable cam located within the interior of the lock, the housing of the lock has an opening into the chamber for inserting the shaft, and the cam rotates to engage the underside of the shoulder and is lockable in that position; the fuel orifice is located in a protruding tube which is also received into the interior of the lock through an opening thereinto and sealed therein when the connector is lockably engaged; the lock has a planar end wall surrounding the fuel tube opening which substantially abuts a planar wall of the connecting structure when locked; to deny access to the fuel orifice the lock has parallel channels for receiving the connector shaft and the fuel tube, the chamber for the shaft extending into the interior lock chamber containing the cam; the cam is located on one end of a cylinder, and is rotatable only when a key is inserted into the other end of the cylinder; and, the lock and connecting structure are mutually constructed so that the connector shaft and fuel tube are oriented to the proper channels prior to insertion thereof.

Since connecting structures are located not only on outboard motors, but also on all fuel containers made for use with outboard motors, locks as described may be used on both the motor and remote fuel containers therefor. Thus, not only is the prospective thief prevented from connecting a conventional fuel line to the motor because its fuel inlet is covered, but he is also discouraged from taking a fuel container whose fuel feed outlet has been covered.

Other objects, features and advantages will be apparent to one skilled in the art from the following description of a preferred embodiment of the invention, taken together with the attached drawings thereof, in which:

FIG. 1 is an exploded view of a lock embodying the present invention, and with a conventional connecting structure shown alongside thereof;

FIG. 2 is a sectional view of the lock and a connecting structure in the process of being engaged;

FIG. 3 is the same view as FIG. 2, except with the connector and lock locked together;

FIGS. 4 and 5 are sectional views of the lock housing and cam, along line 4—4 of FIG. 2, with the cam shown in un-locked and locked positions, respectively.

The figures show a connecting member 10, which, for illustrative purposes, is shaped like those located on "Evirude" and on "Johnson" outboard motors for connecting the fuel line to the motor. Member 10 has a body 12 including an end wall 14 from which project a shaft 16 having an annular recess 18 and a flange 20, recess 18 and flange 20 defining therebetweem a shoulder 22; and, a shorter fuel supply tube 24 having fuel orifices 26, fuel tube 24 being in communication through body 12 with a fuel inlet line 28. A lug 29 may be located on end wall 14 to assure that the fuel line can be connected in only one way to the connector. When the motor is in operation, a fuel line (not shown) is secured to member 10, the fuel line having a fuel passage in communication with fuel orifices 26, and latching means which engage shaft 16 (particularly, shoulder 22) to secure the fuel line to the motor. A similar connecting member is often located on the fuel container, and the other end of the fuel line is thus connected with fuel orifices equipped with latching means connectable to shoulder 22.

Fuel container connecting members may also include, e.g., spring-loaded pins projecting from end wall 14 which, e.g., serve to vent the container or allow fuel flow when depressed into the connecting member. However, these pins do not interfere with the latching means.

Lock 30 is designed to latch shoulder 22 when the fuel line is removed, and includes a housing 32 and a lock cylinder 34, having the usual tumblers, indicated generally at 35, for receiving an appropriate key 36. Housing 32 has two cylindrical bores 38, 39 extending inwardly from end wall 40, and a larger substantially cylindrical counterbore 42 extending inwardly from its opposite end wall 44, slightly eccentrically of bores 38, 39. Additional openings into wall 44 may be provided on fuel container locks if it is desired, e.g., to capture without depressing the aforementioned spring loaded pins. Bores 38 and 39 are sized to receive slidably therein shaft 16 and fuel tube 24, respectively. Bore 38 is sized so that shoulder 22 of shaft 16 can be received into counterbore 42 (FIGS. 2 and 3) whereas bore 39 is sized so that fuel tube 24 terminates at the end wall 48 of counterbore 42.

Counterbore 42 has a reduced diameter portion 50 at its interior end defining an annular rim 52, which is sized to slidably support the lower edge 54 of lock cylinder 34. A shaft 56 is secured to the tumbler housing 57 and protrudes through an opening in cylinder 34 into the reduced diameter portion 50 of counterbore 42. Shaft 56 has a cam 58 secured thereto, the cam having a rounded portion 59 and a flat portion 60 (FIGS. 4 and 5). As seen in FIG. 5, the rounded portion 59 of cam 58 is sized to overlap a small arc of bore 38 (FIG. 4), whereas the flat portion 60 does not overlap bore 38.

Shaft 56 is rotatable with housing 57 in cylinder 34 when a key appropriate to the tumblers 35 is inserted into housing 57. Cylinder 34 is secured against rotation in counterbore 42 by appropriate means, such as a lock pin 62 extending both into the housing 32 of the lock and into the outer wall of cylinder 44.

In operation, after the fuel line has been removed to expose connecting member 10, a lock 30 is secured thereto by inserting bores 38 and 39 over shaft 16 and fuel tube 24. Where member 10 includes a guide such as lug 29, the tapered construction of the lock housing prevents the shaft and tube from being inserted into the wrong bores. Cam 58 is in the position shown in FIGS. 2 and 4 during this insertion. When recess 18 is adjacent cam 58, the end wall 14 of connecting member 10 will abut, or nearly abut the end wall 40 of lock 30, so as to prevent access to fuel tube 24, which has been received in bore 39 to a position such as shown in FIG. 3. Key 36 is then rotated (here, 180°), to rotate cam 58 to the position shown in FIGS. 3 and 5, so that its rounded portion 59 is located adjacent the recess 18 and underneath the shoulder 22 of shaft 16, preventing removal of the lock therefrom. The key is then removed, preventing rotation of the cam. Advantageously, the key and lock may be of the type preventing removal of the key in the unlocked position.

With the fuel inlet to the motor thus sealed and locked, the motor cannot be started. Moreover, the fuel container, if also locked, will be of little use. Yet another alteration has been made to either the motor or fuel container.

Other embodiments will occur to those skilled in the art and are within the following claims.

What is claimed is:
1. For use with a fuel line connector of the type having a pair of laterally spaced axially projecting shafts, the first of said shafts having a fuel passageway extending therethrough and the second of said shafts having a locking recess located near the distal end thereof, a lock assembly for said fuel line connector comprising: housing means defining an interior chamber with first and second passageways, one of which leads inwardly from one end of said housing means to said chamber, cam means rotatable in said chamber within a plane transverse to the axes of said passageways, the lateral spacing and dimensions of said passageways being such that when said housing means is operatively mounted on the fuel line connector, the first shaft extends axially into said first passageway, and the second shaft extends axially through said second passageway past said plane and into said chamber, with the locking recess on the second shaft located in said plane, and key controlled means for rotating said cam means between an unlocked position and a locked position extending across an axial projection of said second passageway and into the locking recess on the second shaft.

2. The apparatus as claimed in claim 1 further characterized by a third passageway leading inwardly from the opposite end of said housing means into communication with said chamber, the longitudinal axis of said third passageway coinciding with the rotational axis of said cam means, the key controlled means for rotating said cam means including a lock cylinder located in said third passageway.

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