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Macchi

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[54] BOAT PROPELLER LOCK

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[52] **U.S. Cl.** **416/244,** 416/146, 416/245, 287/53

[51] **Int. Cl.** **B63h 1/20**

[58] **Field of Search**.....416/244, 245, 146, 416/241; 287/53 R

[56] **References Cited**

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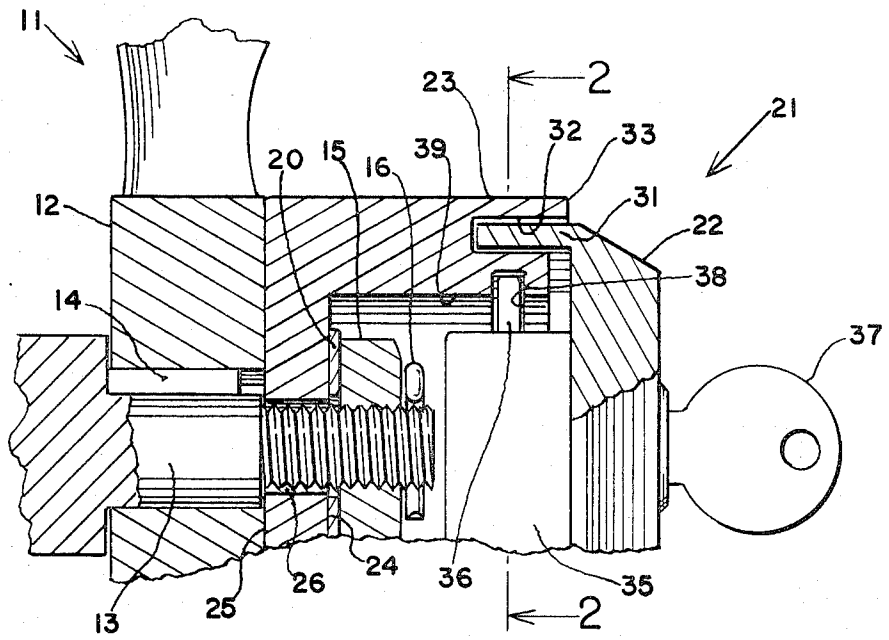
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Attorney—John E. Toupal

[57] **ABSTRACT**

Disclosed is an enclosure which can be locked in position to conceal a nut used to secure a boat propeller to a drive shaft. The enclosure includes a cover portion that can be locked into engagement with a base portion that is retained by and specially accommodates the nut. Both the enclosure and the lock mechanism therefore are formed of an oxidation resistant material so as to prevent deterioration during use in a water environment.

11 Claims, 3 Drawing Figures



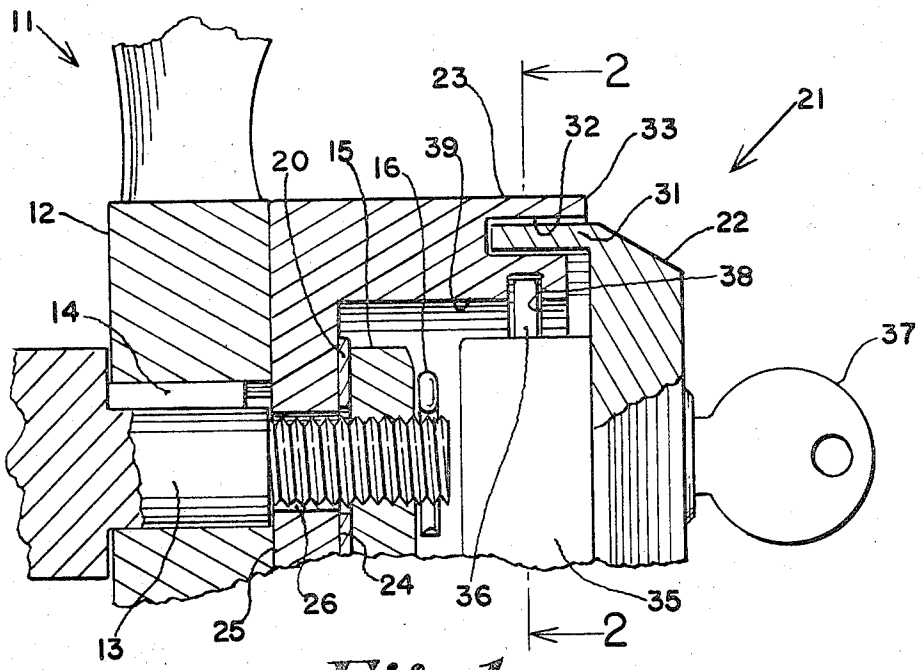

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Fig. 1.

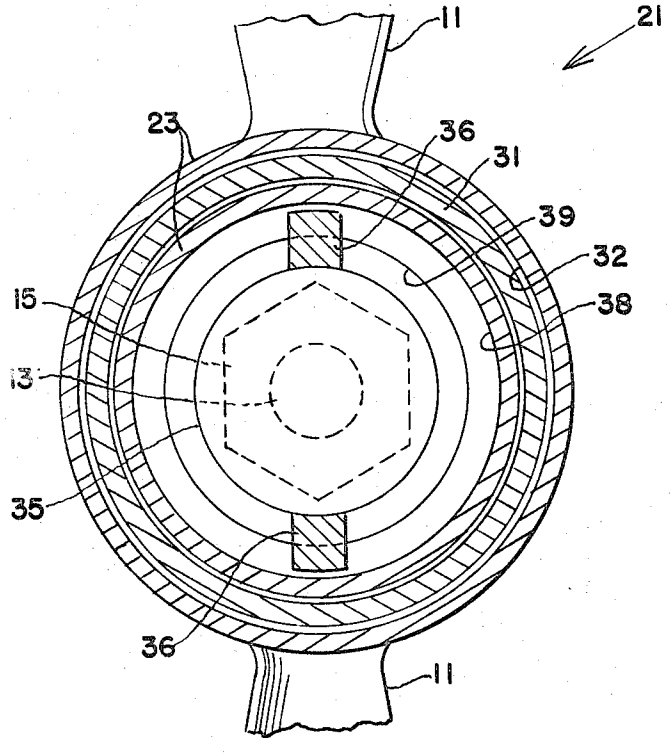

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Fig. 2.

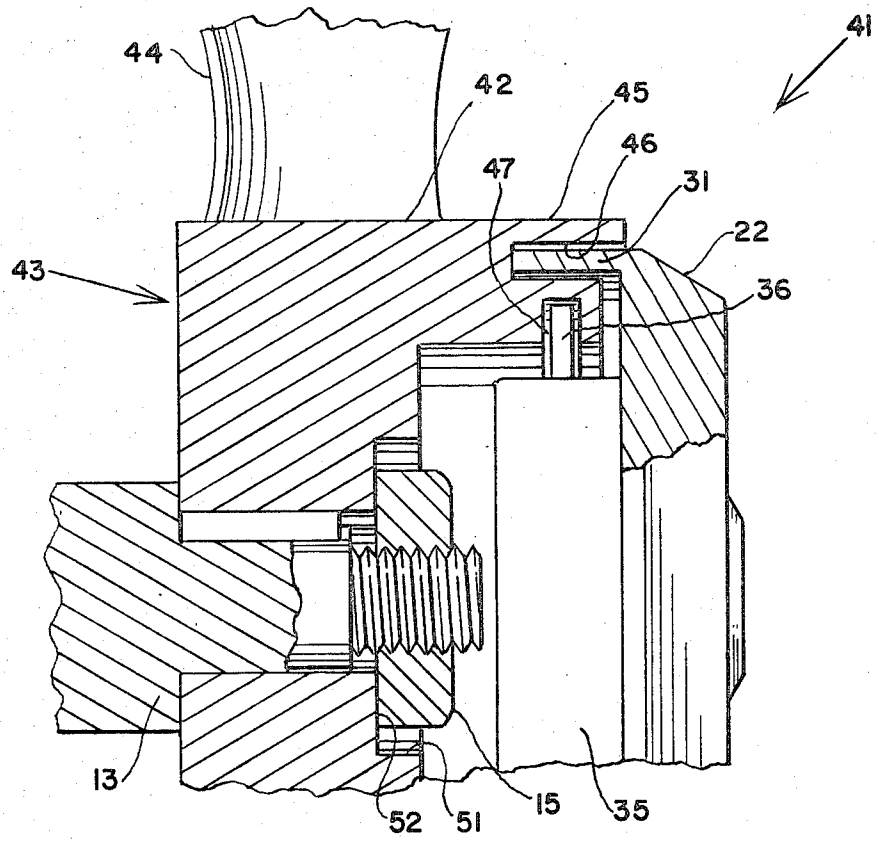


Fig. 3.

BOAT PROPELLER LOCK

BACKGROUND OF THE INVENTION

The ever increasing frequency of theft crimes has recently spread into the area of boating, an also expanding field. A common object of boat thieves are the propellers used to propel a boat through the water. Typically, propellers are retained on the drive shaft of a boat engine only by a conventional threaded nut. Thus, the theft of a propeller merely entails removal of a nut which is readily accessible on a docked or moored boat, either above the water in the case of an upwardly pivoted outboard motor or slightly below the water surface in the case of an inboard engine. Although the financial losses involved in propeller thefts are significant, it will be appreciated that inconvenience and disappointment are even larger factors when one considers that a propeller theft is normally discovered at the outset of a pleasure excursion which must be then either delayed or cancelled.

The object of this invention therefore, is to provide a simple and inexpensive mechanism that can prevent or inhibit the theft of boat propellers by removal thereof from the drive shaft of a boat engine.

SUMMARY OF THE INVENTION

The invention is characterized by the provision of a boat assembly in which a nut securing a boat propeller on a drive shaft is covered by an enclosure that can be locked into place preventing access thereto. When desired access to the nut can be obtained by actuating a key operated lock that secures the enclosure to the propeller assembly. Preferably, the enclosure includes a base portion with a bearing surface adapted for retention by contact with the securing nut itself and a cover portion that is locked into engagement with the base portion by the lock mechanism.

In one embodiment of the invention the base portion of the enclosure is a separate component that is retained between the propeller lock nut and the hub of the propeller while in another embodiment the base portion is integrally formed within the hub of the propeller. In either embodiment, it is highly preferable that the critical components of the assembly be formed of an oxidation resistant material such as stainless steel so as to inhibit deterioration during use of the unit in either a fresh or particularly in a salt water environment.

DESCRIPTION OF THE DRAWINGS

These and other objects and features of the present invention will become more apparent upon a perusal of the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a cross-sectional view of a preferred embodiment of the invention;

FIG. 2 is a sectional view taken along lines 2—2 of FIG. 1; and

FIG. 3 is a cross-sectional view of another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIGS. 1 and 2 there is partially shown a boat propeller 11 having a hub 12 mounted on a drive shaft 13 and keyed for rotation therewith by a key 14. It will be obvious that the drive shaft 13 could be part of either an outboard or an inboard motor. Securing the propeller 11 on the shaft 13 is a conventional threaded nut 15 and washer 20 assembly which is prevented from undesired loosening rotation by a cotter pin 16.

Preventing unauthorized access to the nut 15 is an enclosure 21 including a cover portion 22 and an accommodating cup shaped base portion 23. The base portion 23 has an internal annular flat bearing surface 24 encircling a central aperture 26 that receives the shaft 13. The bearing surface 24 is forcibly engaged by the mating flat surface of the nut 15 and washer assembly. Similarly engaging the propeller hub 12 is an annular rear bearing surface 25 of the base portion 23 which is thereby forcibly retained in the position shown.

The cover portion 22 has a peripheral lip 31 that is received by a circular groove 32 formed in an outer edge 33 of the base portion 23. Mounted to the underside of the cover portion 22 is a conventional lock mechanism 35 having a pair of diametrically opposed locking tabs 36 the positions of which can be radially extended or contracted by actuation of a key 37. In a locked position the tabs 36 extend into a circular groove 38 formed in the inner surface 39 of the base portion 23 so as to prevent removal of the cover portion 22 and thereby prevent access to the nut 15. Actuation of the key 37, however, moves the tabs 36 out of the internal groove 38 so as to permit demounting of the cover portion 22 and providing access to the nut 15.

During assembly of the apparatus shown in FIGS. 1 and 2 the propeller 12 and base portion 23 are sequentially positioned on the drive shaft 13 and then secured in place by tightening of the nut 15 which is in turn secured by placement of the cotter pin 16. The cover portion 22 is then located as shown in FIG. 1 and the key 37 actuated to move the tabs 36 into the internal groove 38. After removal of the key 37, access to the nut 15 is not possible and the propeller 11 is thereby protected from theft. However, if access to the nut 15 is desired by one having possession of the key 37, the lock 35 can be easily actuated to retract the tabs 36 and allow removal of cover portion 32. As noted above, it is preferable that the base and cover portions 23 and 22 and particularly the lock mechanism 35 be constructed of oxidation resistant material such as stainless steel so as to inhibit deterioration during typical use of the entire assembly in a water environment.

FIG. 3 shows another embodiment of the invention similar to that shown in FIGS. 1 and 2. Components which are identical in the two embodiments have been given the same reference numerals. In this embodiment, an enclosure 41 again includes a cover portion 22 and an accommodating base portion 42. However, in this case the base portion 42 is integrally formed within a hub 43 of a boat propeller 44. Extending from the hub is a sleeve 45 that possesses a groove 46 to accommodate the lip 31 of the cover portion 22 and an internal groove 47 that receives the tabs 36 of the lock mechanism 35. Also formed in the hub 43 is an annular recess 51 providing a flat bearing surface 52 that is forcibly engaged by the nut 15. It will be obvious that

the use of the embodiment shown in FIG. 3 is identical to that described above in connection with FIGS. 1 and 2. In this case, however, the requirement for a separate enclosure base portion is eliminated. Again, it will be understood that the cover portion 22 and lock mechanism 35 are preferably constructed of an oxidation resistant material such as stainless steel.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is to be understood, therefore, that the invention can be practiced otherwise than as specifically described.

What is claimed is:

1. Boat apparatus comprising in combination:

securing means for securing a propeller on a drive shaft of a boat engine;

enclosure means for enclosing said securing means so as to prevent access thereto, said enclosure means comprising a cover portion demountable to provide access to said securing means;

lock means coupled to said enclosure means and actuatable between an open position that allows demounting of said enclosure means and a locked position that prevents demounting thereof; and

key means for actuating said lock means.

2. Boat apparatus according to claim 1 wherein said enclosure means further comprises a base portion means also secured to the drive shaft by said securing means, said base portion accommodating said cover portion and securable thereto by said lock means.

3. Boat apparatus according to claim 2 wherein said securing means comprises a threaded nut for engaging threads on the shaft.

4. Boat apparatus according to claim 3 wherein said securing means further comprises anti-rotation means for preventing rotation of said nut on the drive shaft.

5. Boat apparatus according to claim 3 wherein said base portion means comprises a substantially flat bearing surface for forcibly engaging an accommodating bearing surface on said securing means.

6. Boat apparatus according to claim 5 wherein said base portion means comprises an annular member having a mounting aperture encircled by said bearing surface and adapted to receive the drive shaft, said annular member having a rear bearing surface for forcibly engaging an accommodating surface on a hub of the propeller.

7. Boat apparatus according to claim 6 wherein said enclosure means and said lock means are composed of an oxidation resistant material.

8. Boat apparatus according to claim 3 wherein said base portion is an integral part of the propeller.

9. Boat apparatus according to claim 8 wherein said enclosure means and said lock means are composed of an oxidation resistant material.

10. Boat apparatus according to claim 9 wherein said base portion means comprises a substantially flat bearing surface for forcibly engaging an accommodating bearing surface on said securing means.

11. Boat apparatus according to claim 1 wherein said enclosure means and said lock means are composed of an oxidation resistant material.

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