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H. J. HILLBORN

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CLAMP SCREW LOCK

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Fig. 1.

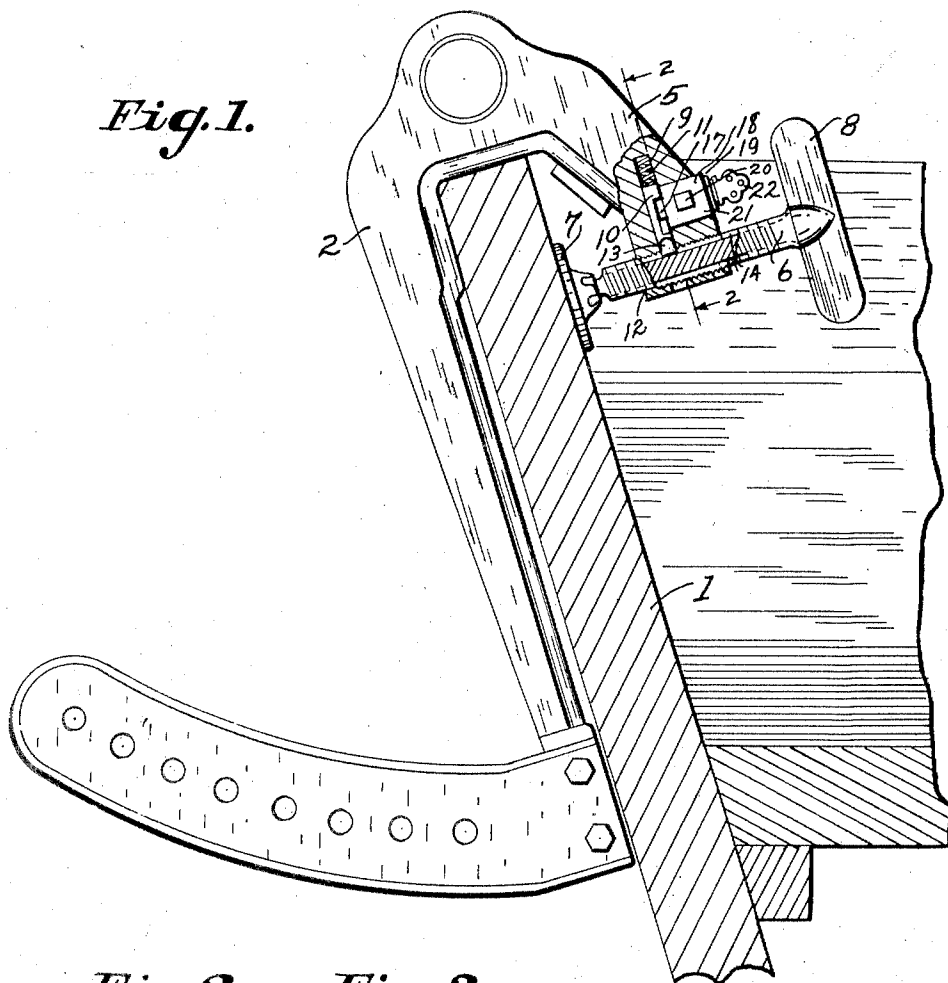


Fig. 2.

Fig. 3.

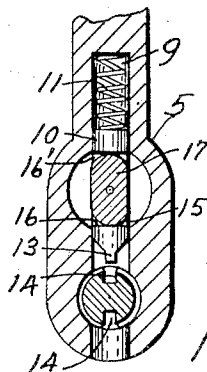
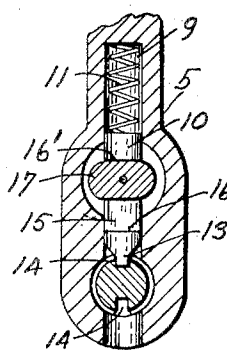
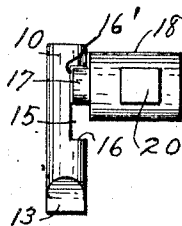


Fig. 4.



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CLAMP-SCREW LOCK.

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My invention relates to improvements in clamp screw locks.

It is the purpose of my invention not only to provide a lock to prevent the rotation of a clamp screw through vibration of the mechanism of which it is a part, but to provide a positive lock to prevent theft of objects clamped to larger or stationary bodies by means of rotatable screw clamps.

It is a further object of my invention to apply a tumbler lock to a retaining bolt which is actuated against a clamp screw to prevent rotation thereof.

In the drawings:

Figure 1 shows an application of my lock mechanism to the clamping screw of an out-board boat motor bracket.

Figure 2 is a section taken on line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 2 and showing a lock bolt in disengaged position.

Figure 4 is a view showing the relation of the tumbler lock plug to the latch bolt of my lock.

Like parts are identified by the same reference characters throughout the several views.

In Figure 1, I have shown the transom 1 of a boat upon which clamp bracket 2 of an out-board motor is hung. The usual form of clamp screw 6, in threaded engagement with arm 5 of the motor bracket, is adapted to thrust the swiveled clamping member 7 against the inside surface of the transom when the screw 6 is turned in the proper direction by hand pressure upon its winged head 8. This is the usual construction in out-board motor clamps, and it is to the control of the threaded rotation of the clamp screw 6 through the arm 5 that my invention is directed.

A hole 9 drilled upwardly from the underside of the arm 5 of the bracket 2 receives a latch bolt 10 and a helical spring 11 which is seated in the extreme inner end of the hole and maintains the bolt under pressure. Bore 9 is intersected by the tapped opening 12 in arm 5 through which the clamping screw 6 is threaded, the length of the bolt 10 being such that its reduced extremity 13 is adapted to interact with the surface of the screw. Grooves 14, which extend axially along opposite sides of the threaded clamp bolt 6, are formed in the clamp bolt in the manner customary in the formation of key ways, and

when the clamp screw is rotated to bring any of these grooves or key ways into registry with the reduced portion 13 of the latch bolt 10, such portion will enter the groove under the pressure of spring 11.

The latch bolt 10 has a portion cut away at 15 to provide shoulders 16 against which the oval-shaped portion 17 of the lock plug 18 will act. The plug 18 forms a central rotatable part of the lock 19, and the key alignable tumblers 20 are adapted to engage with the cylinder 21 when the key 22 is retracted from the plug.

As shown in Figures 2 and 3, the eccentric portion 17 of the plug 18 co-acts with the shoulders 16 of the latch bolt 10 during plug rotation in such manner as to control the spring actuation of the latch bolt. It will be seen particularly in the structure shown in Figure 1 that the eccentric 17 is also adapted to co-act with the surface 16' to prevent the rotation of the latch bolt and thereby retaining the extended portion 13 thereof in proper alignment for registry with the grooves of the clamp screw. When the eccentric 17 of the plug is in the position shown in Figure 2, the bolt will ride upon the surface of the screw, and the spring 11 will force the extremity 13 of the latch bolt into one of the grooves 14 whenever the screw is rotated to bring a groove therebeneath. The withdrawal of the key 22 from the tumbler lock will then actuate the tumblers 20 to the end that they will co-act with the cylinder 21 and prevent rotation of the plug 17 until the proper key is again inserted in the lock.

Insertion of the key in the lock will align the tumblers and permit the rotation of the plug by means of the key, so that the eccentric will act to force the bolt upward as shown in Figure 3 and release the clamp screw 6 for free rotation in its threaded relation with the hanger arm 5. Other forms of locks may easily be adapted to my structure, and the latch may easily be controlled by the rotatable plugs of such other locks or may be controlled by the rotation or insertion of any of the many varieties of keys with which such locks may be operable.

A lock is, therefore, provided by my invention so that the outboard motor or other object clampingly engaged by a screw may be securely locked in such manner that the clamp will not only be prevented from loosening through vibration of the parts, but

secured against the efforts of unauthorized persons to remove the clamped arm from its support.

claim:

1. The combination with an outboard motor bracket having a clamp arm, of a screw threaded through said arm and provided with a recess, a latch bolt housed within said arm and having a portion receivable in said recess, and a lock operatively mounted in said arm and having a plug interacting with the latch bolt for the operation thereof.

2. The combination with a clamp arm provided with intersecting bores, of a clamp screw in threaded engagement with one of said bores and provided with an axial groove, a reciprocable latch bolt in another of said bores and adapted to interact with said groove to prevent rotation of the screw, and a lock in operative connection with said bolt for the adjustment thereof.

3. The combination with a bracket member having a clamp arm, of a clamp screw, a shouldered latch bolt housed within said arm above said screw and reciprocably adapted for interaction therewith to fix the position thereof, and a rotatable lock plug accessible from the exterior of said arm and provided therewithin with an eccentric interacting with a shoulder of said latch bolt for the adjustment thereof.

4. The combination with a clamp arm provided with intersecting bores, of a clamp screw in threaded engagement with one of said bores and provided with an axial groove, a reciprocable latch bolt in another of said

bores and inaccessible for manual control, said bolt being adapted to interact with said groove to prevent rotation of the screw, a spring urging said bolt toward said groove, and a lock in operative control of said bolt.

5. The combination with a clamp screw, of a shouldered latch bolt adapted for interaction therewith to fix the position thereof, a spring adapted to force the latch bolt into interaction with the screw, and a rotatable lock plug provided with an eccentric interactable with a shoulder of said latch bolt to withdraw said latch bolt from interaction with the clamp screw.

6. In combination with a clamp arm provided with intersecting bores, of a clamp screw in threaded engagement with one of said bores and provided with an axial groove, a reciprocable latch bolt in another of said bores, an oblong end on said latch bolt for registry with said groove, a portion of said latch bolt cut away to provide shoulders and flat surface, and a lock provided with a plug and an eccentric co-acting with the latch bolt for adjustment thereof and to prevent rotation of said oblong end.

7. In a clamp having a clamping arm provided with intersecting bores and an axially grooved clamp screw in threaded engagement with one of said bores, the combination with a latch bolt reciprocable in another of said bores and receivable in said groove, said bolt having an elongated axially extending recess, of a lock controlled eccentric disposed in said recess and engageable with the walls thereof.

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