United States Patent

Krupen et al.

[15] **3,693,383**

[45] **Sept. 26, 1972**

[54] **DEVICE FOR PREVENTING ACCESS TO AN OPERATING PART**

[72] Inventors: **Ira Krupen,** Howard Beach; **Marvin A. Gilman,** Croton-on-Hudson, both of N.Y.

[73] Assignee: **Marsal Crafts, Inc.,** Peekskill, N.Y.

[22] Filed: **Jan. 20, 1971**

[21] Appl. No.: **108,026**

[52] **U.S. Cl.**.....**70/232,** 70/371, 70/DIG. 58

[51] **Int. Cl.**.....**F16b 41/00**

[58] **Field of Search**.....70/14, 19, 58, 209, 211, 232, 70/DIG. 58; 248/203

[56] **References Cited**

UNITED STATES PATENTS

1,244,790 10/1917 Stevenson.....70/DIG. 58

FOREIGN PATENTS OR APPLICATIONS

1,068,175 5/1967 Great Britain.....70/232

OTHER PUBLICATIONS

Popular Mechanics; July 1956, Page 143, Outboard–Motor Lock; The Hearst Corporation, 57th St. at 8th Ave., New York, N.Y. 10019.

Primary Examiner—Albert G. Craig, Jr.

Attorney—Steinberg & Blake

[57] **ABSTRACT**

A device for preventing access to an operating part which is fixed to a rotary member of a smaller cross section than the operating part. The device includes an elongated tube having a hollow interior large enough to accommodate the operating part and formed with a slot extending longitudinally along the tube from an open end thereof with this slot having a width great enough to receive a rotary member but too small to permit the operating part to pass through the slot. Thus the tube can be advanced at its slot along the rotary member with the operating part received in the interior of the tube. After the operating part is thus situated within the tube, a plug is inserted into the tube and a releasable lock coacts with the plug and the tube for preventing the plug from being removed so that access to the operating part is prevented as long as the plug remains in the tube.

11 Claims, 8 Drawing Figures

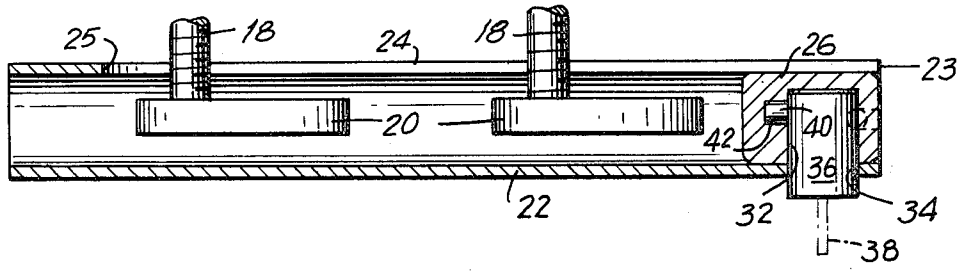
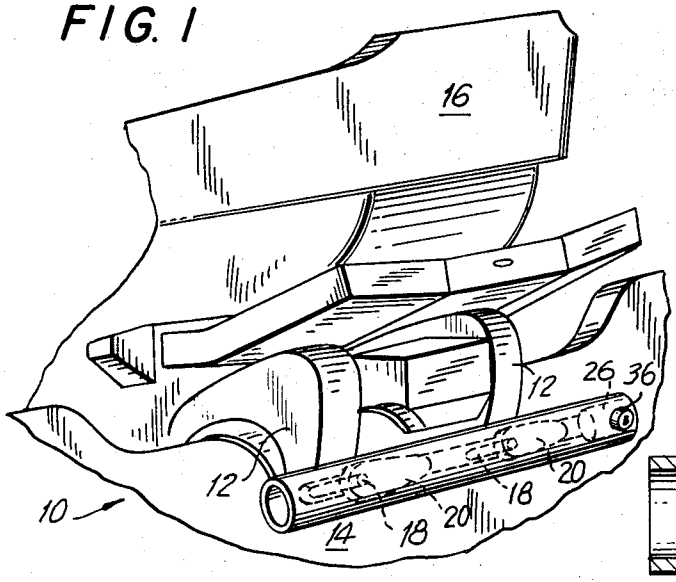


FIG. 1



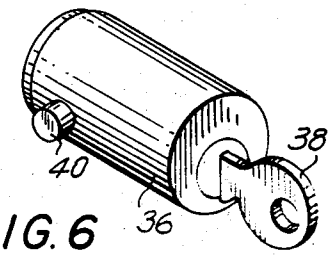
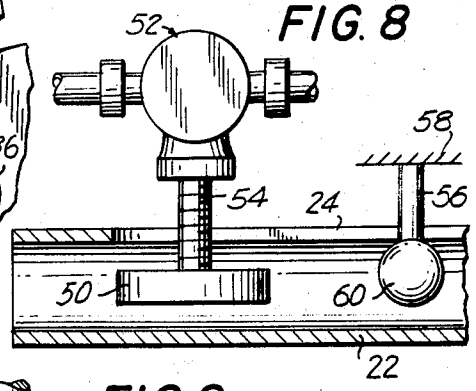


FIG. 6

FIG. 8



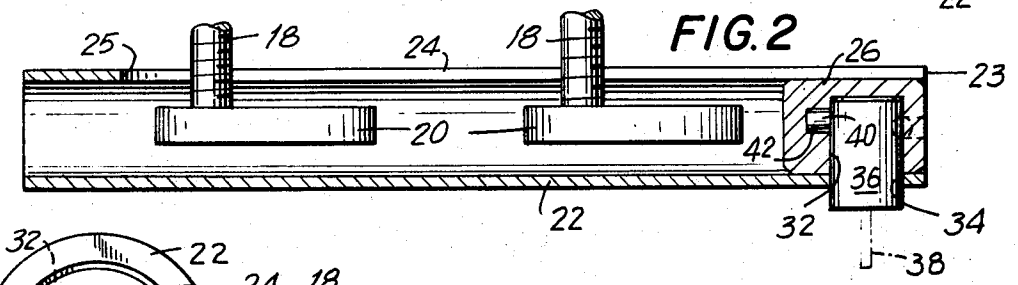


FIG. 2

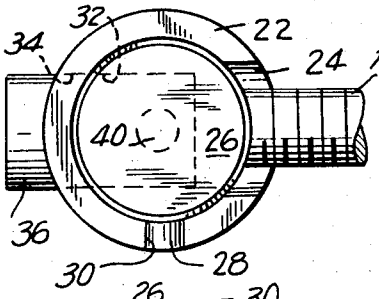


FIG. 3

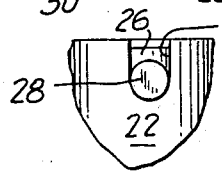


FIG. 4

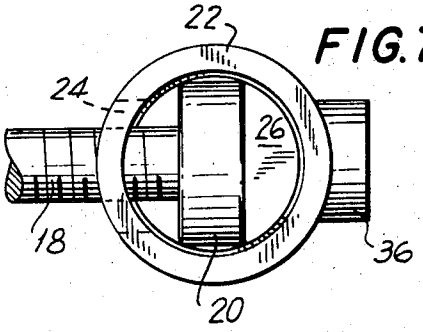


FIG. 7

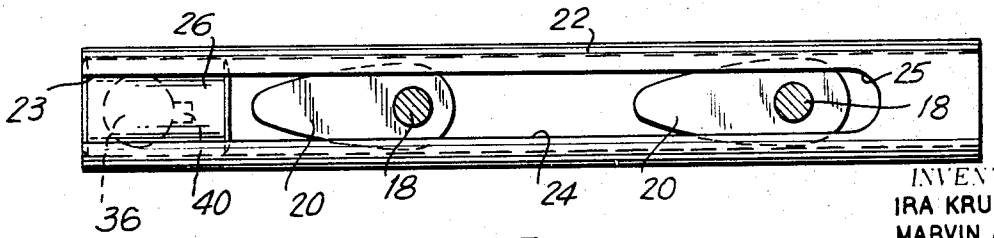


FIG. 5

INVENTORS
IRA KRUPEN
MARVIN A. GILMAN

BY

Steinberg and Blake
ATTORNEYS

DEVICE FOR PREVENTING ACCESS TO AN OPERATING PART

BACKGROUND OF THE INVENTION

The present invention relates to theft-prevention devices.

In particular, the present invention relates to that type of device which will prevent access to an operating part which must be manipulated in order to remove an item from a support on which the item is mounted.

For example, the invention is applicable to devices for preventing loosening of C-clamps used to fix an outboard motor to a boat.

As is well known, items such as outboard motors can be mounted on a boat by the use of suitable C-clamps. If such a boat is left unattended, it is possible for the outboard motor to be stolen simply by loosening the clamps and removing the motor from the boat.

In order to prevent such thefts from occurring, it has already been proposed to provide devices which will prevent access to the operating parts of the C-clamps. However, conventional devices of this type suffer from serious drawbacks. The conventional theft-prevention devices of this type are relatively weak and are easily broken without damaging the C-clamp in any way, so that with a simple cutting or shearing tool it becomes possible to destroy the theft-preventing device and obtain ready access to the operating end of the screw of a C-clamp. In addition, conventional devices of this type are relatively complex and expensive, and they are difficult to mount on and remove from the C-clamps.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide a device of the above general type which will avoid the above drawbacks.

In particular, it is an object of the present invention to provide a device of the above type which is of an exceedingly robust construction so that it cannot possibly be damaged in such a way as to give access to an operating part such as the operating end of the screw of a C-clamp.

An additional object of the present invention is to provide a device of this type which can be very quickly mounted on and removed from a C-clamp or the like by the individual who wishes to prevent access to the operating part. Furthermore, it is an object of the present invention to provide a device of this type which is made up of a relatively small number of simply constructed elements which are inexpensive to manufacture so that the device of the invention can be produced at low cost.

Furthermore, it is an object of the present invention to provide a device of this type which is constructed so as to maintain itself in operative condition even if tampering with the device has been attempted.

Also, the objects of the present invention include the provision of a device which can remain locked in its theft-preventing condition until a key, possessed by the owner of the device, is applied to a releasable lock.

According to the invention the device is designed so as to prevent access to an operating part which is fixed to an end of a rotary member the cross section of which is smaller than that of the operating part. The device includes an elongated hollow tube having an open end and formed with a slot extending longitudinally along

the tube from its open end. This slot has a width great enough to receive the rotary member but too small to permit the operating part to pass through the slot. However, the hollow interior of the tube is large enough to receive the operating part, so that the tube can be advanced at its slot along the rotary member with the operating part received in the hollow interior of the tube. A plug means is then introduced into the interior of the tube to close the tube between its open end and the operating part. The slot has a closed end on the side of the rotary member opposite from the plug means. A releasable lock means is then applied to the plug means and the tube for releasably preventing the plug means from being removed, from the tube. In this way, until the plug means is removed the operating part is maintained in the interior of the tube preventing access to the operating part.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG 1 is a schematic representation of the device of the invention applied to a pair of C-clamps which extend from and are fixed to an outboard motor, these C-clamps serving to mount the motor on the stern end of a boat;

FIG. 2 is a longitudinal sectional elevation showing the details of the device of the invention, the section of FIG. 2 being taken in a plane which contains the central axis of the tube and the central axis of a slot which is formed in the tube;

FIG. 3 is an end view of the structure of FIG. 2 as seen from the right end thereof;

FIG. 4 is a fragmentary bottom plan view of the structure of FIG. 3 as seen when looking up toward the bottom of FIG. 3;

FIG. 5 is an elevation of the structure of FIG. 2 as seen when looking toward the slot thereof;

FIG. 6 is a perspective illustration of the releasable lock means;

FIG. 7 is an end view of the structure of FIG. 2 as seen from the left of FIG. 2; and

FIG. 8 is a schematic longitudinal section illustrating a further application of the invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to FIG. 1 of the drawings, the invention is shown as applied to a boat **10** having C-clamps **12** straddling the upper edge of the stern end **14** of the boat **10**. These C-clamps are fixed to and extend downwardly from an upper portion of an outboard motor **16**. This upper portion of the outboard motor extends over the top edge of the stern end **14** of the boat **10**, and as is well known part of the outboard motor will extend down into the water behind the stern of the boat. The C-clamps **12** are fixed to the outboard motor **16** and serve to mount the latter on the stern end **14** of the boat **10**.

The C-clamps **12** respectively include rotary members **18** in the form of suitable screws threaded through portions of the C-clamps and having outer ends which fixedly carry operating parts **20**, respectively. The ends of the screws **18** distant from the operating parts **20** carry suitable plates which become pressed against an

exterior surface of the stern **14** to clamp the latter between these plates and parts of the C-clamps which engage the opposite surface of the stern **14**.

The operating parts **20** are in the form of elongated handles fixed to the outer ends of the screws **18**. Each handle **20** has at some part a width greater than the diameter of the screw **18** fixed thereto. Thus, each operating part **20** has at least a portion of a transverse dimension substantially greater than the cross section of the rotary member **18**.

The manner in which the device of the invention coacts with the rotary members **18** and operating parts **20** is most clearly apparent from FIG. **2**. As may be seen from FIG. **2** the device of the invention includes an elongated tube **22** having opposed open ends. This tube **22** is made of a relatively thick and heavy hard metal. The tube **22** is hard enough and robust enough to prevent cutting or bending of the tube **22** with tools which may be possessed by a thief.

The elongated tube **22** is formed with an elongated slot **24** which extends longitudinally along the tube **22** from one of the open ends thereof. This slot **24** is straight and extends parallel to the axis of the tube **22**, as is particularly apparent from FIG. **5**. FIG **5** also illustrates how the width of the slot **24** is large enough to receive the rotary members or screws **18** but is too small to permit the operating parts or handles **20** to pass therethrough. These handles while small enough to be freely received in the interior of the tube **22** are of an elongated configuration and their length is too great to permit them to turn within the tube **22**. The elongated slot **24** thus has an open end **23** situated at the right open end of the tube **22**, as viewed in FIG. **2**. Distant from its open end **23** the slot **24** has a closed end **25**. Thus the slot **24** is shorter than the tube **22** and terminates between the ends thereof in the closed end **25**.

A plug means **26** is insertable into the tube **22** through the right open end thereof, as viewed in FIG. **2**. This plug means **26** is in the form of a simple cylindrical block made of any suitable metal and having exterior diameter which is substantially the same as the interior diameter of the tube **22**.

A locating means is provided for locating the plug means **26** in a precisely determined position in the interior of the tube **22**, as shown in FIGS. **3** and **4**. This locating means includes a pin **28** fixed to and projecting from the exterior of the block which forms the plug means **26**. The tube **22** is formed with a short notch **30** extending inwardly from the same open end of the tube which receives the plug means **26**. FIG. **4** shows the locating pin **28** in the notch **30**. FIG. **3** illustrates the short length of the pin **28** which need not extend beyond the plug **26** through a distance greater than the thickness of the wall of the tube **22**. Thus by introducing the locating pin **28** into the locating notch **30**. FIG. **3** illustrates the short length of the pin **28** which need not extend beyond the plug **26** through a distance greater than the thickness of the wall of the tube **22**. Thus by introducing the locating pin **28** into the locating notch **30**, the locating means **28, 30** will precisely determine the position of the plug means **26** both axially and angularly with respect to the tube **22**.

The plug **26** is formed with a transverse bore **32** extending into the plug **26** in a direction perpendicular to the common axis of the plug **26** and the tube **22**. A wall portion of the tube **22** is formed with an opening **34** of the same diameter as the bore **32**. The locating means **28, 30** serves to position the plug means **26** in such a way in the tube **22** that the opening **34** will precisely register with the bore **32**. This bore **32** does not extend completely through the plug **26**. It has within the plug **26** a predetermined length for a purpose referred to below.

A releasable lock means **36** is provided for releasably holding the plug means **26** in its position determined by the locating means **28, 30**. This releasable lock means **36** includes a cylindrical lock body the exterior diameter of which is substantially the same as the diameter of the opening **34** and the bore **32**. Thus, when the lock means **36** is introduced through the opening **34** into the bore **32**, an outer end of the lock **36** will still be exposed, and this outer end is adapted to receive the operating key **38**. This lock means **36** is of a known construction according to which a lock pin **40** can be displaced to extend beyond the cylinder of the lock **36** or can be retracted into the lock in response to turning of the key **38**.

The interior of the plug means **26** is also formed with a relatively short locking bore **42** which extends parallel to the common axes of the plug means **26** and tube **22** and which communicates with the transverse bore **32** of the plug means **26**. After the lock **36** has been introduced into the bore **32**, completely filling the latter, for example, the key **38** may be manipulated to advance the lock member **40** into the lock bore **42**. Then the key may be removed.

As was indicated above, the bore **32** extends only partly into the plug **26**. The length of the bore **32** is such that when the plug **36** is introduced all the way into the bore **32**, the lock member **40** will register with the lock bore **42**, thus facilitating entry of the lock member **40** into the bore **42**. It will be noted from FIGS. **2** and **3** that the length of the lock means **36** is such that it will not only fill the bore **32** but also will extend through and beyond the opening **34**. It is to be noted that the lock member **40** may be continuously urged by a spring to its outer position so that it will enter the bore **42** without the use of a key, while a key **38** is required to retract the member **40** out of the bore **42**.

FIG. **7** illustrates the tube **22** as it appears from the left end, as viewed in FIG. **2**. Thus through this left open end of the tube it is possible to see within the tube the operating part **20** which cannot pass through the slot **24** while the rotary member **18** passes therethrough. Thus, it is apparent from FIG. **7** it is impossible to remove the tube **22** from the rotary member **18** as long as the plug **26** and the lock means **36** have the positions indicated in FIG. **2**.

The operation of the device of the invention is believed to be clear from the above description. Before the device is applied to the rotary members **18** the plug means **26** and lock means **36** are separate from the tube **22**. In this condition the tube **22** can be advanced at its slot **24** along the rotary members **18** with these rotary members entering into the slot **24** through the open end **23** thereof while the closed end **25** of the slot is displaced toward the rotary members **18**. Simultaneously the larger operating parts **20** are received in the hollow

interior of the tube 22. When the tube 22 has reached approximately the position indicated in FIG. 2, the operator will insert the plug means 26 into the interior of the tube 22, with the pin 28 and notch 30 coacting to determine the location of the tube 26 so that its bore 32 will register with the opening 34. Now the operator will introduce the lock means 36 through the opening 34 into the bore 32. The length of the lock means is such that when it has been displaced all the way into the bore 32 it will still extend into the opening 34. At this time the lock member 40 is either urged by a spring into the bore 42 or the key 38 can be introduced into the lock so as to advance the lock member 40 into the bore 42. It will be noted that the lock member 40 by becoming located in the lock bore 42 prevents removal of the lock 36 so that the key can be pulled out without risking simultaneous removal of the lock means.

In this position the device of the invention prevents access to the operating parts 20. Because of the rugged construction of the tube 22 it is not easily damaged. Moreover, the positioning of the plug means 26 at an open end of the tube protects the tube at this open end since the plug 26 will prevent inward deformation of the tube at the open where the plub 26 is located. At the same time this plug 26 will of course prevent axial displacement of the tube 22 away from the rotary members 18. The tube 22 cannot be removed by displacement in the direction of the axes of the rotary members because the handles 20 are too large to pass through the slot 24. Any axial force applied to the plug 26 in an attempt to remove the latter from the tube acts transversely across the body of the lock 36, and this lock 36 is of course extremely strong with respect to transverse shearing forces, so that an exceedingly robust construction is provided in this way.

In order to remove the device of the invention it is only necessary to insert the key 38 into the lock 36 and retract the lock member 40 so that the lock 36 can be removed and then the plug 26 can be removed, thus enabling the tube 22 to be removed. Thus, with only three basic components it becomes possible to provide a device which will reliably prevent access to the operating parts 20.

It is emphasized that it is not essential to provide a device which will coact with two or more rotary members 18 respectively having handles 20 fixed thereto. The device of the invention is also applicable to a single rotary member having an operating part at least a portion of which is of a larger transverse dimension than the rotary member. However, a particular advantage accrues from an arrangement as shown in FIG. 2 where at least a pair of rotary members 18 extend through the slot 24, because with this arrangement such a pair of rotary members prevent any substantial swinging movement of the tube 22 with respect to the rotary members.

As an example of the general applicability of the invention, reference is made to FIG. 8 where there is an illustration of a handle 50 of a valve 52. This handle 50 is received within the hollow interior of the tube 22 which is identical with that illustrated elsewhere and described above. The entire device used with the handle 50 of the valve 52 is identical with that shown in FIGS. 1-7. Thus, the slot 24 is wide enough to receive the rotary member 54 of the valve 52, this rotary member 54 being turned by the operating part constituted by the handle 50. This handle 50 has at least in part a transverse dimension too great to permit the handle 50 to move through the slot 24 while the rotary member 54 can be received in the slot 24 in the manner described above. With the arrangement shown in FIG. 8 there is simply a stationary member 56 fixedly supported on any suitable support 58 which is stationary. This member 56 has at its free end a knob or other enlargement 60 which is also small enough to be received in the hollow interior of the tube 22 but which has at least a portion which is too large in its transverse dimension to pass through the slot 24. Thus, the provision of this stationary member 56 small enough to pass through the slot 24 with the enlarged component 60 at its free end will serve to prevent rotation of the tube 22, so that the device of the invention can be used for preventing access to the valve handle 50 which is reliably prevented from being turned with an arrangement as illustrated in FIG. 8. Therefore, it is clear that the present invention has a general applicability to all types of rotary members having operating parts which are not to be operated except by authorized individuals.

Thus, it will be seen that component 56 together with the enlargement 60, or one of the rotary members 18 and the handle 20 fixed thereto form a means for preventing turning of the tube 22 with respect to a rotary member such as a member 18 or a member 54 and the handle or operating part connected thereto such as a handle 20 or 50.

What is claimed is:

1. A device for preventing access to an operating part which is fixed to one end of a rotary member of a smaller cross section than at least a portion of the operating part, comprising an elongated tube having a hollow interior large enough to accommodate said operating part, said tube having at least one open end and being formed with a slot extending longitudinally along the tube from said open end thereof and terminating in a closed end situated between said open end of said tube and an opposed end of said tube, said slot having a width sufficiently great to receive said rotary member but too small to permit at least said portion of said operating part to pass through said slot so that the tube can be placed on the rotary member while advancing said slot therealong with said operating part received in the interior of the tube through said open end thereof, plug means insertable into said tube through said open end thereof for plugging the interior of the tube between said open end thereof and said closed end of said slot, thus situating said operating part between said plug means and said closed end of said slot, and releasable lock means coacting with said plug means and tube for releasably locking said plug means in said tube, whereby until said lock means is released for permitting removal of said plug means from said tube said operating part will be housed within the tube while access to said operating part is prevented, said plug means having an axis coinciding with the axis of said tube and being formed with a transverse bore extending transversely with respect to said common axes, said tube having a wall portion formed with an opening registering with said bore of said plug

means when the latter is in the interior of said tube, and said releasable lock means including a cylinder received in said bore of said plug means and extending into said opening of said tube.

2. The combination of claim 1 and wherein said tube and said slot formed therein are both long enough to accommodate at least a pair of said rotary members and said operating parts both of which become situated between said plug means and closed end of said tube, whereby the pair of rotary members will prevent turning of said tube with respect to said rotary members and operating parts.

3. The combination of claim 1 and wherein said plug means is formed in its interior with a lock bore extending parallel to said common axes and communicating with said transverse bore, and said releasable lock means including a movable lock member movable into and out of said lock bore when said cylinder is in said transverse bore.

4. The combination of claim 1 and wherein a locating means coacts with said tube and plug means for locating the latter in said tube at a position where said opening registers with said bore.

5. The combination of claim 4 and wherein said locating means includes a pin projecting from the exterior of said plug means and a notch formed in said tube and extending from said open end thereof for receiving said pin to determine the position of said plug means in said tube.

6. The combination of claim 5 and wherein said plug means is situated in the interior of said tube at the region of said open end thereof.

7. The combination of claim 6 and wherein said plug means fills the interior of said tube all the way up to said open end thereof.

8. The combination of claim 7 and wherein said opposed end of said tube also is open.

9. The combination of claim 1 and wherein said slot extends along a straight line parallel to the axis of said tube.

10. The combination of claim 1 and wherein said plug means is situated in said tube at the region of said open end thereof.

11. The combination of claim 1 and wherein a means coacts with said tube for preventing rotary movement thereof with respect to said rotary member and operating part.

* * * * *