Nov. 16, 1965 O. MUELLER 3,217,685

BOAT BAILER

Filed Aug. 31, 1964 3 Sheets-Sheet 1

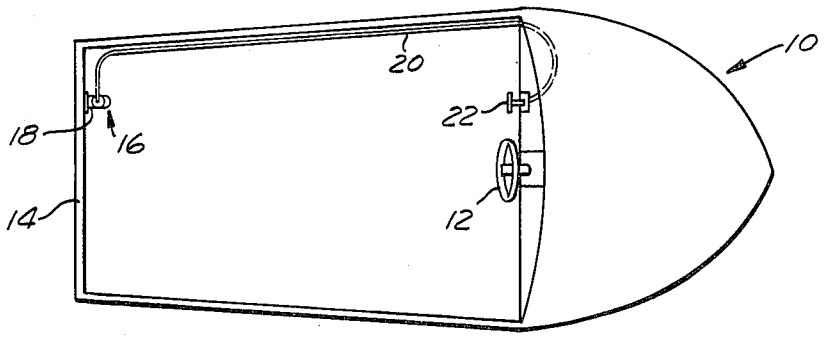



FIG. 1

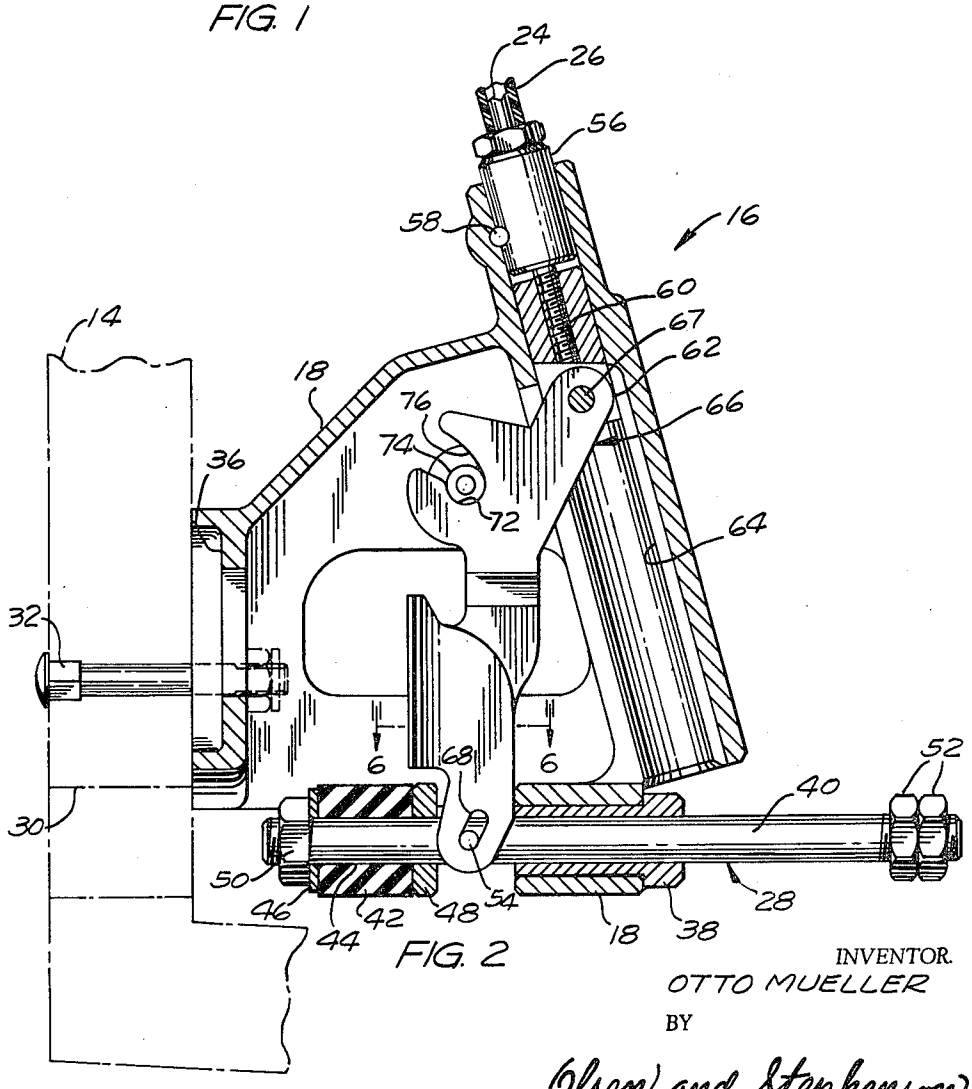



FIG. 2

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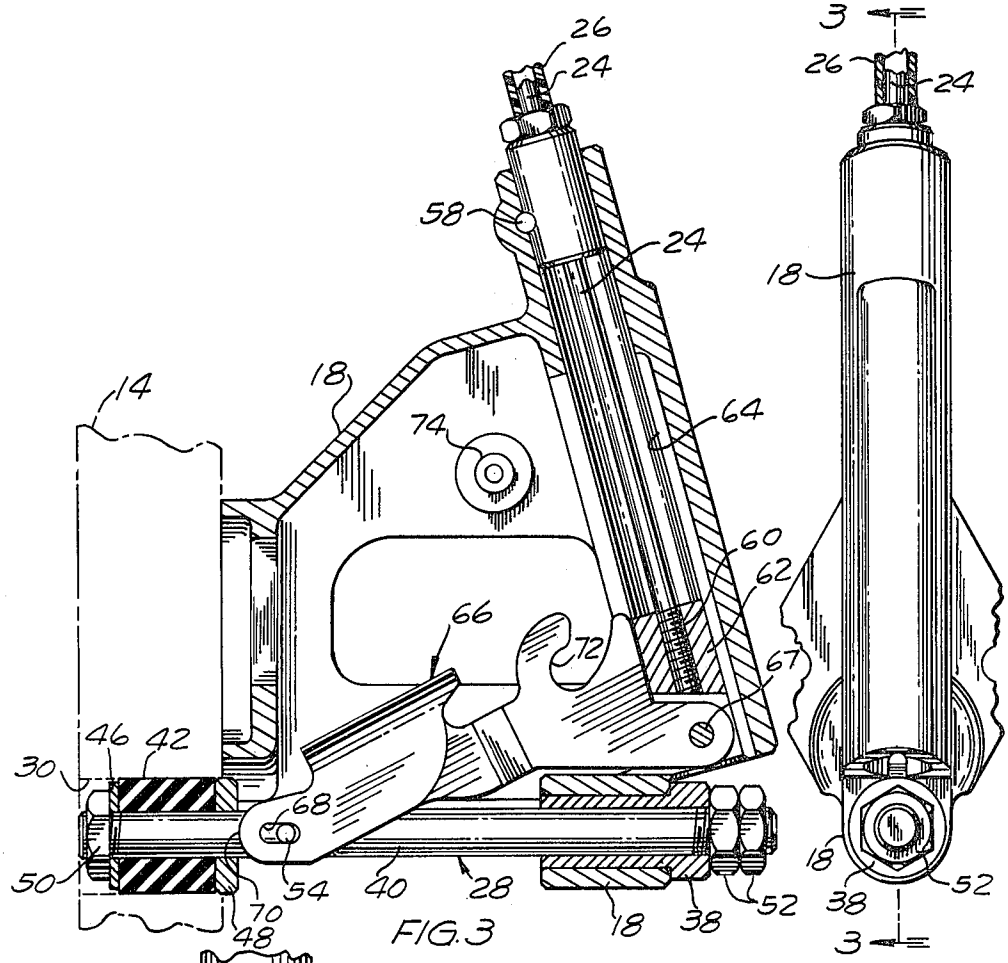



FIG. 3

FIG. 4

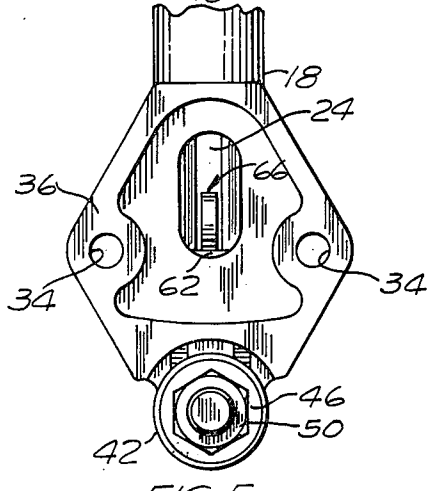



FIG. 5

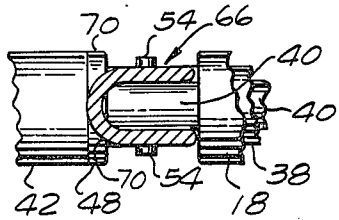



FIG. 6

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BOAT BAILER

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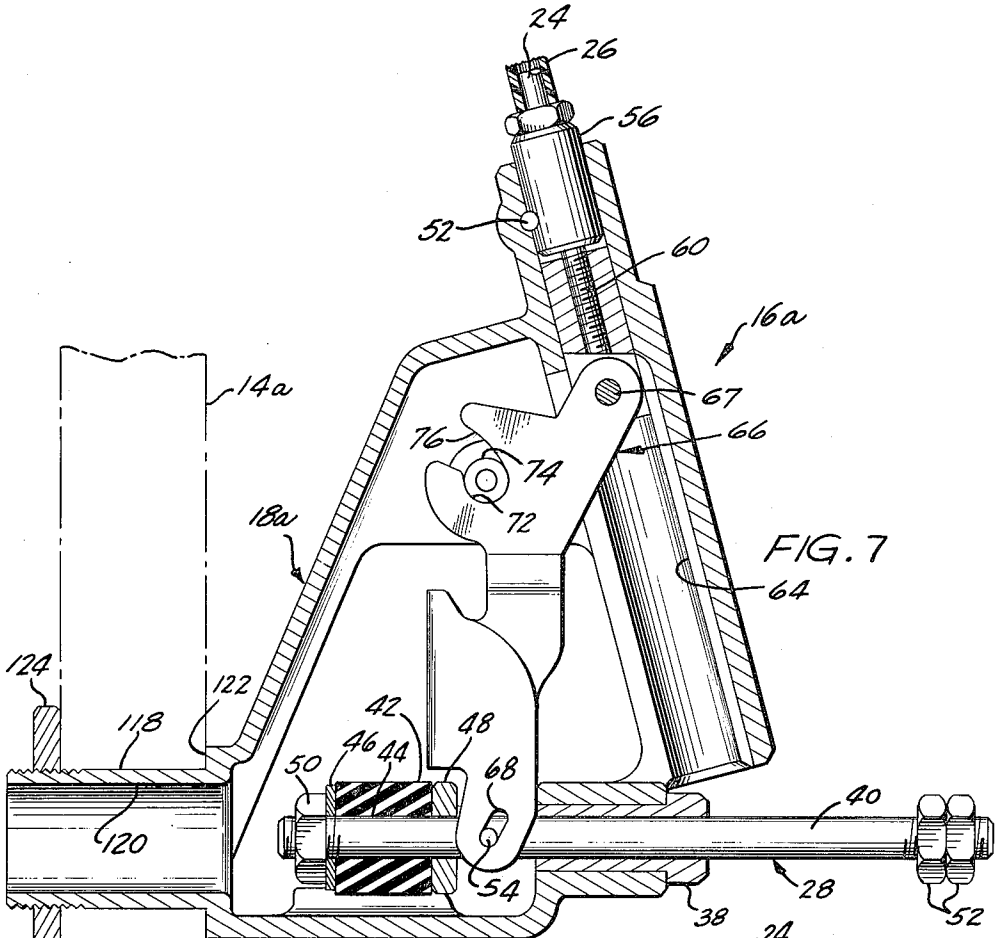



FIG. 7

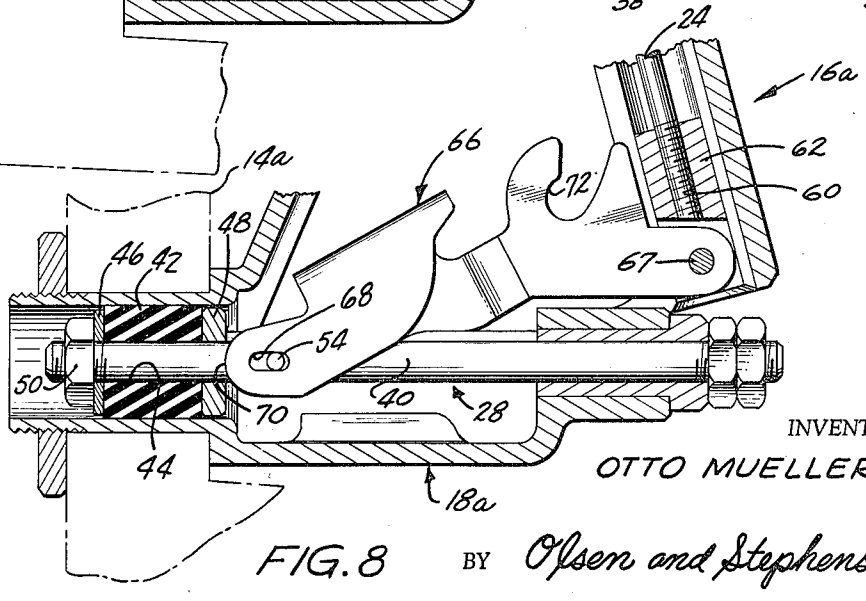



FIG. 8

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United States Patent Office 3,217,685 Patented Nov. 16, 1965



3,217,685

# BOAT BAILER

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Filed Aug. 31, 1964, Ser. No. 393,338
18 Claims. (Cl. 114—183)

The present invention relates to drain plugs for boats and more particularly to improved means for effecting from a remote location the insertion and removal of such plugs into and from a drain hole. This application is a continuation-in-part of pending application Serial No. 297,034, filed July 23, 1963 now abandoned.

It is conventional procedure to provide a drain hole in the stern board or transom of a boat for the purpose of draining water from the boat while the boat is in motion. A suitable drain plug must then be provided to prevent leakage of water back into the boat when the boat is stationary or moving at relatively low speed. The most satisfactory drain plug for this purpose is an expansible type plug which can be inserted into the drain hole and thereafter expanded to provide a tight seal for the drain hole.

One of the difficulties that has existed heretofore in connection with using an expansible plug in a drain hole has been the inability to develop a suitable remote control mechanism for inserting and removing the expansible drain plug into and from the drain hole. Because it is common practice for the operator of a boat to remove the drain plug while the boat is in motion, it is highly desirable to have a remote control means for removing the drain plug under these circumstances. Frequently, the pilot of the boat is alone in the boat, and in the absence of remote control means of this character, it is necessary for the pilot to leave the controls while he goes to the stern of the boat to remove the expansible type drain plug. As can be readily understood, this creates hazards, not only to the pilot and his boat, but also to other vessels that may be in the area.

Various type remote control means have been developed, but when this has been done it has been necessary to use poppet valves or similar structures for closing the drain holes, or it has been necessary to use cumbersome screw-type sealing plugs. Poppet valves are not entirely satisfactory for use in conjunction with remote control boat bailers, because there is always the possibility that an obstacle may lodge in the drain hole, and the poppet valve will then seat on this object, thereby preventing proper sealing of the drain hole. Since the drain hole is frequently in a location where it is not readily visible to the pilot, and since it is common practice to drain a boat before docking or mooring it, there is a great danger that the pilot may then leave his boat with the drain hole at least partially open, and as can be readily understood, serious results may follow.

It is one of the objects of the present invention to provide an improved remote control boat bailer which employs an expansible type plug adapted to be inserted into the drain hole.

It is another object of the present invention to provide an improved remote control boat bailer of the foregoing character which is constructed and arranged so that it can be actuated by a remote control wire extending to the vicinity of the steering wheel or controls of the boat so that the operator can remain at the boat controls during the bailing operation.

It is still another object of the present invention to provide an improved remote control boat bailer of the foregoing character which is a self-contained device mounted on the transom of the boat and which is constructed and arranged so that it can be readily mounted in any suitable position on the boat transom.



It is still another object of the present invention to provide an improved boat bailer of the foregoing character which is constructed and arranged so that the bailer can be installed with its parts in proper alignment with respect to a drain hole in the boat and wherein special tools or skills are not required in order for the installer to mount the bailer in the boat in an optimum manner.

It is still another object of the present invention to provide an improved remote control boat bailer of the foregoing character which is constructed and arranged so that the expansible plug will be locked in place automatically by advancing the remote control mechanism to the proper position.

It is still another object of the present invention to provide an improved remote control boat bailer of the foregoing character which is constructed and arranged to provide adjustment means for selectively determining the effective normal cross-sectional dimension of the drain plug when in its expanded condition.

It is still another object of the present invention to provide an improved remote control boat bailer which is characterized by the simplicity of its operation and the safety features which it provides when used with a conventional boat.

It is still another object of the present invention to provide an improved remote control boat bailer which is constructed and arranged to facilitate economic production of the same and to assure a long and effective life.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In the drawings:

FIGURE 1 is a plan view of a boat, drawn to a reduced scale, in which is mounted a remote control boat bailer embodying the present invention;

FIGURE 2 is an enlarged fragmentary sectional view with portions broken away illustrating the boat bailer on the transom of a boat, illustrated in phantom, and showing the expansible plug in its withdrawn position;

FIGURE 3 is a view similar to that of FIGURE 2, but showing the expansible plug in its normally inserted position in the drain hole;

FIGURE 4 is a fragmentary end elevation of the boat bailer as viewed from the right of FIGURE 3;

FIGURE 5 is a fragmentary end elevation of the boat bailer as viewed from the left of FIGURE 3;

FIGURE 6 is a fragmentary section taken on the lines 3—3 of FIGURE 2;

FIGURE 7 is a fragmentary sectional view similar to FIGURE 2, but showing a modified form of the invention; and

FIGURE 8 is a view similar to FIGURE 3, but showing the modified form of FIGURE 7.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring now to the drawings, the embodiment of the invention of FIGURES 1 to 6 will first be described in greater detail. The present invention can be used in any type of boat, and for the purposes of illustration, a power boat **10** is shown in FIGURE 1 having steering controls **12** at its forward end and having a conventional transom **14** as its stern board. The remote control boat bailer **16** has a frame member **18** mounted on the transom **14**, and

remote control means 20 extend to the forward part of the boat to be operated by a handle 22 by the pilot of the boat. The handle 22 is a conventional push-pull type which is connected to a remote control wire 24, FIGURE 2, which is housed in a flexible casing 26. The remote control wire is axially movable within the casing 26 in the conventional manner to actuate the drain plug 28, as will be described in greater detail.

The boat bailer 16 is a completely self-contained unit which is adapted to be mounted directly on the transom 14 adjacent to the drain hole 30 formed therein. The boat bailer 16 can be readily mounted in place by means of a pair of carriage bolts and nuts 32 which bolts extend through the transom and the holes 34 in the mounting flange 36 of the frame 18.

Carried in the frame member 18 is a bushing 38 in which is supported for axial movement the drain plug 28. The latter comprises a rod 40, a rubber annular member 42 having an axial passage 44, first and second rigid parts 46 and 48 which surround, respectively, opposite ends of the passage 44, a jam nut 50 threadedly connected to the end of the rod 40 at the first rigid part 46, and a pair of jam nuts 52 threadedly connected to the opposite end of the rod 40 to limit movement of the rod in one direction and to provide adjustment means for the drain plug 28, in a manner to be described. Also formed as an integral part of the rod 40 is the transverse pin 54 which extends in a radial direction through the axis of the rod 40 and is located so that it can be used for effecting movement of the rod 40 when it is desired to move the drain plug 28 into or out of the drain hole 30. For this purpose, the rubber annular member 42 has an external diameter closely approximating the internal diameter of the hole 30 so that the rubber annular member 42 can easily be moved into and out of the drain hole 30 when the rubber annual member 42 is in its free and uncompressed state. When the drain plug 28 has been inserted into the drain hole 30 an effective sealed closing of the drain opening 30 can be accomplished merely by axially compressing the annular rubber member 42 between the two rigid parts 46 and 48, thereby causing outward expansion of such rubber annular member 42. In the present invention, this can be accomplished by remote control means which also move the drain plug axially and which will now be described in greater detail. As shown in FIGURES, 2 and 3, the casing 26 has a collar 56 secured to its one end which in turn is locked in place in the frame member 18 by means of a securing pin 58. The remote control wire 24 can then be moved axially through the collar 56 for effecting movement of the rod 40, and for this purpose, the end of the remote control wire 24 is threadedly connected at 60 to the link or toggle actuator slide 62 for movement of the latter between the positions shown in FIGURES 2 and 3. From an examination of these two figures of the drawings, it will be evident that the slide 62 is adapted to be reciprocated in the track or guideway 64, formed in the frame member 18.

The end of the slide 62 has a forked construction and a link or toggle member 66 fits between the tines of the fork and is pinned thereto by the pin 67 to permit pivotal movement of the link or toggle member 66 relative to the slide 62.

The link or toggle member 66 is a rigid structural element, preferably a metal stamping which has its one end formed into a U-shaped configuration, as best seen in FIGURE 6, so that its end can straddle the rod 40. The remote ends of the U-shaped configuration extend on opposite sides of the rod 40 and have elongated slots 68 therein, only one of such slots being shown in FIGURE 2 and 3, and these slots fit over the ends of the pin 54 to provide a lost motion, pivotal connection between the link or toggle member 66 and the rod 40. The slots 68 have their longitudinal axes arranged so that when the drain plug 28 is in its closed position, shown in FIGURE 3, the axes of the slots 68 will extend parallel to the axis of the rod 40. The dimensions of the link or toggle member 66 and its slots 68 are such that the pin 54 will be located freely between the ends of the slot 68 when the link or toggle member 66 is in what will be referred to hereafter as its "center position." By "center position" is meant the position of the link or toggle member 66 when a line extending between the pivotal ends thereof is perpendicular to the path of movement of the slide 62 so that it takes no more force to pivotally move the link 66 in FIGURE 2 is substantially to one side of the center observed that the position of the link or toggle member 6 in FIGURE 2 is substantially to one side of the center position, and its position in FIGURE 3 is a limited amount on the other side of such center position. When in such center position, the link or toggle member 66 will be in a state of compression between its pivotal connection at 67 and its extremity at 70 which will be abutting against the rigid member 48. As indicated above, when in this center position, the pin 54 will be located out of contact with the ends of the slot 68, and thus, the link or toggle member 66 will be biasing the rigid member relative to the rod 40. Also, for the purposes of the description in this application, the position of the link or toggle member 66, shown in FIGURE 3, will be referred to as the over-center or locked position of the boat bailer because it takes more force to pivotally move the link 66 in a direction toward its FIG. 2 position than it does to move it in the opposite direction, and movement in this latter direction is blocked by frame member 18.



It will be readily understood that in order to provide the desired radial expanding action of the annular rubber member 42, it will be necessary that the rigid member 46 be held in a fixed position relative to the rigid member 48 when the latter is biased or urged in an axial direction toward the rigid member 46 by operation of the link or toggle member 66. For this purpose the jam nuts 52 are threadedly connected to the remote end of the rod 40 and they limit the extent of axial movement of the rod 40 into the drain hole 30, and thereby, the extent of axial movement of the rigid member 46. However, the rigid member 48 is movable relative to the rod 40 so that after the rod 40 has moved from the position shown in FIGURE 2 to the position shown in FIGURE 3 wherein the jam nuts 52 abut against the bushing 38, the rigid member 46 no longer can move in an axial direction, but the rigid member 48 can be so moved, and will be responsive to action of the link or toggle member 66 to compress the rubber annular member 42 and thereby expand the same in the drain hole 30 for effecting a tight seal thereof.

In this connection, it is also to be observed that the jam nuts 52 provide an arrangement for selectively determining the extent to which the rubber annular member can be expanded. Since jam nuts 52 seat against bushing 38 and thereby limit the extent to which the rod 40 and rigid member 46 can enter the drain hole 30, they therefore serve to control the location of rigid member 46 when rigid member 48 is biased axially toward rigid member 46 when link or toggle member 66 is passed over its center position. As can be understood, this will control the extent of the compression to which the rubber annular member 42 is subjected.

The link or toggle member 66 has a notch 72 adjacent to its pivotal connection at 67, which notch is adapted to receive the roller 74 mounted on the frame member 18. The notch 72 limits the outward movement of the link or toggle member 66 and has a configuration at 76 for assisting in starting the toggle action of the link or toggle member 66 when the latter is initially pushed from its FIGURE 2 position to its FIGURE 3 position.

In describing the operation of the present invention, let it be assumed that the boat bailer is in the position shown in FIGURE 2 during a bailing operation. When the bailing has been completed, the operator can push the handle 22 to a closed position and this will have the

effect of moving the remote control wire **24** from the position of FIGURE 2 to the position of FIGURE 3. Such action will have the effect initially of pivoting the link or toggle member **66** away from its FIGURE 2 position toward the FIGURE 3 position, and the expansible drain plug **28** will be advanced into the drain hole **30**. Prior to the link or toggle member **66** reaching its center position, the jam nuts **52** will seat against the bushing **38** preventing further inward movement of the rod **40** and the rigid member **46** into the drain hole **30**. When the link or toggle member pivots further, the extremities **70** thereof, which abut against the rigid member **48** will urge or bias the latter further into the drain hole **30**, thereby compressing and causing outward sealing expansion of the rubber annular member **42**. Such action of the link or toggle member **66** against rigid member **48** is permitted because of the lost motion connection provided by slots **68** and pin **54**.

When the link or toggle member **66** is moved past its center position, by further movement of slide **62**, the compressed state of the drain plug **28** will hold the link or toggle member **66** in its over-center position, or in a locked position.

When it is desired to open the drain hole **30**, the reverse procedure is followed. The handle **22** is pulled out by the operator and this initially moves the control wire **24** back toward its FIGURE 2 position. Initially the compression of the drain plug **28** is released after passing of the link or toggle member **66** over its center position. Thereafter, the expansible drain plug **28**, which is now constricted, is withdrawn from the drain hole **30** to the FIGURE 2 position.

From the foregoing description it can be understood that a very effective remote control boat bailer has been provided which has overcome the shortcomings of the prior art devices. A self-contained unit has been provided, all the parts of which are carried within the frame member **18** with the exception of the remote control device **20**. The bailer can be assembled easily in a boat and it is of sturdy construction to assure long and dependable action.

The frame member **18** is shown mounted in a position so that the track or guideway **64** is in a vertical plane, but it is to be understood that the frame member can be positioned in any radial plane containing the axis of hole **30**.

Referring now to FIGURES 7 and 8, a modified form of the invention will be described. This modification is essentially the same as the modification shown in FIGURES 1 to 6, inclusive, with the exception of the frame member **18***a*, and therefore, the other elements of this embodiment are identified by the same reference numbers as those applied to the corresponding parts of the embodiment of FIGURES 1 to 6, and reference is made to the first described embodiment for a description of such parts.

The frame member **18***a* has formed as an integral part thereof an annulus or annular portion **118** which defines the drain hole **120** into which the drain plug **28** is adapted to be inserted. Formed on the exterior of the annulus or annular portion **118** is a shoulder or seat **122** which is adapted to seat against the transom or hull of the boat. A lock nut **124** is threadedly connected to the outer end of the annulus or annular portion **118** for securing the frame member to the hull of the boat, as shown.

This embodiment of the invention is characterized by the accurate and easy manner in which it can be installed in a boat. It is merely necessary to bore a hole of proper size in the hull of the boat, after which the annular portion **118** can be inserted therein and secured in place by any suitable fastening means, such as the lock nut **124**. This enables the self-contained boat bailer to be installed without any special tooling, and makes it quite easy for the individual boat owner to buy the self-contained unit and to install it himself without the expense of acquiring special tooling for aligning the drain hole with the supporting means for the boat bailer **16***a*. As can be seen, the frame member **18***a* provides the aligned drain hole **120** and mounting means **118**, **120** and **124** as prealigned components. This assures that the drain plug **28** will fit properly at all times in the drain hole for the boat.

The present invention is shown mounted in the transom or hull **14** and **14***a*, but it is to be understood that it can be mounted in any portion of the hull which can provide a drainage for the boat and it can be used in motor boats, sail boats and the like.

Having described my invention, I claim:

**1.** In a boat provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the drain plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, a mechanism located inboard of said boat having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the axial translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward stroke of said drain plug, and remote control means for actuating said mechanism from a remote position for effecting the axial translating action of said element.

**2.** In a boat having a transom provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, a self-contained mechanism for translating said drain plug axially into and out of said hole and as an incident to the axial translating action to effect (1) expansion of said drain plug at the end of the inward insertion of the drain plug and (2) contraction of said drain plug at the start of the outward withdrawal of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward insertion of said drain plug and remote control means including a flexible wire having one end mounted for reciprocal movement in said self-contained mechanism, said self-contained mechanism including a frame member mounted on said transom and in which said drain plug is journaled for its axial movement, and an articulated element carried in said frame member and connected to said drain plug and to said flexible wire for transmitting reciprocal movement of said flexible wire to said drain plug for effecting said axial translating action.

**3.** The combination of claim **2** wherein the drain hole in said transom is defined by an annulus which is an integral part of said frame member.

**4.** In a boat provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, a mechanism mounted on said boat and having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the axial translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, and remote control means operatively connected to said mechanism for effecting axial translating action of said element, said element being responsive to said remote control means for additional movement to a locked position after effecting expansion of said drain plug, and responsive to said remote

control means for movement from its locked position to an unlocked position.

5. In a boat provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the drain plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, a mechanism having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the axial translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward stroke of said drain plug, remote control means for actuating said mechanism from a remote position for effecting axial translating action of said element, and adjustment means for selectively determining the effective normal cross sectional dimension of said drain plug when the latter is in its expanded condition.

6. In a boat having a transom provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the drain plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, said drain plug having an axial passage, first and second rigid parts surrounding opposite end portions of the passage, and a rod occupying said passage and projecting from one end thereof and extending through said one part and connected at the other end to said second part, a frame member mounted on said transom and supporting said rod for axial movement of the drain plug into and out of said drain hole, a remote control member supported in said frame member for reciprocal movement, an over-center element operatively connected to said remote control member and to said drain plug and responsive to movement in one direction of said remote control member to initially move said drain plug into said drain hole to a stop position therein and thereafter when passing over its over-center position to move said first rigid part relatively close to said second rigid part to expand said drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said stop position of said drain plug.

7. The combination of claim 6 wherein the drain hole in said transom is defined by an annulus which is an integral part of said frame member.

8. In a boat having a transom provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the drain plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, said drain plug having an axial passage, first and second rigid parts surrounding opposite end portions of the passage, and a rod occupying said passage and projecting from one end thereof, a frame member mounted on said transom and supporting said rod for axial movement of the drain plug into and out of said drain hole, a remote control element supported in said frame member for reciprocal movement, an element operatively connected to said remote control member and to said drain plug and responsive to movement in one direction of said remote control member to initially move said drain plug into said drain hole and thereafter to move said first and second rigid parts relatively closer together to expand said drain plug.

9. In a boat having a transom provided with a drain hole, a boat bailer comprising an expansible drain plug adapted to be inserted into said drain hole when the drain plug is in its contracted condition and to be expanded in said drain hole to effect a sealed closing thereof, said drain plug having an axial passage, first and second rigid parts surrounding opposite end portions of the passage, and a rod occupying said passage and projecting through said rigid parts, abutment means on one end of said rod engaging said second rigid part, a frame member mounted on said transom and supporting said rod for axial movement of the drain plug into and out of said drain hole, stop means on the opposite end of said rod for limiting the extent of axial movement of the rod into said drain hole, a remote control wire having one end extending into said frame member and supported therein for axial movement at an acute angle to said rod, a link having a pair of ends, means pivotally connecting said one end of the control wire to one end of said link, said link having a connection to said rod at a position such that the opposite end of said link will abut said first rigid part, said link having a length such that when said one end of the control wire is moved to an outer position within said frame said drain plug will be withdrawn by said rod from said drain hole, and when said one end of the control wire has been advanced into said frame to a position such that said link is in a plug expanding position in which a line extending through the pivotal connecting means at one end thereof and the opposite end of the link which is abutting said first rigid part is perpendicular to said path of axial movement of said wire said drain plug will have been advanced into said drain hole and said link will be in a state of compression against said first rigid part urging said first rigid part toward said second rigid part to expand said drain plug.

10. The combination claimed in claim 9 wherein said wire ran be moved further into said frame a limited distance to move said link past said plug expanding position to a position in which said plug is still expanded and said link is in a state of compression acting against movement of said link in a direction to return it to the position in which said control wire is in said outer position.

11. The combination claimed of claim 9 wherein said lost motion connection comprises a pin extending radially from said rod and an elongated slot in said link in which said pin is received, said slot having its longitudinal axis essentially parallel to said rod when the link is in said center position.

12. The combination claimed of claim 9 wherein second stop means limit the extent of axial movement of the drain plug away from said drain hole.

13. The combination of claim 9 wherein said frame member includes a sleeve portion which extends through said transom and defines the drain hole provided therein.

14. A self-contained boat bailer comprising a frame member having an annular portion defining a drain hole, an expansible drain plug insertable into said drain hole when the drain plug is in its contracted condition and expandable in said drain hole to effect a sealed closing thereof, a mechanism supported by said frame member having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the axial translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward stroke of said drain plug, and remote control means for actuating said mechanism from a remote position for effecting the axial translating action of said element.

15. A self-contained boat bailer as defined in claim 14, wherein means are provided on said annular portion for supporting said frame member on a portion of the hull of a boat.

16. A self-contained boat bailer comprising a frame member having an annular portion defining a drain hole, an expansible drain plug insertable into said drain hole when the drain plug is in its contracted condition and ex-

pandable in said drain hole to effect a sealed closing thereof, a mechanism supported by said frame member having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, and remote control means operatively connected to said mechanism for effecting axial translating action of said element, said element being responsive to said remote control means for additional movement to a locked position after effecting expansion of said drain plug, and responsive to said remote control means for movement from its locked position to an unlocked position.

17. A self-contained boat bailer comprising a frame member having an annular portion defining a drain hole, an expansible drain plug insertable into said drain hole when the drain plug is in its contracted condition and expandable in said drain hole to effect a sealed closing thereof, a mechanism supported by said frame member having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward stroke of said drain plug, remote control means for actuating said mechanism from a remote position for effecting axial translating action of said element, and adjustment means for selectively determining the effective normal cross sectional dimension of said drain plug when the latter is in its expanded condition.



18. A self-contained boat bailer comprising a frame member having an annular portion defining a drain hole adapted to extend through a hole in the hull of a boat and having a seating means on said annular portion for fitting against said hull, fastening means secured to said annular portion for securing said hull between the fastening means and said seating means, an expansible drain plug insertable into said drain hole when the drain plug is in its contracted condition and expandable in said drain hole to effect a sealed closing thereof, a mechanism supported by said frame member having an element operatively connected to said drain plug for translating said drain plug axially into and out of said hole and as an incident to the axial translating action of said element to effect (1) expansion of said drain plug at the end of the inward stroke of the drain plug and (2) contraction of said drain plug at the beginning of the outward stroke of the drain plug, stop means located outside said drain hole for limiting movement of said drain plug in a direction inwardly of said drain hole so as to define said end of the inward stroke of said drain plug, and remote control means for actuating said mechanism from a remote position for effecting the axial translating action of said element.


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ANDREW H. FARRELL, *Examiner.*

# UNITED STATES PATENT OFFICE

# CERTIFICATE OF CORRECTION

Patent No. 3,217,685 November 16, 1965

Otto Mueller

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 11, after "66" insert -- in one direction than it does the other. It can be observed that the position of the link or toggle member 66 --; column 4, lines 12 and 13, strike out "observed that the position of the link or toggle member 6 in FIGURE 2 is substantially to one side of the center"; column 8, line 30, for "ran" read -- can --.

Signed and sealed this 20th day of September 1966.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents