Dec. 23, 1930. F. I. STILES 1,786,091

BOAT FOR SUBMARINE INSPECTION

Filed April 23, 1929

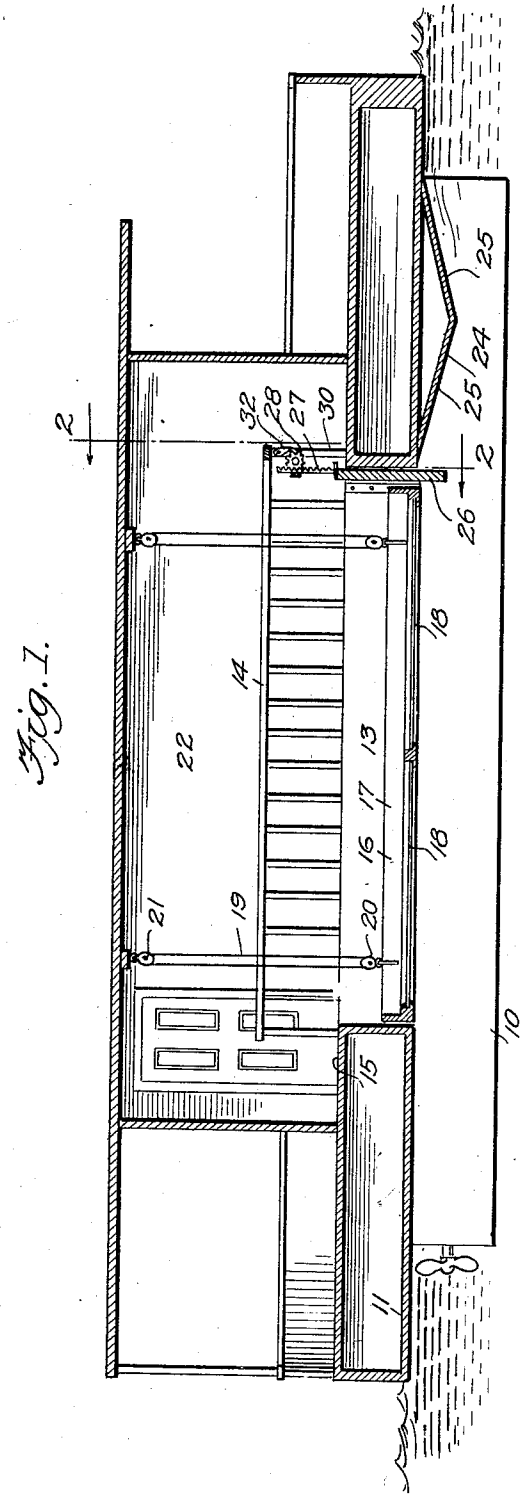


Fig. 1.

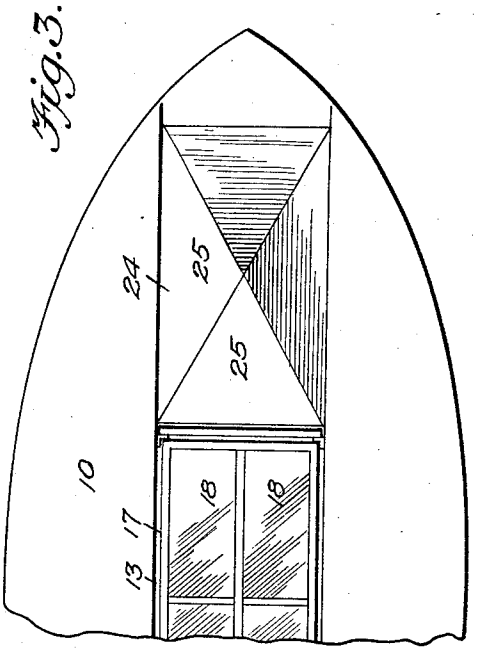


Fig. 3.

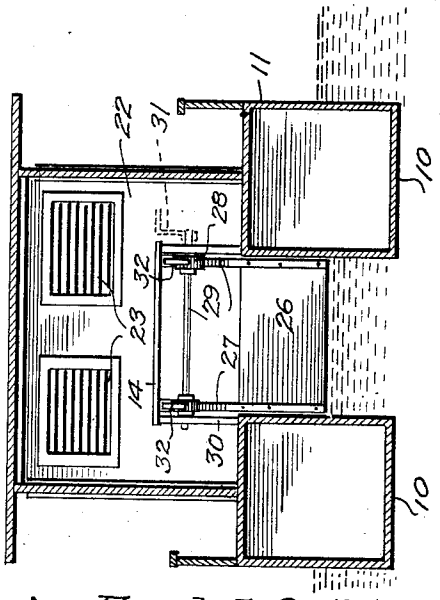


Fig. 2.

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UNITED STATES PATENT OFFICE

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BOAT FOR SUBMARINE INSPECTION

Application filed April 23, 1929. Serial No. 357,513.

This invention relates to boats provided with means for permitting the inspection of submarine growth, conditions and the like, and relates, particularly, to improvements in or addition to the type of structure disclosed in my prior patents Numbers 1,371,986 issued March 15th, 1921, and 1,591,341 issued July 6th, 1926.

In the above mentioned prior patents I have disclosed a pontoon boat structure having an observation well therein provided with a movably mounted window device adapted to be disposed at the surface of the water traveled over so that by gazing through the window structure an inspection may be made of submarine life and growth of all kinds.

However, in boats of this type it has been found that owing to the absolute flatness of the pontoons the boat pounds and crashes very noticeably and noisily, as well as more or less dangerously, in case of a rough sea. Furthermore, in case of rough water there is likelihood that a certain amount of the water, especially in case of a heavy swell, will enter around the frame of the observation window and accumulates upon the top thereof, thereby interfering with visibility to a marked degree.

It is with the above facts in view that I have devised the present invention which has for its general object the provision of a pontoon construction or adjunct thereto which will detract from or obviate the extreme flatness of the bottom surface and thereby prevent pounding in case of a rough sea, the elimination of the severe flat blows not only doing away with the objectionable noise which frequently alarms passengers, but also reducing the strains upon the hull or pontoon structure.

An important object of the invention is to provide a boat of this type with means in the nature of a transverse center board adapted to be let down, in case of rough water, in advance of the transparent frame or observation window for the purpose of preventing the water from exerting any great degree of upward pressure which might cause it to enter about the frame and flow over the top thereof with resultant impairment of visibility.

Another object of the invention is to provide a novel mechanical means for raising and lowering the guard or transverse center board-like device, depending upon whether its use is necessary or not and depending upon the degree of roughness of the water.

An additional object of the invention is to provide a device or structure of this character which will be simple and inexpensive to manufacture and install in new or already existing equipment, which will be positive in action, efficient and durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention preferably consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal sectional view through an observation boat of the character mentioned showing it equipped with the two features of the invention.

Figure 2 is a vertical cross sectional view therethrough taken on substantially the line 2—2 of Figure 1 and looking rearwardly of the boat.

Figure 3 is a bottom plan view of the forward portion.

Referring more particularly to the drawings, I have illustrated a boat structure including spaced pontoons 10 carrying a hull 11 formed with an observation well 13 surrounded by a guard rail 14 about which is a walk 15 where passengers or other observers may stand. Located within the well 13 is a window structure 16 comprising a frame 17 carrying any desired number of transparent panes 18, preferably of plate glass. As herein disclosed, and as illustrated in the prior patents above mentioned, the window structure 18 is adapted to be raised and lowered, as the occasion may demand, by means of cables 19 passing over pulleys 20 carried by the window structure or the frame thereof and also passing over other pulleys 21 mounted on the top of the boat structure.

The means for raising and lowering is manually operated and forms no part of the present invention for which reason it is not illustrated in particular detail. It is of course also apparent that in a device of this type where it is intended to gaze through the transparent panes 18 to inspect any submarine growth or objects, light must be excluded to a greater or less extent above the well and there is consequently provided a compartment 22 which must of course be ventilated in some means such as by the louvres 23 illustrated in Figure 2. All of the above structure is old and well known but is described and shown for the purpose of clearness.

In carrying out one feature of the present invention, I provide a deflecting or shock preventing device mounted at the forward portion of the boat and formed for example as an inverted pyramidal shell, casing or body 24 which may be constructed of sheet metal or a plurality of metal plates, or in fact of any other material and which may be of any desired size depending upon the size of the boat itself and upon other circumstances such as will readily suggest themselves. This inverted pyramid structure may be secured to the bottom of the hull in any desired manner and is located in advance of the well 13 as clearly indicated in Figures 1 and 3. Obviously, in the event of rough water, ground swells or the like, when the boat rocks there will consequently be an absence of totally flat surfaces to pound upon the water. The inverted pyramid shaped member 24, having inclined spaces 25 all around, and all leading from a common point will act to penetrate the water so that there will be a gradual contact of these spaces with the surface of the water which will entirely do away with any shock or sudden blow or impact. This feature will of course be of great advantage in eliminating the noise which is alarming to passengers and also doing away with these shocks which are injurious or which might be injurious to the boat structure itself.

In carrying out the second feature of the invention, I provide a space between the forward wall of the well 13 and the forward end of the frame or window 16, within which space is vertically slidably mounted a board or partition member 26 adapted to be projected downwardly to a greater or less extent beyond the bottom of the well. While it is of course true that this member 26 might be moved in various ways, I have here disclosed it as provided at each side with rack bars 27 secured thereto in any desired manner and meshing with pinions 28 on a shaft 29 journaled through a frame 30 mounted on the hull in any desired manner, the shaft being equipped with a permanent or removable crank handle 31, or other equivalent device by means of which it may be rotated. I also prefer to provide latch dogs 32 pivoted upon the upper portion of the frame and adapted to engage either or both of the pinions for the purpose of holding them and consequently the shaft and partition member 26 stationary.

In the operation of the second feature of the invention, it will be apparent that in the event of rough water and especially where the hull is provided with the device 24 which would naturally tend to force the water to the rear of the apex of the pyramid upwardly and rearwardly, it is merely necessary to lower the partition member 26 so that it will extend to a greater or less extent below the bottom of the well. This lowering may be readily accomplished by turning the crank handle 31 or the like and it is apparent that the lower portion of the member 26 extending below the well will operate to deflect the water away from the forward end of the window structure 16 so that the water will not have any tendency to force up around the forward end and pass over onto the glass held in the frame. Further the arrangement is such as to obviate the formation of bubbles of air against the under side of the glass panes 18, it being well known that any accumulation of air bubbles at such a location would seriously interfere with the transparency or visability.

In view of the fact that water is prevented from entering around the frame at the forward end thereof and passing up onto the top surface it is clear that there will be nothing to obstruct the view through the glass so that the service rendered to inspectors, observers or passengers will be greatly improved.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a very simple means for preventing slamming or pounding of the boat upon the water, and have also provided adequate means for preventing water, especially in the event of a rough sea, from being forced up over the observation window It is believed that the construction, operation and advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that I reserve the right to make all such changes in the details of construction and in the arrangement and combination of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described the invention I claim:—

1. In a boat of the character described, spaced pontoons, a hull structure mounted thereon and formed with a well between the pontoons, an observation window mounted

within the well, and a transverse partition member vertically movably mounted at the forward end of the window for deflecting downwardly any water tending to enter at the forward end of the window.

2. In a boat of the character described, spaced pontoons, a hull structure mounted thereon and formed with a well, an observation window located within the well, a vertically movably mounted partition member slidable at the forward end of the well and adapted to project downwardly into the water below the window, and means for raising and lowering the partition member.

3. In a boat of the character described, spaced pontoons, a hull structure mounted thereon and formed with a well, an observation window located within the well, a vertically movably mounted partition member slidable at the forward end of the well and adapted to project downwardly into the water below the window, means for raising and lowering the partition member comprising rack bars carried thereby, a shaft journally mounted and equipped with turning means, and pinions on the shaft meshing with said rack bars.

4. In a boat of the character described, spaced pontoons, a hull structure mounted thereon and formed with a well, an observation window located within the well, a vertically movably mounted partition member slidable at the forward end of the well and adapted to project downwardly into the water below the window, means for raising and lowering the partition member comprising rack bars carried thereby, a shaft journally mounted and equipped with turning means, pinions on the shaft meshing with said rack bars, and latch dogs movably mounted and engageable with the pinions for holding them against rotation.

5. In a boat of the character described, pontoons, a hull structure mounted thereon provided with a well, an observation window mounted within the well, means on the under side of the hull in advance of the well for deflecting water laterally, rearwardly and forwardly, and a vertically movably mounted partition member at the forward end of the well to the rear of said deflecting member adapted to extend below the window for the purpose of excluding therefrom water tending to enter at the forward end.

In testimony whereof I affix my signature.

FRANK I. STILES.