

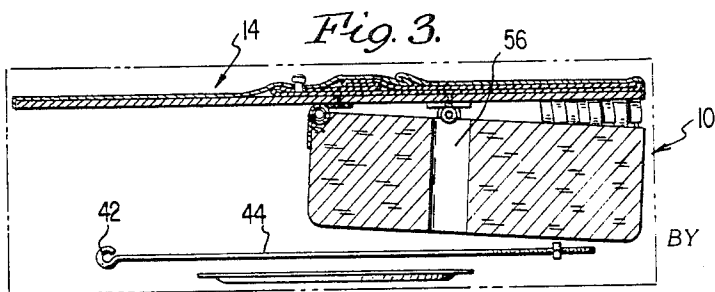
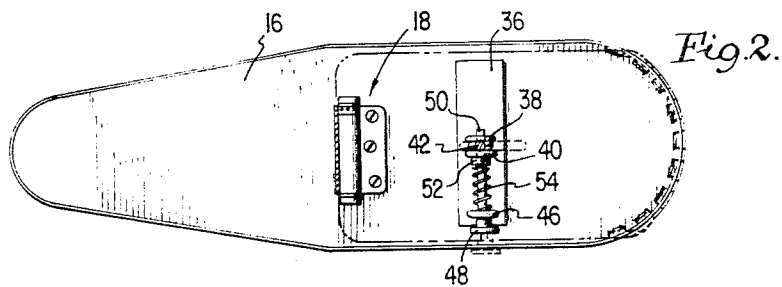
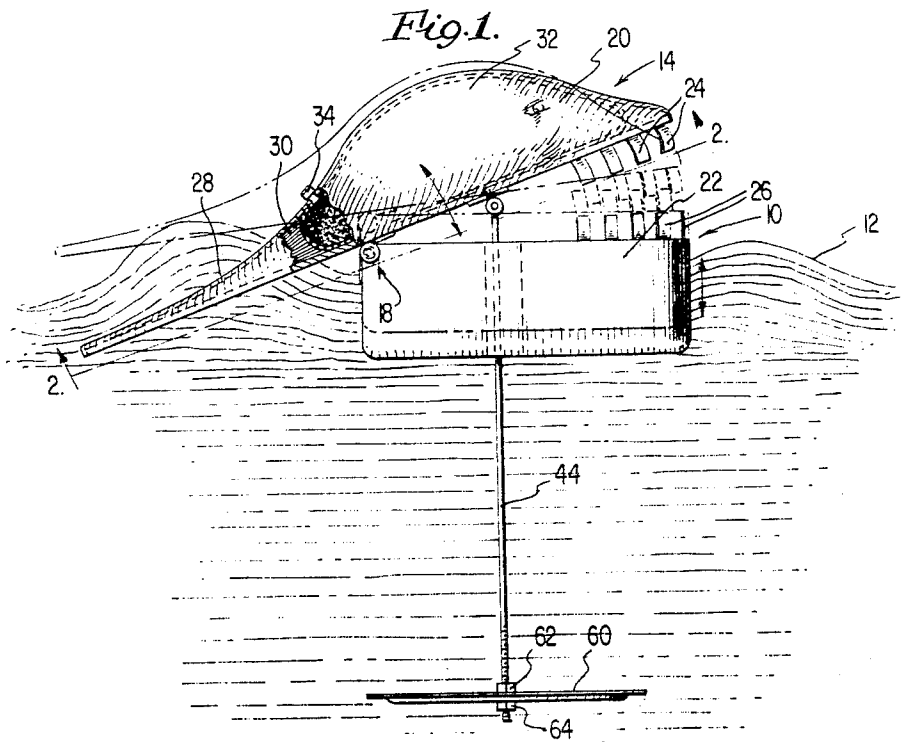
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AQUATIC DEVICE FOR UTILIZING WAVE MOTION

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**AQUATIC DEVICE FOR UTILIZING  
 WAVE MOTION**

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6 Claims

**ABSTRACT OF THE DISCLOSURE**

An aquatic device having a buoyant portion which is free-floating and allowed to move vertically up and down under wave action. A reaction member is connected to a damping pan located well below the surface of the water so that wave action effects relative movement between the reaction member and the buoyant portion.

**Brief summary of the invention**

The invention relates to aquatic devices for converting wave motion to useful energy and comprises a buoyant base and a reaction member movably attached thereto with there being a dependent connection means extending between the reaction member and projecting well below the level of the buoyant member and carrying at its lower end a horizontally disposed pan for damping movements of the reaction member, thereby allowing the buoyant member to rise and fall under wave action to produce relative motion between the reaction member and the base or buoyant member.

The invention also involves an assembly as described in the preceding paragraph and utilized as a toy wherein the reaction member is elongate, and is pivotally connected to the base member at one edge thereof substantially midway of the reaction member so that one end of the reaction member overlies the buoyant member and the other end trails therefrom with the complementary portions of the reaction and base members simulating the upper and lower jaws respectively of an aquatic beast.

**Brief description of the figures of the drawing**

FIGURE 1 is a side elevational view of a toy constructed in accordance with the present invention and illustrating the movement thereof under wave action of the water within which it is disposed;

FIGURE 2 is a bottom plan view, partly in section, of the device shown in FIGURE 1; and

FIGURE 3 is a view illustrating the toy in knocked down storable relation.

**Detailed description of the invention**

With reference now more particularly to FIGURE 1, the reference character 10 indicates in general the buoyant base member which is adapted to ride on the surface of the water as indicated by the waves 12. Attached to the base member 10 is the reaction member indicated generally by the reference character 14, the interconnection between the members 10 and 14 being such as to allow relative vertical motion therebetween as will be presently apparent. In the specific construction shown, the reaction member 14 includes an elongate board member 16 (see particularly FIGURE 2) having a plan shape generally in the form of an aquatic beast such as a whale or the like and which is pivotally attached as by a hinge device 18 to one edge of the base member 10 substantially as is shown in FIGURES 1 and 2. The hinge device 18 is preferably of a spring-biased type such that the reaction member 14 is urged normally to the somewhat angular position illustrated in full-line in FIGURE 1 so that the mouth of the beast, simulated by the forward portion 20 of the reaction member and the complemen-

tary portion 22 of the base member which it overlies is in open position. To further enhance the head simulating effect and particularly the upper and lower jaw simulating effect, the teeth members 24 and 26 may be provided respectively in the upper and lower jaw portions substantially as is shown.

The upper surface of the reaction member may be covered with a flexible rubberized or similar material and the tail end portion 28 may be suitably filled out as at 30 in the tail section and the remainder of the covering as at 32 may be free of the board except for securement along the marginal edges thereof so as to form a hollow space allowing inflation as through the valve 34. The head portion of course may be painted or marked in any fashion to simulate the eyes, gills or the like of the aquatic beast which is to be simulated.

On the lower side of the board 16 is a plate member 36 mounting a pair of eyes 38 and 40 between which the eye 42 of a rod 44 (see particularly FIGURE 3) is adapted to be received. The plate 36 also carries a further eye 46 against which the head 48 of a securing pin 50 normally engages. The pin 50 carries a collar 52 in rigid association therewith and a compression spring element 54 is interposed between the collar 52 and the eye 46 so as normally to urge the pin in the full-line position shown in FIGURE 2, thus projecting its inner end through the three eyes 38, 40 and 42 whereby to establish a pivotal connection between the rod 44 and the underside of the reaction member 14. The buoyant member 10 is provided with a suitable opening therethrough as indicated by reference character 56 in FIGURE 3 to receive the rod in free association. The lower end of the rod carries in fixed relation thereon a discoidal damping plate 60 which may be secured in place as by the nuts 62 and 64 engaging the threaded lower end of the rod 44 substantially as is shown.

In operation, the device is placed in a suitable body of water within which wave action is present whereupon the device will be supported by the buoyant portion 10. The damping plate or disc 60 will tend to retain the upper end of the rod 44 and the portion of the reaction member 14 to which it is immediately attached in relatively fixed position whereas the wave action will cause vertical oscillatory motion of the buoyant portion 10 which, in turn, will effect relative motion between the reaction member 14 and the buoyant portion 10 and since these two are pivotally connected about the axis of the hinge 18, the upper end lower jaw simulating portions will open and close in accord with the wave action to effectively simulate an aquatic beast.

In the broadest aspect of this invention it will be appreciated that the assembly consists fundamentally of the buoyant portion, the damping means located below the buoyant portion at a distance sufficient to render it relatively immune to wave action, and the reaction portion which is connected to the damping means so that the rise and fall of the buoyant portion due to wave action will create relative motion between the buoyant and reaction portions. The buoyant and reaction portions are interconnected so that this relative motion causes a reaction to be imparted to the reaction member to convert the rise and fall of the buoyant portion to useful energy or motion. In the specific construction shown, this useful motion simulates the opening and closing motion of the jaws of an aquatic beast, although it is to be understood that other and different energy conversions may be effected.

It will be apparent from a study of FIGURES 1 and 2 as opposed to FIGURE 3 that the device may be easily assembled and disassembled and while in the latter condition may be readily stored in a conveniently small space as indicated particularly in FIGURE 3.

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What is claimed is:

1. An aquatic device for converting wave motion to useful energy comprising, in combination:

- a buoyant base member,
- a reaction member mounted on said base member for relative vertical movement of the base member with respect to the reaction member,
- an elongate connector member connected at its upper end to said reaction member and depending therefrom to terminate in a lower end spaced a substantial distance below said base member,
- and a horizontally disposed damping pan fixed to the lower end of said connector member to resist vertical motion of the reaction member whereby wave motion imparted to said base member effects relative vertical motion between said base and reaction member.

2. The device according to claim 1 wherein said reaction member is pivotally connected to said base member, said connector member being connected to said reaction member at a point offset from the axis of pivotal connection between said base member and said reaction member, whereby wave action on said base member imparts relative hinging action between said base and reaction members.

3. The device according to claim 2 wherein said reaction member is in the form of the upper portion of the body of an aquatic beast and including a head por-

tion overlying said base member, said base member being formed to simulate the lower jaw of the beast.

4. The device according to claim 1 wherein said reaction member is of elongate form pivotally attached substantially centrally thereof to one side of said base member to present a head-simulating end overlying said base member and a tail-simulating end projecting laterally from said base member.

5. The device according to claim 4 wherein said reaction member is in the form of a board having an inflatable member secured to the upper side thereof at said head-simulating end thereof.

6. The device according to claim 5 wherein said reaction member is pivotally attached to the base member by means of a spring-biased hinge normally urging said reaction member into tail-dragging position relative to said base member.

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