Dec. 15, 1936. E. RYNEARSON 2,064,035

AMUSEMENT APPARATUS

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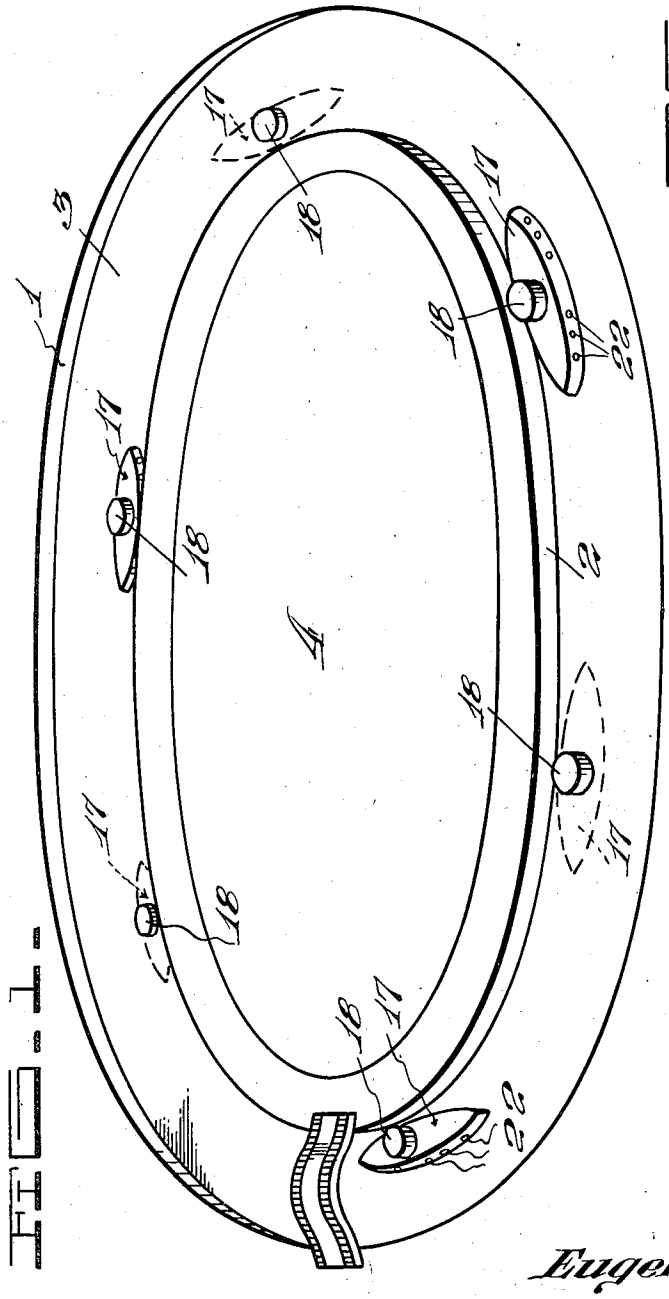

FIG. 1.

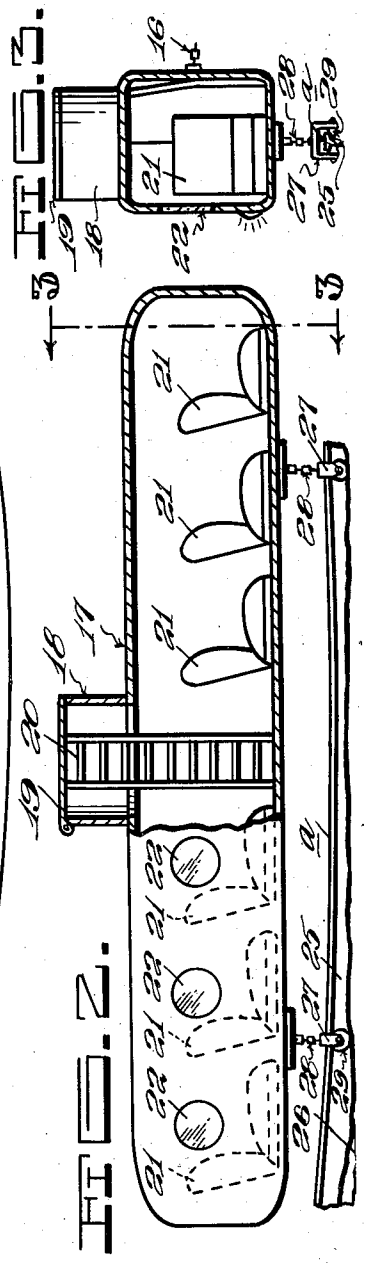

FIG. 2.

Eugene Rynearson
INVENTOR

BY Ernest G. Hopkins
ATTORNEY

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FIG. 5.

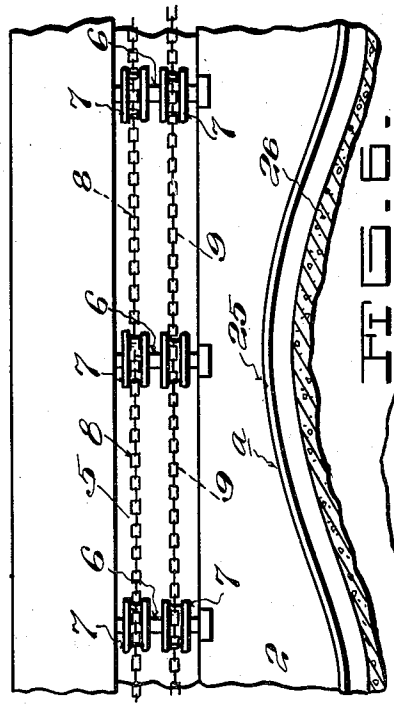


FIG. 6.

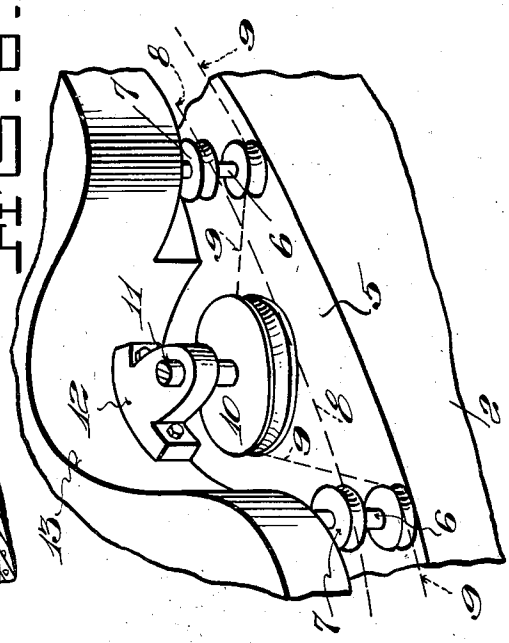


FIG. 4.

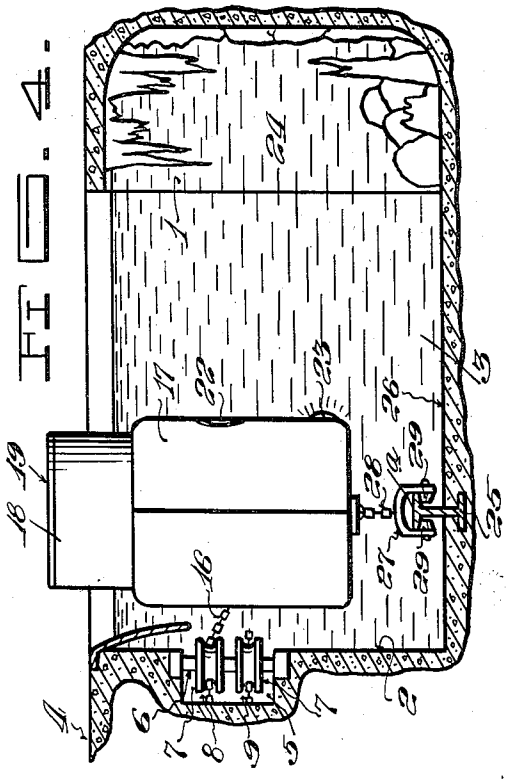
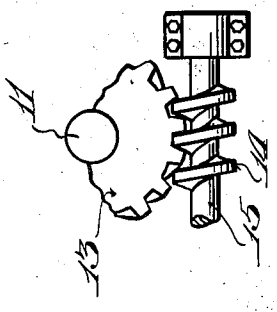


FIG. 2.



Eugene Rynearson
INVENTOR

BY Ernest G. Hood

ATTORNEY

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AMUSEMENT APPARATUS

Eugene Rynearson, Dallas, Tex.

Application May 24, 1935, Serial No. 23,327

3 Claims. (Cl. 104—71)

This invention relates to amusement apparatus and it has particular reference to an apparatus of interest to both adults and children and is capable of submergence in water.

The principal object of the invention is to provide in an apparatus of the character specified, a plurality of carriages of a construction similar to submarines, spaced around a circle and movably disposed in a circular channel containing water to a predetermined level.

Another object of the invention is to provide means disposed relative to the submergible carriages for controlling the movements thereof and particularly for the purpose of effecting an undulating or an alternating submergence and emergence of the vessel from the water. Moreover, the invention provides for the advancement of the vessels in their circular course within the channel during submersion of the carriages or vessels for the purpose specified which is of simple construction and which is of necessity substantially water tight and provided with port holes through which passengers may view submarine life purposely provided by the invention in the water of the channel. These vessels are likewise provided, as one of the elementary features of the invention, with a medium of safety in the nature of a conning tower which ordinarily remains above the surface of the water and through which the passengers may be supplied with the necessary air and likewise affording a means of escape in cases of emergency, should the driving mechanism become impaired or inoperative while the vessel is submerged.

Broadly, the invention comprehends the provision of an amusement apparatus comprising a submergible vessel capable of up and down control motion as well as circular motion with a water filled channel, whose floor and walls are artificially decorated with caves, grottoes and submarine life such as fish and vegetable growths of interest to the passengers viewing the same from the vessel during submergence.

With the foregoing objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts which will become manifest as the description proceeds, taken in connection with the accompanying drawings, in which:—

Figure 1 is a perspective view of a circular channel showing therein a series of vessels constructed according to the invention and disposed in spaced relationship.

Figure 2 is an elevational view of one of the vessels with portions broken away to show the interior thereof.

Figure 3 is a transverse section on lines 3—3 on Figure 2.

Figure 4 is a transverse section of the channel taken at some point around the circle and showing an end elevation of one of the vessels submerged in the water therein.

Figure 5 is a fragmentary section of the channel showing an embodiment of the means for raising and lowering the vessels as well as the means for imparting advancing movement thereto.

Figure 6 is a fragmentary view in perspective of the driving mechanism, and

Figure 7 is a form of worm and gear drive for the driving shaft and wheel shown in Figure 6.

Continuing with a more detailed description of the drawings, 1 designates an outer, perpendicular wall and 2, an inner wall defining a channel 3 which is filled with water to a predetermined level. This channel may be of any shape but preferably circular for all practical purposes. Within the confines of the channel 3 is an island 4 shown particularly in Figure 1. Obviously, the island 4 may be beautified by planting suitable shrubbery, and flowers thereon and by landscaping to lend to the appearance of the apparatus or possibly to aid in simulating the natural surroundings and to remove the appearance of an artificial arrangement.

The inner wall 2 has an annular recess therein at a point spaced from the top thereof and extends the entire distance. At spaced intervals within this recess is a series of perpendicular shafts 6, as shown in Figures 4 to 6 inclusive and situated on each of these shafts is a pair of spaced sheaves or pulleys 7. These sheaves are conventionally grouped to conceal the upper and lower chains 8 and 9 respectively. The chain 8 is endless and surrounds the upper group of sheaves 7 while the lower chain 9 is likewise endless and encircles the lower group of sheaves but functions as the driving chain and in this connection reference is made to Figure 6 which shows a driving sheave 10 mounted on a vertical shaft 11, the lower end of which shaft is journaled in a suitable bearing, not shown, in the lower surface of the wall recess 5. The upper end of the shaft 11 is journaled or passed through the bearing 12, affixed to the wall of the recess 13 and which recess allows for the extension of the drive shaft 11 to the surface. A worm gear 13 is mounted on the shaft 11 and

engages a worm 14 carried by the power shaft 15. It is not considered necessary to show a power plant for imparting rotation to the power shaft 14 since this may be of any conventional design but it is understood that power thus applied will rotate the worm gear 13, shaft 11, main drive sheave 10 and consequently the chain 9, which is the drive chain. In so imparting movement to the drive chain 9, the several vertical shafts 6 are rotated to impart rotation to the sheaves 7 fixed to the shafts 6. Obviously, the upper chain 8 is moved and since this chain is connected at 16, as shown in Figures 3 and 4, at spaced intervals to the several vessels or submerged carriages 17, these vessels will be moved progressively through the water in the channel 3.

Before entering into a description of the vessels per se, it will be understood that while a chain drive is shown, any suitable method may be employed for bringing about progressive movement or for pulling the vessels through the water of the channel, the chain drive being merely suggestive of a suitable mechanical means which will effect this purpose.

The vessels 17 are each constructed of a material which will resist the effects of water and are of course, sealed against the ingress of water and as a safety factor, a device 18, suggestive of or simulating a conning tower of a submarine, is arranged on the top of each vessel. This tower is not intended to be wholly submerged in the water and affords a means for entrance and egress into and from the vessel of the passengers and likewise provides the interior of the vessel with the necessary air, it being observed that a suitable cover 19 is provided together with a ladder 20 as shown in Figure 2. Suitable seats 21 are arranged conveniently within the vessel alongside which is a series of port holes or observation windows 22. It is preferred that each of the vessels be provided with a spot light 23 in order that the passengers or occupants may be availed of suitable illumination to enable them to view the marine life within the water of the channel 3, whether real or artificial.

It is intended that the water of the channel be stocked with a desirable number of fish and other marine life, capable of subjection to the confinement as well as vegetable matter. The outer wall of the channel is preferably provided with a series of caves or grottoes 24 which may be filled with interesting subjects and suitably illuminated.

As a further means for lending entertainment to the apparatus, the vessels are arranged for alternate submergence and emergence, which may be referred to as an undulating motion, combined with progressive movement thereof through the water of the channel. This movement is obtained mechanically and is therefore controllable by the provision of an undulated track 25, secured to the floor 26 of the channel 3. The track 25 is flanged at both its upper and lower surface, the upper surface being indicated at *a*. A U-shaped member or clevis 27 is suspended by a chain 28 beneath either end of each of the vessels 17 and each of these members 27 is provided with a pair of rollers 29 which engages the underside of the flange of the track or rail 25.

The buoyancy of the vessel is such as to exert a normal lift thereto in order to maintain the desired stability, but as the vessels are advanced along the channels or therearound as the case may be, the peculiar construction of the rail 25 contrains the vessels to move downwardly and upwardly, in accordance with the curvature of the track. Thus the undulated motion or alternate submersion and emersion of the vessel is effectively obtained but at no time, unless otherwise provided for, will the towers 18 be entirely submerged.

In event of emergency, such for example as the rendering inoperative of the driving mechanism or the infiltration of water, during submergence of the vessels or otherwise, it is simply necessary to raise the closure 19 of the tower 18 and permit the passengers to leave the vessel by means of the ladder 20 and provide a suitable bridge from the vessel to the shore, and there will be little likelihood of any danger to the passengers or even to their wearing apparel by any such accident.

It will be understood that the invention is not limited to any particular shape or design of channel nor to the construction of the vessel and that changes and alterations may be made from time to time as fall within the meaning and scope of the appended claims without departing from the spirit and intent of the invention.

What is claimed is:

1. In a submarine amusement apparatus, an endless water-filled channel, having grottoes in its walls and provided with an undulating floor, an endless track partially embedded in the floor of said channel and having a T-shaped protuberance, a buoyant, submergible vessel arranged in said channel, means flexibly suspended from the bottom of said vessel for movably embracing the T-shaped protuberance of said track, whereby to control the vertical movements of said vessel in accordance with the undulations of said track, and means for propelling said vessel around said channel.

2. In a submarine amusement device, a water-filled, circular channel having an undulated floor, a track affixed to said floor to follow the undulations thereof, a buoyant passenger vessel normally suspended by the water in said channel, means depending from the bottom of said vessel for flexibly holding said vessel in operative engagement with said track and by which said vessel is caused to move vertically in accordance with the undulations in said track and means to transport said vessel in said channel.

3. An amusement apparatus including a channel filled with water and having an irregular floor, a track secured to said floor to follow the irregularities thereof, a buoyant, submergible vessel arranged to carry passengers and disposed in the water of said channel, flexible means suspended from the bottom of said vessel and having roller engagement with said track whereby to control only the vertical displacement of said vessel in accordance with the irregularities of said track and means to propel said vessel along said track in said channel.

EUGENE RYNEARSON.