No. 710,043. Patented Sept. 30, 1902.

A. DAVIDSON.

LAND, MARINE, OR SUBMARINE MERRY-GO-ROUND.

(Application filed Jan. 22, 1902.)

(No Model.) 2 Sheets—Sheet 1.

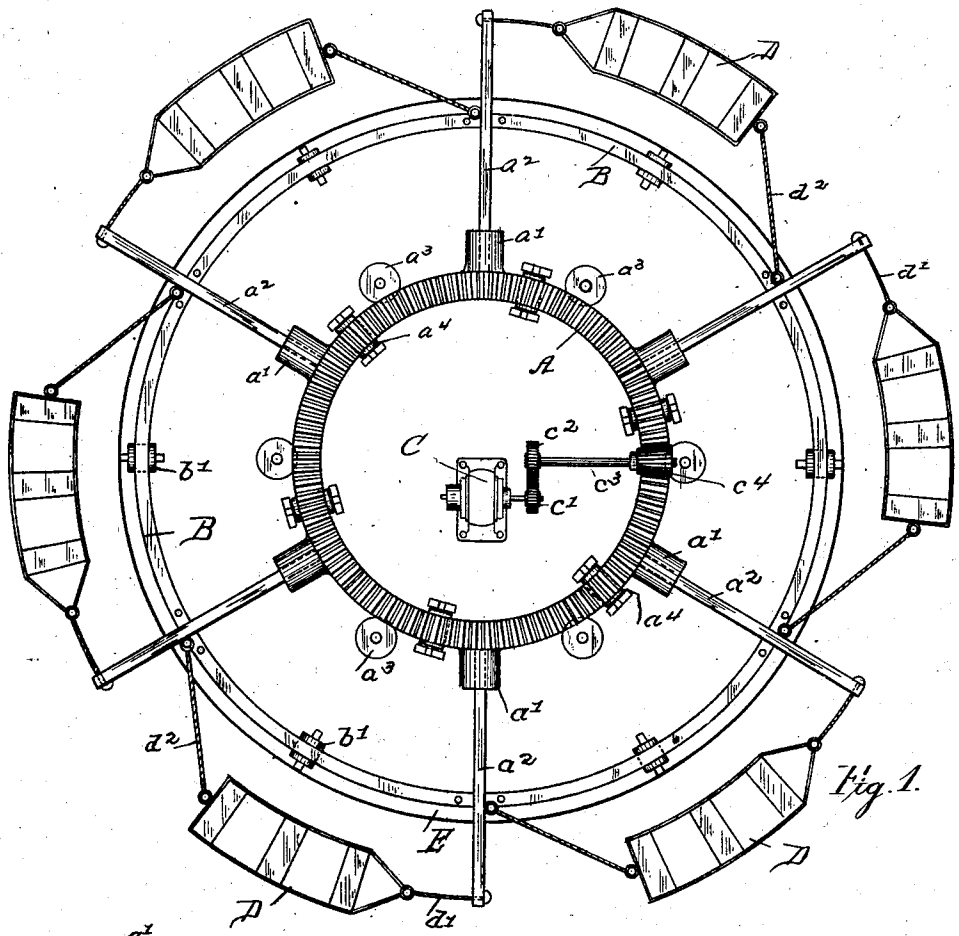

Fig. 1.

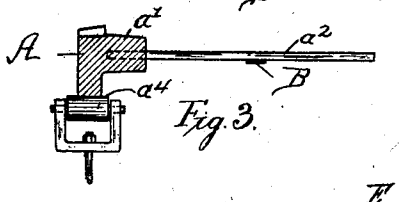

Fig. 3.

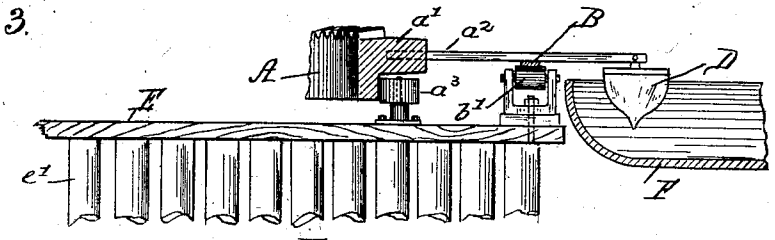

Fig. 2.

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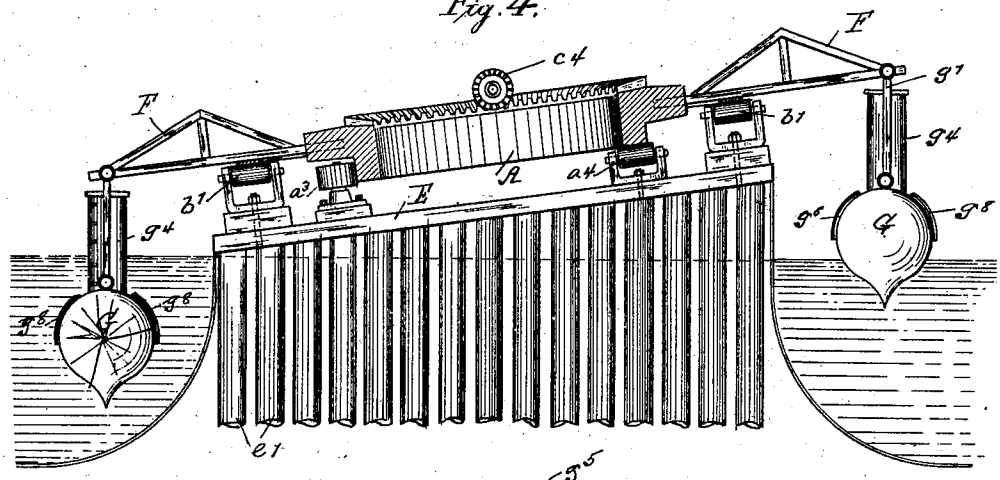
Fig. 4.



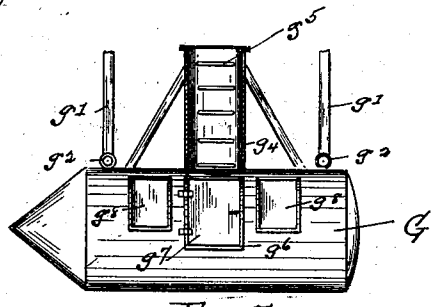


Fig. 5

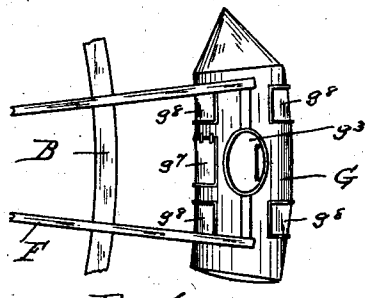


Fig. 6.

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UNITED STATES PATENT OFFICE.

ALEXANDER DAVIDSON, OF JOLIET, ILLINOIS.

LAND, MARINE, OR SUBMARINE MERRY-GO-ROUND.

SPECIFICATION forming part of Letters Patent No. 710,043, dated September 30, 1902.

Application filed January 22, 1902. Serial No. 90,739. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER DAVIDSON, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Land, Marine, or Submarine Merry-Go-Rounds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in that class of pleasure-giving devices or apparatus commonly known as "merry-go-rounds," and which consists, essentially, of a rotating platform on or from which are supported various styles of devices for carrying persons, the platform being driven by suitably-geared mechanism actuated by steam or other power.

The object of my invention is to produce an apparatus of the character named which may may be used on land, on the water, or under the water, only slight modifications being necessary to adapt it to the several purposes named.

A special object of my improvements is to adapt the apparatus for conveying persons through and under the water, whereby they may experience the sensations of submersion incident to submarine conditions and be given opportunities for observing at close quarters submarine or marine life.

In carrying out my invention I make provision for safe-guarding the comfort and lives of the users of my improved apparatus and adopt useful and novel mechanical means for operating the same, all of which will hereinafter appear in detail.

In the accompanying drawings, which form part of this application, Figure 1 is a top plan view of my improved apparatus as adapted for marine purposes or carrying boats through the water. Fig. 2 is a detail, partly in vertical section, of a portion of the apparatus. Fig. 3 is a detail, partly in section, showing the method of antifrictionally supporting the main drive-gear of the machine or apparatus. Fig. 4 is a view, partly in elevation and partly in section, of my invention adapted for submarine purposes or use. Fig. 5 is a view, partly in elevation and partly in section, of a preferred form of passenger-holding device; and Fig. 6 is a top plan view of said passenger-holding device.

Referring to the drawings in detail, A represents a crown gear-wheel, the face of the teeth of which are slightly beveled toward the axis of the wheel. Meshing with the crown-wheel is a spur-gear c^4, which is mounted on the outer end of a shaft c^3, to the inner end of which is keyed a pinion c^2, which meshes with a pinion c', driven from the shaft of a motor C. Suitable supports and bearings are provided for the shaft c^3, but same are not shown, as any well-known means may be utilized, it being understood that the motor and other supports are secured to a suitable platform E, which may be erected on piles e' in a pond or other body of water or on an island. Extending radially from the crown-wheel and preferably made integral therewith are a series of hubs or spurs a', which are socketed or bored to receive the inner ends of shafts or rods a^2, to the free ends of which are attached, by ropes or cables d' d^2, boats D, adapted to carry passengers. As antifrictional supports and guides for the crown-wheel I provide the rollers a^4 and the rollers a^3, respectively. The rollers a^4 are horizontally mounted in suitable yokes or frames, which are bolted to the platform and are placed equidistant under the crown-wheel. The rollers a^3 are suitably mounted to rotate on vertical axes and are so placed that their faces frictionally engage the outer peripheral face or edge of the crown-wheel, as clearly shown in Fig. 2.

As supports additional to that furnished by the hubs a' I secure to the under side of the shafts a^2 a ring B, which in turn is supported by frictional engagement with the faces of rollers b', which are suitably supported from the platform E, as shown in Fig. 2.

Upon the motor C being driven from a suitable source of power-supply it will be apparent that the crown-wheel C and the parts attached thereto will be rotated through the medium of the pinions c' c^2, the shaft c^3, and spur-gear c^4. As the connections between the boats D and the shafts a^2 are flexible, it is apparent that the former may be drawn up to the platform to load and unload passengers and that the centrifugal force exerted

by the rotation of the series of boats will cause them to describe as large a circle as will be permitted by the ropes or cables d^2. Such flexible connections will also permit the boats to move up and down with such wave motion as may be given to the water.

In adapting the above-described apparatus for use on land I may substitute any suitable passenger-carrying devices for the boats, placing the same on wheels, so that they may roll easily and also move outwardly under the centrifugal impetus referred to.

In adapting my improved apparatus for submarine purposes I make the modifications shown in Figs. 4 to 6, inclusive, the description of which is as follows: The supporting-platform E is made inclined instead of horizontal, as shown in Fig. 3, so that the passenger-carrying devices in rotating thereabout are alternately raised to the surface of the water and submerged, as indicated in Fig. 4. In order to provide for carrying the extra weight incident to the submarine form of construction, I substitute a truss F for the shaft a^2 as the supporting means for the boat G, which in this case is constructed of sheet metal and preferably in the form shown in Figs. 5 and 6. The conveying and driving means utilized for the submarine boats are the same as above described, the differences of construction being mainly incident to the passenger-holding devices or boats G. These boats are preferably formed with conical bows with cylindrical sides and are hung from the trusses or davits F by means of straps or cables g', secured in rings g^2, fixed in the top of the boats at points near the bow and stern. In the top of the boats, about midway of their length, is cut a man-hole g^3, which communicates with a shaft g^4, which extends upwardly a sufficient distance to project above the surface of the water in which the boat is submerged, thus providing communication between the interior of the boats and the outer air, and thereby insuring ventilation. To the inner side of the shaft are secured a series of rungs g^5 to facilitate climbing out of the shaft by the occupants of the boat should the machinery break down while the boat is submerged. In one side of the boat is a door-opening g^6, supplied with a door g^7, which swings closed on a rubber gasket or other suitable means for securing a water-tight joint around the edges of the door. Windows g^8 are set in the sides of the boat, which are also arranged so as to be perfectly water-tight, any well-known means for accomplishing such results being utilized. Through the windows the occupants may observe the animal and vegetable life abounding in the surrounding waters, such life in artificial bodies of water being supplied for purposes of observation, entertainment, and education.

In the rotatory movements of the boats about the platform there will be points on opposite sides of the latter where the doors of the boats will be level with the surface of the platform, and at such points passengers will be loaded or unloaded under normal conditions. In the operation of my improved apparatus as a submarine device it will preferably be rotated slowly, thus giving the occupants of the boats ample opportunity for observing submarine life.

It will be apparent that various modifications may be made in the details of construction and arrangement of the parts forming the apparatus described without departing from the essential principles of construction. I therefore do not wish to be limited to the exact forms shown; but

What I claim, and desire to secure by Letters Patent, is—

In an apparatus of the character described, a passenger-holding device consisting of a closed cylindrically-shaped chamber having water-tight windows and doors therein, and provided with an air-shaft communicating with the interior of the chamber and adapted to project above the surface of the water, in combination with an inclined platform, a carrier rotatably mounted on said platform and adapted to support and propel said passenger-holding device, substantially in the manner and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER DAVIDSON.

Witnesses:

F. BENJAMIN,

C. B. CHEADLE.