L. E. MYERS.

MAGNETIC MEANS FOR MOVING MINIATURE BOATS.

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1,171,972. Patented Feb. 15, 1916.

Fig. 1.

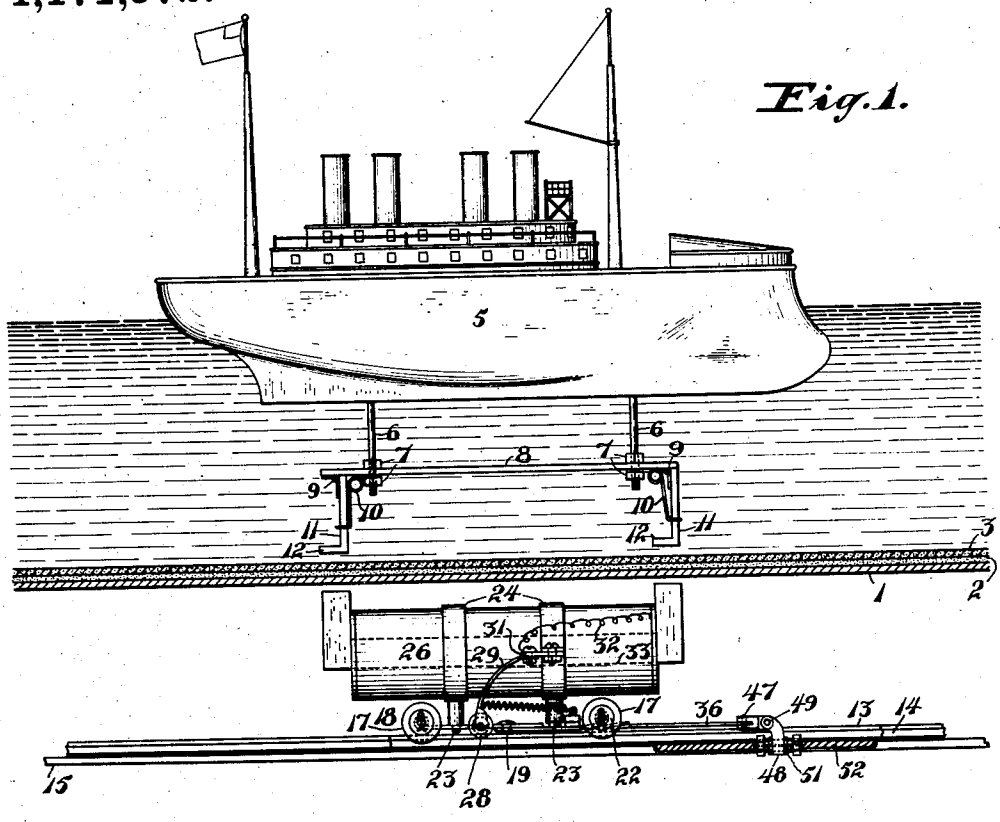


Fig. 3.

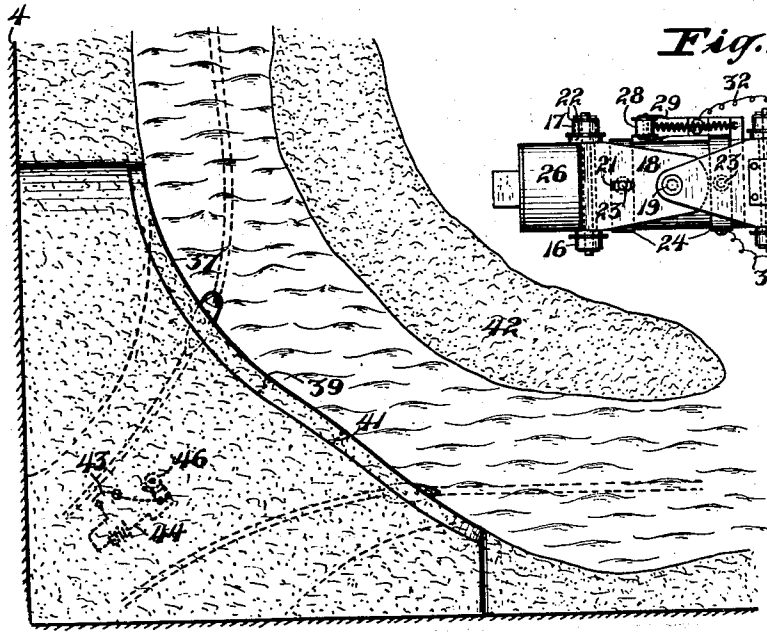


Fig. 2.

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UNITED STATES PATENT OFFICE.

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MAGNETIC MEANS FOR MOVING MINIATURE BOATS.

1,171,972. Specification of Letters Patent. Patented Feb. 15, 1916.

Application filed June 12, 1915. Serial No. 33,850.

To all whom it may concern:

Be it known that I, LOUIS E. MYERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Magnetic Means for Moving Miniature Boats, of which the following is a specification.

The present invention relates to an improved means for imparting motion to miniature ships in models or miniature reproductions of marine scenery, as, for instance, in the reproduction on a small scale at the Panama-Pacific International Exposition in San Francisco of the Panama Canal and parts adjacent thereto.

The object of the invention is to provide means for so moving the ships which will be entirely out of view of the observer, and by which the ships can be caused to move in the desired direction as nearly as possible in the same manner as if they were propelled by their own power.

In the accompanying drawing, Figure 1 is a vertical sectional view of a portion of the apparatus, certain parts being shown in side elevation; Fig. 2 is a bottom plan view of a truck and a magnet supported thereby; Fig. 3 is a broken plan view of a portion of the apparatus, certain electrical parts thereof being shown diagrammatically.

Referring to the drawing, 1 indicates a frame forming the base of a miniature reproduction of the bottom of the ocean or other body of water. This frame is covered with tar paper 2, and a layer 3 of concrete is then laid on said tar paper, its upper surface being suitably colored to give apparent depth to the water thereover, or to present the appearance of the ocean bottom. A suitable containing wall 4, a portion only of which is here shown, is provided to form a receptacle in which water of a suitable depth is supported upon said concrete floor and in said water is immersed a miniature ship 5.

From the keel of the ship depend, at a considerable relative distance from each other, two rods 6, the lower ends of which are threaded, and upon said lower ends is supported, by nuts 7, a soft iron bar 8. To the terminal portions of said bar are hinged, as shown at 9, pole pieces 11, their lower ends being extended rearwardly to constitute pole plates 12, said bar, pole pieces and pole plates thus constituting an armature for an electro-magnet. Each pole piece is hinged to the bar so that it can swing therefrom in the rearward direction only, so that if either pole piece should meet with an obstruction beneath the surface of the water it would swing rearwardly and pass over said obstruction. Each pole piece is, however, engaged by the free end of a spring 10, the other end of which is fixedly secured to the bar, so that the spring insures the immediate return of the pole piece to its normal or vertical position.

Below the bed of the miniature ocean, formed as above described, extend a pair of rails 13, 14, supported upon suitable insulating material 15, and connected respectively with the poles of a source of electricity. On said rails can roll wheels 16, 17 of a truck 18, swiveled to permit the truck to turn with the track, the adjacent ends of the two sections of the truck being connected by a pin 19. The wheels 17 on one side of the truck are insulated by suitable insulating material 22 from the rail 14 upon which they travel. In each section of the truck is supported an upright 23, one of said uprights being supported in a slot 21 in said supporting section. Upon the upper end of each upright is secured a band 24, within which bands is contained an electro-magnet 26. On the rail 14 is a contact roller 28 supported by an arm 29 extending from an insulating piece 31 secured to one of said bands, said arm being electrically connected by a conductor 32 to one end of the coil of wire wound around the core 33 of said electro-magnet, the other end of said coil being connected by a conductor 34 with the other band and being thus electrically connected with the wheels 16, and with the rail 13 on which said wheels run. The ends of said core are bent upward into close proximity with the under side of the frame 1, and the pole plates 12 move in close proximity to the upper side of the concrete floor. A draft bar 36 is attached to the front end of said truck, to which is pivotally connected, as shown at 47, one end of a coupling 48 in sections pivoted together at 49, the other end of

said coupling being rotatably mounted on a clamp 51 secured to a cable 52 for drawing the truck upon the track.

For the purpose of enabling any one of the ships to be withdrawn from the main portion of the miniature ocean visible to the spectator, there is provided a partition wall 37 having two openings 39, 41, and forming a basin separated from said main portion, both of said openings being preferably concealed from the spectator by an island 42 or other topographical feature. The track extends under the openings 39, 41, so that the ship travels into and out of said basin through said openings. While in the basin, it is possible at any time to remove any ship for repairs or otherwise and replace it in the basin over the track thereunder, so that it can be conducted from said basin by a magnet on said track entirely out of the view of the spectator.

For the purpose of apprising an attendant of the approach of a magnet which is not already engaged in conducting a ship on its course, in order that he may place the ship over the magnet, each magnet, when it arrives at the basin, engages a spring contact 43 which closes a circuit 44 through a bell 46, and, by the ringing of said bell, apprises the attendant when a magnet is passing.

I claim:—

1. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature extending longitudinally of the ship and supported thereby and having poles in close proximity with the bottom of the receptacle, a track beneath said receptacle, a truck on said track, and a magnet carried by said truck, the poles of said magnet extending in close proximity with the bottom of the receptacle.

2. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature extending longitudinally of the ship and supported thereby and having poles in close proximity with the bottom of the receptacle, a track beneath said receptacle, a truck on said track, an electro-magnet carried by said truck, the core of said magnet having upwardly directed poles extending in close proximity with the bottom of the receptacle, and means for including said magnet in an electric circuit.

3. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature extending longitudinally of the ship and supported thereby and having poles in close proximity with the bottom of the receptacle, a track beneath said receptacle, a truck on said track, an electro-magnet carried by said truck, the core of said magnet having upwardly directed poles extending in close proximity with the bottom of the receptacle, and means for electrically connecting the coil of said electro-magnet with a rail of said track.

4. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature extending longitudinally of the ship and supported thereby and having poles in close proximity with the bottom of the receptacle, a sectional swiveled truck on said track, uprights pivotally supported by the sections of said truck, bands supported on said uprights, an electro-magnet within said bands, the core of said magnet having upwardly directed poles extending in close proximity with the bottom of the receptacle, and means for including the coil of said magnet in an electric circuit.

5. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature extending longitudinally of the ship and supported thereby and having poles in close proximity with the bottom of the receptacle, a truck on said track, an electro-magnet carried by said truck, the core of said magnet having upwardly directed poles extending in close proximity with the bottom of the receptacle, means for insulating therefrom the wheels on one rail, a metal roller on said rail, an arm supporting said roller, and insulating means for supporting said arm upon said truck.

6. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature comprising a soft iron bar extending longitudinally of the ship and suspended therefrom, pole pieces pivotally supported by said bar at the ends thereof and depending therefrom, said support permitting the pole pieces to swing rearwardly, springs supported by said bar and engaging said pole pieces to return them to a vertical position when moved therefrom, a track extending horizontally beneath said receptacle, a truck on said track, an electro-magnet carried by said truck, the core of said magnet having upwardly directed poles extending in close proximity with the bottom of the receptacle, and means for including the coil of said magnet in an electric circuit.

7. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature suspended from said ship in close proximity with the bottom of the receptacle, a track beneath the receptacle, a truck on said track, a magnet on said truck, a partition in said receptacle forming with the wall of said receptacle a retiring basin and having openings therethrough, and means in said receptacle for concealing said openings from the view of the spectator.

8. In combination, a receptacle for water, a miniature ship in water in said receptacle, an armature suspended from said ship in close proximity with the bottom of the receptacle, a track beneath the receptacle, a truck on said track, a magnet on said truck,

a partition in said receptacle forming with the wall of said receptacle a retiring basin and having openings therethrough, means in said receptacle for concealing said openings from the view of the spectator, and a signaling device arranged to be actuated by the movement of a magnet on the track beneath said basin.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LOUIS E. MYERS.

Witnesses:
JAMES H. HOOD,
ETHEL NOLAN.