MAGNETIC GAME BOARD

Fig. 1.

Fig. 2.
This invention relates to a game or amusement device, and more particularly to a device of this type in which game pieces are propelled over the surface of a board of magnetic attraction, the propelling element being a magnet moved under control of the operator so that the game pieces may be propelled in any direction over the flat surface upon which they are supported so that a universal movement of these pieces may be effected over the surface.

As illustrated, the present invention comprises a game board having a smooth supporting surface upon which the game pieces are adapted to slide although they may be mounted upon wheels if desired. As illustrated, the game pieces are in the form of ships or vessels, and the smooth surface of the game board represents a body of water.

One of the game pieces, as illustrated, is adapted to act as a tractive device, a tug boat in the present instance, and it is used to draw or push others of the game pieces, while another game piece is in the form of a ferryboat which is adapted to be moved about but not to draw or propel other objects. In either case, it is desirable that the game pieces which are moved by the moving magnet be under universal control or so arranged that they may be moved in any direction at any point in their courses or routes, and that their movements be directly under control of the operator so that he may at will move the game pieces in any desired direction. With the present arrangement it will be found that this requires considerable skill and coordination on the part of the operator which adds to the enjoyment and the attractiveness of the device.

In the present instance, this universal control over the game pieces is provided by so mounting the propelling magnet that it is moved by two actuators, one of which moves it in one direction, and the other of which moves it in another direction substantially at right angles to the first. Moreover, these two actuators are individually operated but may be operated simultaneously, so that the movement of the magnet and of the game piece attracted thereto is the resultant of the movement impressed upon the magnet by the two actuators. The direction of this resultant may, of course, be any that is desired for while each actuator moves the magnet in one line or one direction, it may also be reversed so as to move the magnet in the opposite direction.

Specifically this operation is obtained by supporting the magnet upon a pin or stud which projects through the registering portions of the slots of two slotted members or actuators movably mounted beneath the game board or supporting surface. One of these actuators may be moved lengthwise of the board and the other widthwise thereof or in a direction transverse to that in which the first is moved. Each of the actuators extends substantially entirely across the corresponding dimension of the board and is slotted for substantially its full length, and it will be seen, therefore, that while the pin or stud upon which the magnet is mounted is moved in one direction only by one of the actuators, and in a direction transverse to the longitudinal dimension of that actuator, it may move longitudinally through the slot of that actuator if such movement is impressed upon it by the second actuator. Moreover, the pin or stud upon which the magnet is mounted is revolvably received in the intersection of the slots in the two actuators, and the propelling magnet is eccentrically mounted with respect to the pin so that the magnet will tend to follow the pin at all times when it is being moved and will turn through an angle of 180 degrees when the direction of the magnet is reversed.

One object of the present invention is to provide a new and improved amusement device in which game pieces are moved about by magnetic attraction.

Another object of the invention is to provide a game board or amusement device of the character described in which the game pieces are moved about by magnetic attraction, the movement at all times being in such direction as desired by the operator.

A still further object of the invention is to provide a magnetic game board or amusement device of the character described in which the controlling or actuating magnet is arranged for a two-dimensional movement, the two movements being independently controlled and simultaneously effected so that the actual movement of the propelling magnet is a resultant of the two movements impressed thereupon by the actuating devices.
To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a perspective view of a game board or amusement device embodying my improvements;

Fig. 2 is a top plan view of the device;

Fig. 3 is a top plan view of the device with the supporting board removed to show the operating parts therebelow;

Fig. 4 is a sectional view on line 4—4 of Fig. 3;

Fig. 5 is a detailed sectional view somewhat enlarged on line 5—5 of Fig. 2; and

Fig. 6 is an enlarged view of one of the game pieces.

To illustrate a preferred embodiment of my invention, I have shown a frame which in this instance may be in the form of a container having a hinged cover, front and rear walls, side walls, and a bottom mounted upon the bottom of the container and upstanding therefrom, are a pair of rails extending from front to back of the container, and also mounted upon the bottom of the container, these rails extending from side to side or in a transverse direction relative to that of the rails.

From Fig. 4 of the drawings, it will be seen that the rails are slightly higher than the rails, and rotatably mounted on the upper edges of the rails, are a pair of shafts and one adjacent each side of the container. Secured upon the ends of these shafts between the rails and the front and rear walls of the container are pulleys adjacent the rear wall of the container, and pulleys adjacent the front wall. Endless cords or belts are trained about the pulleys respectively. As shown, the shafts and are rotatably secured in place upon the rails by staples although any desired securing means may be employed.

Similarly, shafts and are rotatably secured upon the rails and the shaft being disposed adjacent the front wall of the container and the shaft adjacent the rear wall. Upon the ends of these shafts are secured pulleys and, and endless cords or belts and are trained upon the pulleys and respectively. The shaft extends through the front wall of the container and is provided upon its extended end with an operating crank. While the shaft extends through the left hand side wall of the container and is provided with an operating crank so that the operator may rotate the shaft with the right hand and the shaft with the left hand.

Slightly mounted upon the rails is an actuating member in the form of a flat which extends from front to back. This slot is provided with a longitudinally extending slot extending substantially throughout the length of the flat. The latter is provided with reduced end portions which lie beyond the rails and are secured to the cords and so that movement of these cords will effect movement of the actuating, member from one side to the other of the container, being maintained parallel to itself during this movement. It will, of course, be obvious that as the crank may be turned in either direction, the actuating member may be moved from left to right or from right to left at the will of the operator.

Similarly, a second actuating member or slot is slidably mounted upon the rails as shown in Figs. 3 and 4. The member is at a higher level than the member so that the latter may lie below the former. The actuating member is likewise provided with a slot extending longitudinally thereof for substantially its full length and at its ends is provided with reduced portions which are secured to the cords and. It will be apparent, therefore, that as the crank is rotated to turn the shaft, the actuating member may be moved from front to back and vice versa with respect to the container, the actuating member being maintained in positions parallel to itself and sliding upon the upper surfaces of the rails just as the actuating member slides upon the rails in a transverse direction.

Still referring to Figs. 3 and 4, it will be seen that the slots and will register at one point to provide the opening through both of the actuating members and. Rotatably mounted within these registering portions of the slots and is a stem or pin upon the upper end of which is mounted a plate. This plate may be of any desired non-magnetic material such as thin non-magnetic metal or plastic, for example, and may be dished slightly so that it will rotate more freely upon the slot upon which it rests. Upon the upper surface of the member is a bar magnet and it will be seen that this magnet is eccentrically mounted with respect to the pin so that when the pin is moved, as will be later described, it will tend to rotate about the pin to such a position that the magnet will lie rearwardly of the pin with respect to its direction of movement or in a trailing position. If, for example, the direction of movement of the magnet is reversed as, for example, by turning one of the cranks and in a direction opposite to that in which it was last rotated, the pin will turn through an angle of degrees so that the magnet would lie upon the side of the pin opposite to that previously occupied.

With the above construction it will be seen that rotation of the crank in a clockwise direction will move the actuator toward the right, as shown in Fig. 3, and likewise move the magnet in the same direction. Rotation of the crank alone will only vary the position of the magnet between the sides of the container and will not vary its position from front to back. The crank may, of course, be rotated in the opposite direction to move the actuator toward the left. Rotation of the crank, however, in a clockwise direction, viewed from the left of Fig. 3, will effect movement of the actuator toward the operator and will, therefore, move the magnet in this direction, while rotation of this crank in the opposite direction will move the actuator toward the rear of the container.

It will be apparent that movement of either of the actuators alone will move the pin lengthwise of the slot in the other actuator so that as long as the other actuator is not moved, the pin will always be given a straight-line movement parallel either to the side walls of the container or the front and rear walls of the container depending upon the actuating member being or not being moved. It will also be obvious that the actuators may be moved independently or may be moved simultaneously. If both are moved simultaneously, the movement of the pin will be a resultant of the movements of
the actuators as the pin will always lie at the intersection of the slots 34 and 38. Therefore, by manipulating the the cranks 31 and 32 universal movement of the magnet may be obtained in any direction or in any desired path at the will of the operator, the cranks, of course, being manipulable independently or simultaneously and in either direction.

Adjacent each corner of the container is a post 44, and upon these posts is supported a game board 45, the upper surface of which forms the supporting surface for the game pieces. As shown in Fig. 5, this game board is spaced above the actuator 37 so that the magnet 42 lies in close proximity to the lower surface of the board. As in the present embodiment of my invention the game pieces are adapted to slide upon the upper surface of the board 45, this surface may be covered with a smooth material such as cel-lulose 46 so as to offer as little resistance as possible to the movement of the pieces.

As shown more especially in Figs. 1 and 2, the upper surface of the game board is made to represent a body of water, and the game pieces which are designed to move upon this surface are in the form of vessels of various types. Such an arrangement may, of course, be varied as desired, for example, the game pieces might conceivably be wheeled vehicles having other features varied accordingly. As shown, the game pieces comprise a number of ships or vessels 48, and around the border of the surface 45 are shown appropriate accessories such as slips or docks 49 within which the ships 48 may be received, and representations of warehouses or the like 50, it being understood that these devices are raised from the surface 45 so that the movement of a boat entering a slip will be checked by the sides thereof.

The vessels 48 are preferably of non-magnetic material, but each is provided in at least one end, for example the stern end thereof, with a pin 51 of magnetic material. These pins are not, however, within the magnetic field of the magnet 42, and in order that the vessels may be moved over the surface 45, I provide a power vehicle or vessel such, for example, as the tugboat 52, the lower portion 53 of which is of magnetic material so as to be attracted by the magnet 42 and moved with the latter. Preferably the member 53 is a permanent magnet, so that when in the field of the magnet 42 it will always occupy the same position relatively to the magnet 42 so that the tugboat will normally be moved in a forward direction. Also, if when the member 53 is a permanent magnet, it will not have to depend upon induced magnetism to attract the pin 51 of one of the vessels 48 and will, when the tugboat is moved over the supporting surface 46, draw the boat with it.

It will be apparent that as the magnet may be moved in any desired course below the surface 46, the tugboat which is moved by the magnet may likewise be moved in any desired course and draw the vessels 48 along with it so as to move these vessels to any desired position. Either end of the tugboat may be directed against the pin 51 of one of the vessels 48 so that the vessel may be pulled or pushed as desired in order that the bow end of the ship may be made to enter the slip or dock. It will also be apparent that with the complete control over the tugboat which is afforded by the manipulation singly or simultaneously of the cranks 31 and 32, the latter may be "hooked up" to any of the vessels or may be nosed against the side or either end of the vessels to "warp" them into the docks or slips in a manner quite similar to that of the actual tugboat and passenger liner. Also the tug may be detached from one of the vessels when such is desired by merely turning it in a narrow circle so that it will follow around the side of the boat and work itself away from the pin.

As shown in Figs. 4 and 5, the pin 40 is loosely received in the slots 34 and 38, so that it is not only rotatable in these slots but also slidable in a vertical direction to permit the magnet 42 to approach the under side of the game board 45, as shown in Fig. 5, when the members 42 and 53 are mutually attracted. This enables the magnet 42 to approach closely to the game piece regardless of any irregularities there might be in the surface of the game board.

As shown more especially in Figs. 2 and 6 of the drawings, a ferryboat 55 is provided, the latter being designed to enter the slip 56 in the wharf 57. This ferryboat is preferably of light non-magnetic material, and upon its lower side is provided with a downwardly facing elongated slot 58 within which is freely mounted a disk 59 of magnetic material. The disk 59 is adapted to be attracted and carried along with the magnet 42 so that the ferryboat may be propelled as desired. If the magnet 59 is not attached to the ferryboat but merely lies freely within the recess 56, the latter does not turn when its direction is reversed, either end becoming the leading end depending upon the direction of travel, as is usually the case with ferries.

A slip 60 is also provided in the wharf 57 (Fig. 2) in which slip the tug 52 may be berthed when it is desired to discontinue the use of the toy or to release the tug from the magnet. The motion of the tug will be checked by the sides of the slip and continued movement of the magnet 42 will draw it away from the tug.

As the board 45 may not be transparent, it would not be possible for the operator always to know the position of the magnet 42. Therefore, the device is so constructed that the slips 56 and 60 will lie in the path of the magnet when the actuator 31 has been moved to the limit of its forward movement adjacent the front of the container 12. In other words, if the operator does not know the position of the magnet 42, he may turn the crank 32 in the proper direction to draw the actuator 31 to the front of the device. Then by rotating the crank 31 and moving the magnet 42 transversely across the front of the container he may pick up either the tug 52 or the ferry 55, as desired, if these pieces are in their slips 56 and 60. Having once picked up the desired one of these vessels, he may direct them over any desired course upon the surface 46.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim:

1. In an amusement device, means providing a supporting surface, a game piece movably supported thereon and having a permanent bar magnet at its lower portion, a second bar magnet disposed below said supporting surface in a substantially horizontal position to directionally attract and move said game piece, actuating
means for said second magnet comprising a pair of crossed substantially horizontal elongated members each having a slot extending lengthwise thereof, means for mounting said second-named magnet upon said members at the intersection of said slots for rotational movement about a vertical axis, said magnet being supported eccentrically with respect to said axis, and means for moving each of said slotted members in a direction transverse to its length.

2. In an amusement device, means providing a supporting surface, a game piece movably supported thereon and having a permanent bar magnet at its lower portion, a second bar magnet disposed below said supporting surface in a substantially horizontal position to directionally attract and move said game piece, actuating means for said second magnet comprising a pair of crossed substantially horizontal elongated members each having a slot extending lengthwise thereof, means for mounting said second-named magnet upon said members at the intersection of said slots for rotational movement about a vertical axis and for movement in a vertical direction to permit the second magnet to approach said supporting surface, said magnet being supported eccentrically with respect to said axis, and means for moving each of said members in a direction transverse to its length.

3. In an amusement device, means providing a supporting surface, a game piece movably supported thereon and having a permanent bar magnet at its lower portion, a second bar magnet disposed below said supporting surface in a substantially horizontal position to directionally attract and move said game piece, actuating means for said second magnet comprising a pair of crossed substantially horizontal elongated members each having a slot extending lengthwise thereof, means for mounting said second-named magnet upon said members at the intersection of said slots for rotational movement about a vertical axis and for movement in a vertical direction to permit the second magnet to approach said supporting surface, said magnet being supported eccentrically with respect to said axis, and means for moving each of said members in a direction transverse to its length.

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