April 16, 1963 J. C. YARASHES 3,085,802

ELECTROMAGNETICALLY OPERATED GAME

Filed Nov. 17, 1960 3 Sheets-Sheet 1

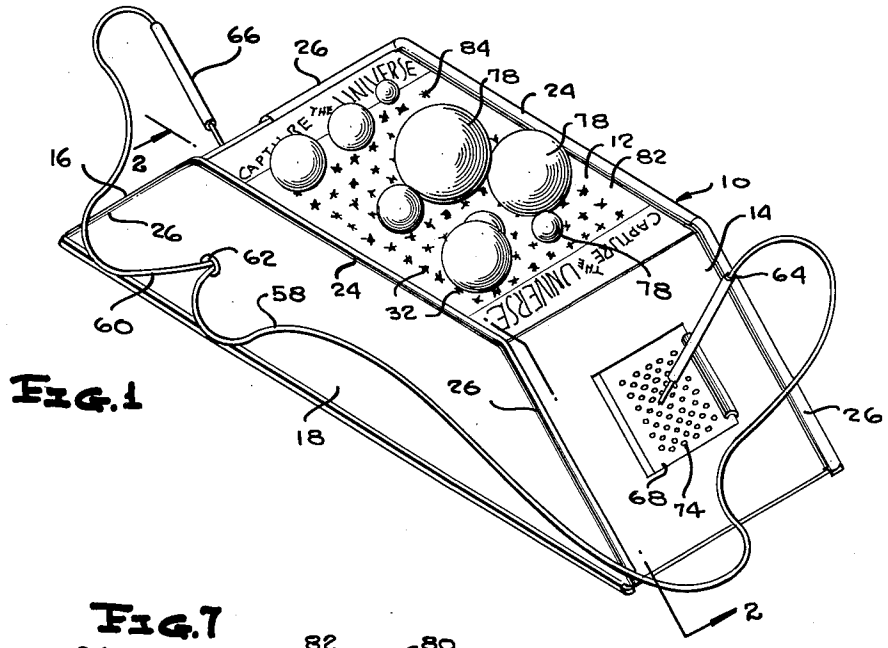


FIG. 1

FIG. 7

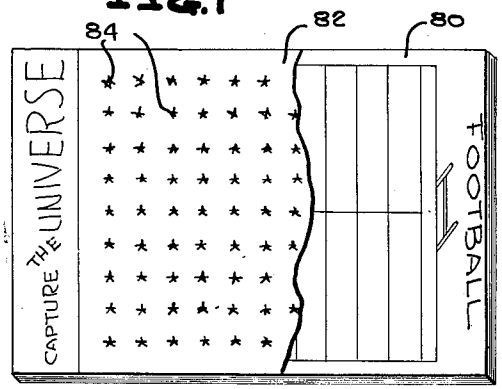


FIG. 4

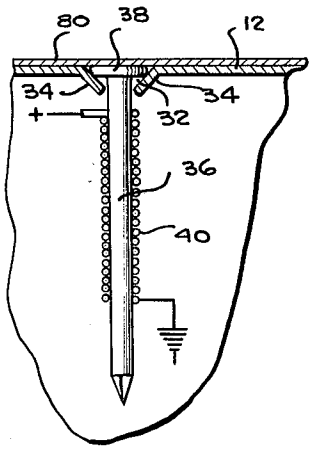
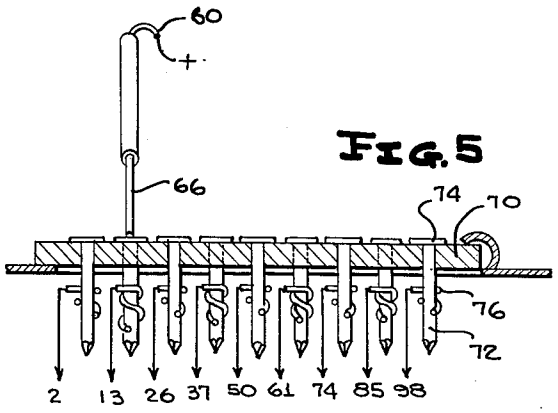


FIG. 5



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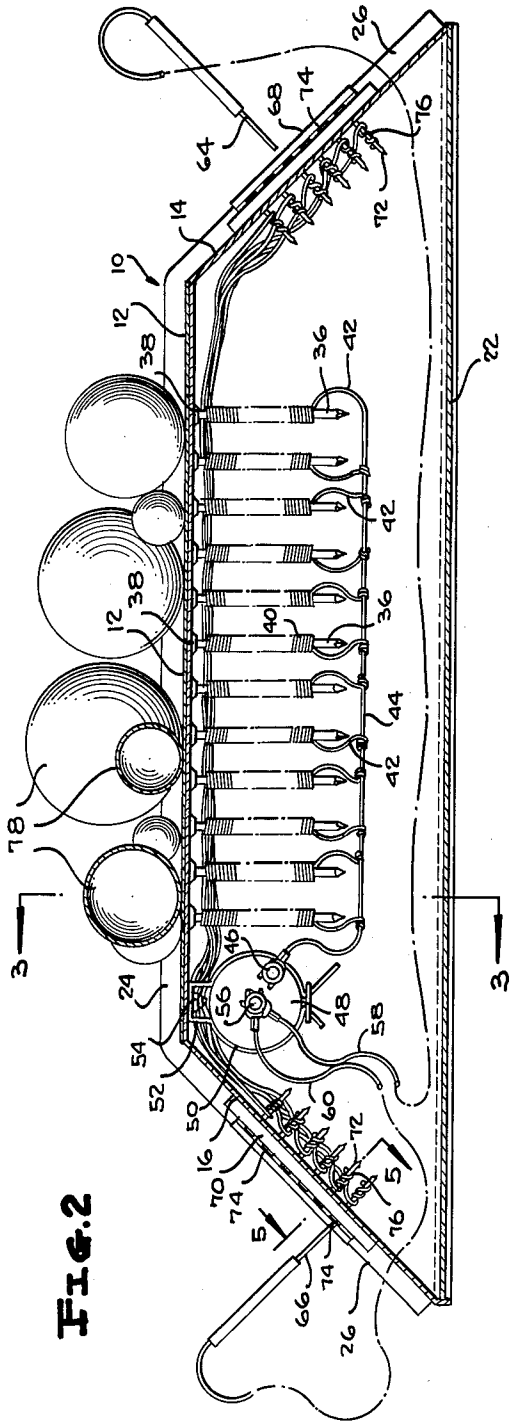

Fig. 2

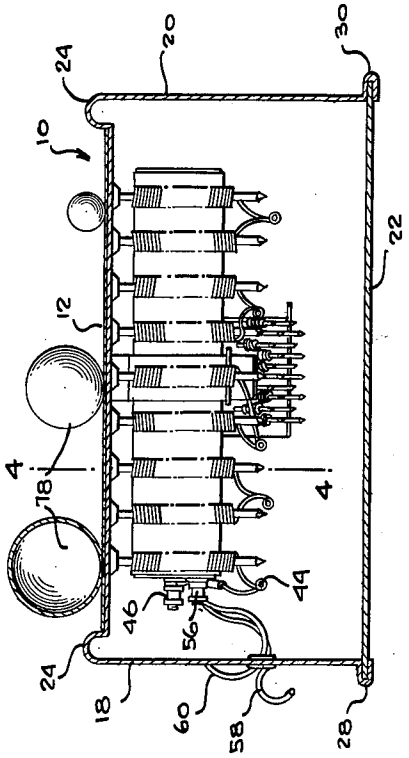

Fig. 3

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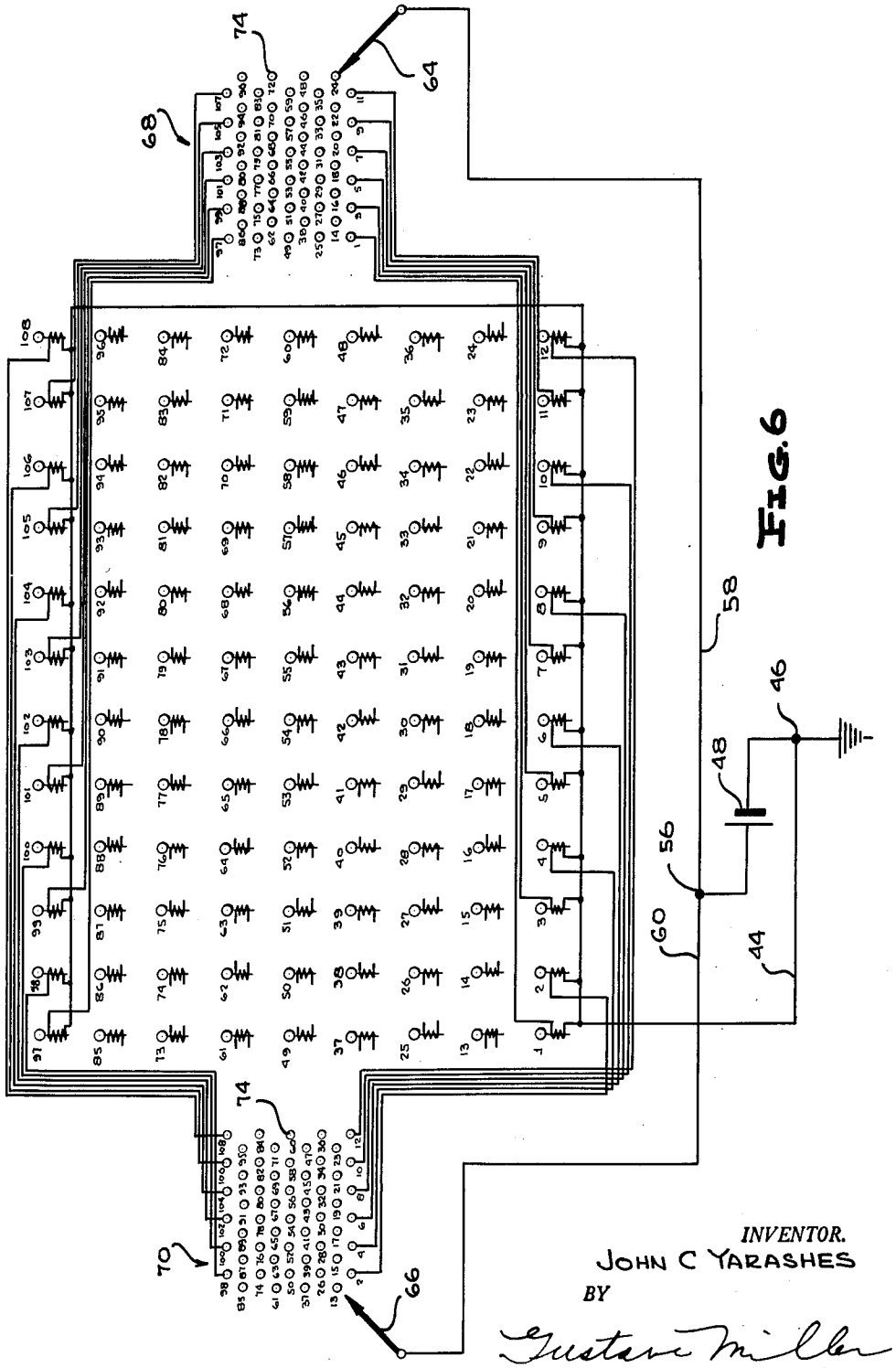

FIG. 6

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ELECTROMAGNETICALLY OPERATED GAME

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2 Claims. (Cl. 273—118)

This invention relates to an electro-magnetically operated game, and it more particularly relates to a game of the aforesaid type which is adapted to be played by two or more persons.

It is one object of the present invention to provide an electro-magnetically operated game assembly wherein various types of games may be played according to the choice of the players.

Another object of the present invention is to provide a game assembly of the aforesaid type which is simple in construction and simple to operate.

Another object of the present invention is to provide a game assembly of the aforesaid type which is compact and which is self-energizing.

Other objects of the present invention are to provide an improved game device, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings, in which:

FIG. 1 is a top perspective view of a device embodying the present invention.

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is a fragmentary sectional view taken on line 4—4 of FIG. 3.

FIG. 5 is a fragmentary sectional view taken on line 5—5 of FIG. 2.

FIG. 6 is a schematic view of the electrical network used in the device of FIGS. 1–5.

FIG. 7 is a top view of two different removable game cards, the top card being partly broken away to reveal a portion of the lower card.

Referring in greater detail to the drawings, wherein similar reference characters refer to similar parts, there is shown a hollow housing, generally designated 10, comprising a top wall 12, downwardly and outwardly sloping end walls 14 and 16, side walls 18 and 20 and a bottom wall 22.

The housing 10 is preferably constructed of sheet aluminum of about 0.018 inch in thickness, a single sheet of such aluminum being used to make the top wall 12, end walls 14 and 16 and side walls 18 and 20 of integral construction.

The top wall 12 is bounded at its two longitudinal edges by ribs or beads 24 which are integral with ribs or beads 26 provided on opposite edges of the end walls 14 and 16. The bottom wall 22 is a separate plate which is releasably retained in position by means of opposed grooved beads 28 and 30 on the bottom of side walls 18 and 20 respectively (as best seen in FIG. 3). This construction permits easy access to the interior of the housing 10.

In the surface of the top wall 12 there are punched a plurality of holes 32 arranged in intersecting rows and columns. The holes 32 are preferably punched about ¾ inch apart and their defining edges 34 are bent down or countersunk in wedge-shaped arrangement (as best seen in FIG. 4) to support individual electromagnetic cores 36. These cores 36, which may be ordinary iron nails, rivets, or the like, are provided with heads 38 flush with the top surface of the wall 12.

Each core 36 is provided with an electromagnetic coil 40. These coils 40 are electrically connected by wires 42 to a common ground wire 44 which is, in turn, connected to the negative terminal 46 on an ignition battery 48. The battery 48 is supported within the housing 10 by a collar or bracket 50 having a bridge portion 52 secured to the undersurface of top wall 12 by rivets or the like indicated at 54 (see FIG. 2).

The positive terminal 56 of battery 48 is connected to a pair of selector prod wires 58 and 60 which extend out of the housing 10 through a hole in the housing 10 in which is positioned a rubber grommet 62. The wire 58 is connected to a selector prod or electrode 64, while the wire 60 is connected to a selector prod or electrode 66.

On each end wall 14 and 16 is positioned a selector panel, respectively designated 68 and 70. The panels 68 and 70 are provided with electrical circuit completing contacts of identical construction and characteristics, these contacts 72 each comprising an iron building nail, rivet or the like, having a head 74 forming the electrical contact, these heads 74 being positioned above the upper surface of their respective panels 68 and 70. A conduit 76 is connected to each contact 72, these contacts 72 being arranged in alternate rows (as best shown in FIGS. 1 and 6).

Each coil 40 is electrically connected to a corresponding contact head 74 on either the selector panel 68 or 70. In this respect, each electromagnet on the playing area constituted by top wall 12 is numbered, and the contacts on each panel 68 or 70 are similarly numbered. The corresponding numbers of coils 40 are individually connected to the corresponding numbers of the contact heads 74. In this connection, the contacts on panel 68 are characterized by odd numbers, while those on panel 70 are characterized by even numbers. In this manner, alternate coils 40 are electrically connected to alternate selector panels, either panel 68 or panel 70 as the case may be.

The game includes one or more balls 78, which may be of the same or different sizes. These balls 78 are of hollow, thin-wall steel construction and are adapted to be attracted to the electromagnetically actuated core heads 38. In this manner, when the electromagnetic field which is attracting and moving a ball 78 toward the corresponding core 36 is suddenly collapsed by cutting off the current first before the attraction causes the ball 78 to adhere to the core head 38, the ball 78 will be cast a distance from the head 38, depending on the electromagnetic field cut off.

The electromagnets, comprising cores 36, heads 38 and coils 40, are so mounted and arranged that at least one electromagnet is in a position to effectively move a ball 78 anywhere on the playing area constituted by the top wall 12. In this connection, the ribs or beads 24 serve as barriers to prevent the balls 78 from falling off the edges of the playing surface.

The spacing of the electromagnets on the playing surface is determined by the diameter of the magnetic field produced by each individual electromagnet. This, in turn, is determined by the size of the cores 36 and the type of material of which they are constructed, as well as by the size of the wire and the number of turns of the wire forming the coils 40. It also depends on the amount of electric current applied.

Various different types of games may be played by means of the present device. The type of game depends on the type of adhesively-backed card, designated 80 or 82, which is placed on top of the playing area or upper surface of the top wall 12.

In FIG. 7, two different types of cards 80 and 82 are shown. The lower card 80 represents a football game with a playing field and goal posts illustrated thereon.

A ball 78 which, if desired, may be shaped like a football, is actuated by the players at either end by using their respective selector prods on their respective panels 68 and 70. By applying the prod 64 or 66 to the correct contact head 74, the ball 78 can be made to move in one direction or the other. When the ball 78 moves across a goal line, it is a score. The sheets or cards 80 and 82 are gummed or adhesive on their backs and may be interchangeably adhered to the top wall 12. By using a suitable adhesive, the cards may be readily removable for interchangeability. Any cards with other game indicia thereon may also be used.

The other card 82 is used for a game designated "Capture the Universe." The card 82 depicts a blue colored, gold and silver starred celestial scene. Tiny stars 84 indicate the position of the electromagnet cores 36 to help the players judge the positions of the balls 78. Silver colored stars indicate one opponent's electromagnets, while gold stars indicate those of the other opponent. One caption is gold star imprinted, while the other is silver star imprinted. Large stars on the playing area and cloudy effects are used to complete a celestial picture. The zones "Capture the Universe" are the goal areas on either end of the card 82. The balls 78 are made in various sizes to symbolically represent the nine planets and the sun.

The object of the game is to move the balls 78 about the board represented by card 82 to the appropriate goal areas. The winner is the player who captures the most planets.

The balls 78 are colored to represent the dominant colors of the planets and their diameters preferably range rom about 3/8 to about 1¾ inches.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and described the nature of this invention, what is claimed is:

1. A game device comprising a hollow non-ferrous metal housing with a playing area and oppositely disposed control areas, said control areas comprising panels on opposite end walls of said housing, a replaceable playing card on said playing area, a plurality of hollow thin-wall steel balls rollable over said playing card on said playing area, a plurality of electromagnets on said playing area for activating said balls, a plurality of circuit completing contacts on each of said control areas, said electromagnets on said playing area comprising electromagnetic cores, each having a head mounted in a countersunk opening in the playing area so that said head is flush with the playing surface of said playing area, said cores depending from said heads and each core having an electromagnetic coil wound thereon, said coils being electrically connected to corresponding contacts in said control area, the electromagnets on said playing area being alternately connected to corresponding contacts on one or the other control areas, the diameter of at least some of the balls being greater than the distance between the electromagnetic cores under the control of either one control area, said electromagnets on said playing area being commonly electrically connected to a source of electricity and a pair of selector prods individually electrically connected to said source of electricity, said prods being adapted to be manually manipulated to contact the circuit completing contacts on a selected control area to cause the electromagnet in the selected area to activate a ball within the range of said electromagnet.

2. A game device comprising a hollow non-ferrous metal housing having a top wall comprising a playing surface, oppositely inclined integrally extending end walls, integrally extending side walls and a removable bottom wall slidably mounted in oppositely grooved beads on the bottom edges of said side walls, said top wall having countersunk openings in which are positioned electromagnetic cores, said end walls each having a panel provided with a plurality of circuit completing contacts, the contacts on said panels having contact core heads projecting above the surface of the respective panel, said cores in the openings of said top wall being arranged in a series of intersecting rows and columns, the coils of alternate cores being electrically connected to corresponding contacts in one or the other panel alternately, said cores in said countersunk openings having electromagnetic coils wound thereon, said coils being commonly electrically connected at one side to a source of electricity and being individually electrically connected at their other sides to corresponding contacts in one panel or the other, a pair of selector prods individually electrically connected to the source of electricity, one prod being adapted to selectively contact the circuit completing contacts of one panel and the other prod being adapted to selectively contact the circuit completing contacts of the other panel, a replaceable playing surface card on said top wall, and a plurality of hollow thin-wall steel balls on said surface activatable over said surface by selectively actuated electromagnetic cores, the diameter of at least some, but not all, of the balls being greater than the distance between the magnetic cores under the control of either one panel.

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