

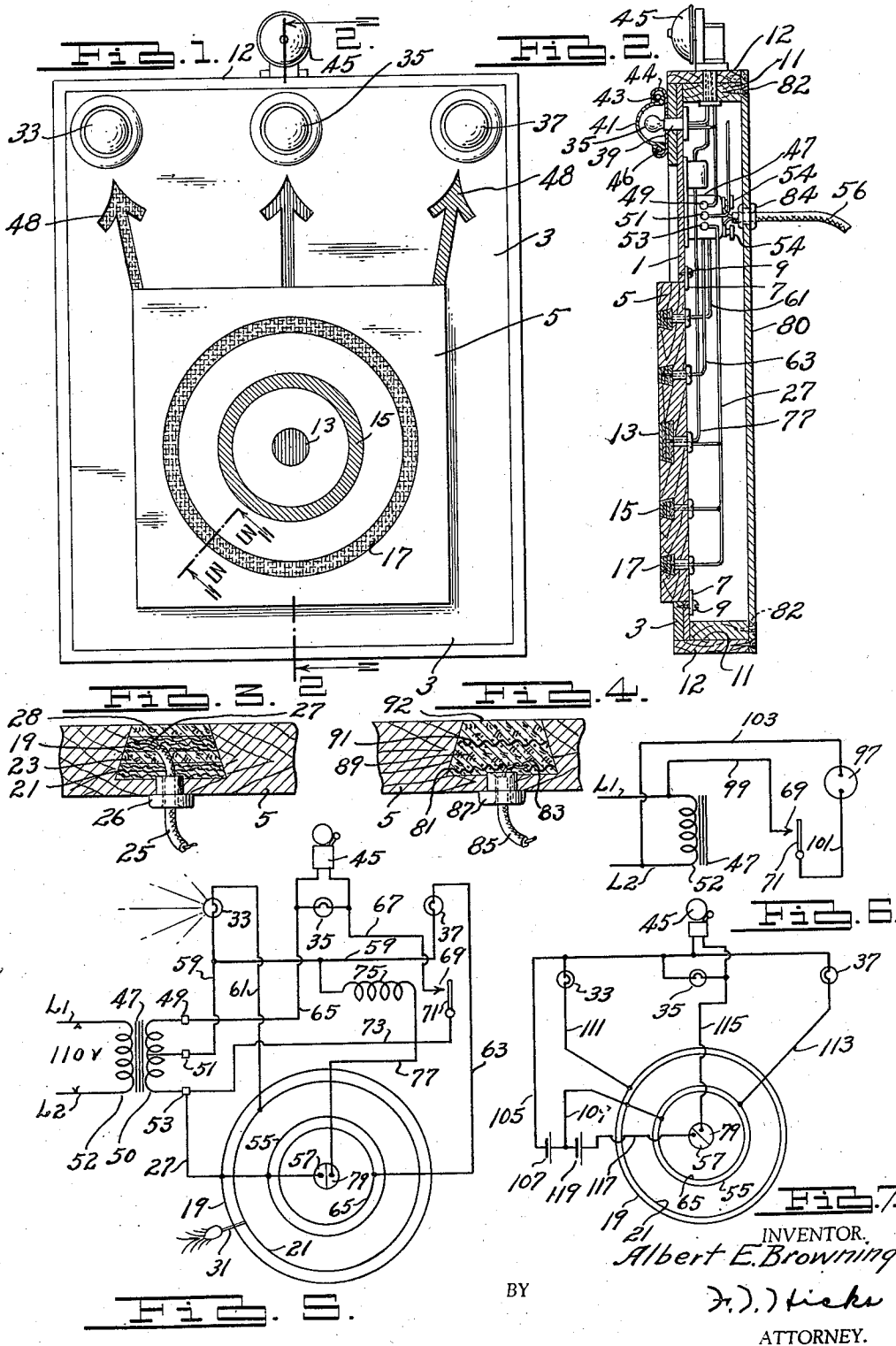
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A. E. BROWNING

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TARGET INDICATING GAME

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BY

J. J. Ficks

ATTORNEY.

UNITED STATES PATENT OFFICE

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TARGET INDICATING GAME

Albert E. Browning, Detroit, Mich.

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2 Claims. (Cl. 273—102.2)

My invention pertains to a dart operated indicating target game and more particularly to a portable automatic indicating target.

It is an object of my invention to provide a dart operated target game comprising an automatic, self contained, indicating target which is of simplified construction and which is portable and convenient to set up and use.

It is a further object of my invention to provide a portable indicating dart-operated target game comprising the combination of a target board having distinctive divided portions thereon of different assigned values, the means responsive to the engagement of a projectile thrown by a player upon alternate ones of the respective divided portions of the target board for operating a corresponding indicating device whereby the assigned values earned by the player may be definitely ascertained.

It is also an object of my invention to provide an electrical target game of the above type comprising a target board having dividing recesses disposed therein receiving separately insulated layers of electrically conductive material, the recesses having bevelled side walls diverging to a greater width adjacent the bottoms of the recesses whereby conductive contact is made between the conductive layers by a metallic pointed dart irrespective of its angular position in the recess for operating corresponding electrical indicating devices providing distinctive manifestations.

Another object of my invention is to provide a target board for such a target wherein the electrically conductive layers which are electrically insulated in the recesses comprise layers of a metallic foil or wire screen embedded in the recesses and separated by layers of insulating wax.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of specific embodiments, when read in connection with the accompanying drawing, in which:

Fig. 1 is an elevational view of an embodiment of my automatic indicating target;

Fig. 2 is a cross-sectional view therethrough on line 2—2 of Fig. 1;

Fig. 3 is a fragmentary enlarged cross-sectional view through one of the recesses on the target board;

Fig. 4 is a similar view showing another em-

bodiment of the electrically conductive layers disposed in insulated relation in a recess in a target board;

Fig. 5 is a diagrammatic view representing the electrical circuit connections provided for operating the distinctive indicating devices associated with my target; and

Figs. 6 and 7 are similar views showing various arrangements of electrical circuits which may be utilized.

Referring more particularly to Figs. 1, 2 and 3 of the drawing, my automatic indicating target game comprises a panel board 1 upon which I provide a facing 3 of "Celotex" or other suitable material. In the lower portion of the panel, I provide a target board 5 which is mounted by inserting it into a suitable opening which is cut through the panel board and the "Celotex". The target board is inserted from the back of the panel board and comprises laterally projecting strips 7 which extend toward either side for abutting the inner surface of the panel board to which it may be secured in any suitable manner as by wood screws 9. The peripheral edges of the panel board are secured on a rectangular inner frame 11 having an outer frame 12 flush with the edges for mounting the target and providing a housing enclosing the back of the panel.

The target board 5 is divided into distinctive portions of different assigned values comprising a bull's eye aperture 13 which is cut into the center of the board, and annular recesses 15 and 17 which are cut into the board concentrically surrounding the bull's eye aperture. The aperture 13 and the spaced annular recesses 15 and 17 term indicating apertures or rings and the intervening rings I term field rings. Surrounding the bull's eye a total of four rings are provided. As shown in Figs. 2 and 3, the side walls of each recess are undercut or bevelled, diverging apart toward the bottom to provide recesses which are wider at the bottom than where they open through the front of the board.

Disposed in the outermost annular recess 17, I provide layers 19 and 21 of conductive material which are separated by a layer of insulating material 23. For this purpose, I utilize a metallic foil, such as tin, aluminum or lead foil which is tamped into the bottom of the recess to an appreciable thickness therein to provide a conductive layer 21 of sufficient thickness for good electrical contact when pierced by a metallic point. After the first layer of foil is firmly pressed into the bottom of the recess, a layer 23 of insulating material, such as melted paraffin or bees-wax, is

applied to congeal thereon to a sufficient depth to hold the conductive layer of foil and to provide electrical insulation thereon.

Upon the layer of insulating wax thus applied, I provide a second layer of conductive material, such as foil 19, which is tamped thereon to an appreciable depth. As shown in Fig. 3, an electrical conductive connection is provided therefrom by an insulated electrical conductor 25 which is inserted through a bushing 26 through the back of the target board. The insulated portion of the electrical conductor is carried appreciably above the bottom of the recess in the target board and the bare conductor 27 is embedded between the layers of foil comprising the conductive layer 19 in the recess. In this manner a conductive connection is taken off from the back of the target board from the conductor layer 19 which is insulated from the conductive layer 21.

At a separated point around the annular recess 17, a second electrical conductor 61 is similarly conductively connected into the conductive layer 21 from which it also leads from the back of the target board. After the second conductive layer 25 of foil has been tamped into the groove, a layer 28 of melted paraffin or bees-wax is applied and it congeals therein to seal the groove and to hold the conductive layers firmly in place. The exposed surface of the layer of wax is distinctively colored as by applying any suitable powder or pigment thereon. This is preferably accomplished by applying colored tinsel with transparent lacquer upon the exposed surface of the wax, or for this purpose shellac may also be used. The electrically conductive layers in the annular groove 15 and in the bull's eye 13 are similarly provided and arranged, with insulated layers of conductive material therebetween, and having electrical conductors extending from the back of the board, as shown in Fig. 2.

It will be seen that when a metallic pointed projectile 31 pierces the conductive layers 19 and 21, as diagrammatically represented in Fig. 5, the layers 19 and 21 are thus conductively connected through the point of the projectile. In order to give a distinctive indication of the assigned values earned by a player who throws the projectiles at the target, I provide distinctive colored electric lights 33, 35 and 37 which are mounted in spaced relation across the upper portion of the panel board.

For mounting the electric light bulbs, I provide suitable lamp sockets 39 which are mounted in the panel in any suitable manner, as by securing the base to the inner surface thereof and projecting the lamp receiving socket portion therethrough. A glass dome or shield 41 is provided for enclosing each electric bulb and it is mounted upon the panel by a laterally projecting flange 43 which is seated in an annular socket 44. The socket comprises a curved outer flange 44 which receives a circular steel ring 46 which is depressed therein for supporting the glass dome in a manner similar to securing the glass lens in an automobile side lamp for example. By selecting the enclosing glass domes of suitable distinctive colors, the desired indications are provided, and for illuminating the same, any suitable low voltage incandescent electric bulbs may be utilized, such as flashlight, automobile or Christmas tree bulbs.

To facilitate interpreting the indications thus provided, I select the indicating signals of distinctive colors corresponding to the distinctive colors applied upon the outer surface of each of the divided recesses on the target board. In this

arrangement, the signal mounted adjacent the center of the panel represents the bull's eye recess at 13 and both are preferably colored red, as shown by the conventional shading. The outer ring 17 on the target is preferably colored yellow and the corresponding indicating light 33 is selected of similar color. The intermediate ring 15 of the target board is preferably colored green and the corresponding lamp 37 is also green. An audible signal 45 is mounted on the upper end of the target frame 11 directly above the lamp 35 for simultaneous operation therewith to announce a bull's eye hit by the player, and for this purpose, I utilize a small electric horn, buzzer or bell which is mounted upon and secured to the upper frame member 12 as by screws. The electrical conductors from the horn 45 extend through a suitable insulating bushing into the casing enclosed upon the back of the target panel.

In order to render the indications more effective, I preferably provide colored arrows 48 directed from the target board 5 toward the corresponding colored lights mounted upon the upper portion of the panel board. For this purpose, the "Celotex" facing 3 is cut out in the configuration of arrows, and suitable coloring material such as colored tinsel can then be applied directly to the panel board 1. Also the exposed surface of the facing 3 is preferably provided with a layer of tinsel having a metallic luster to present a bright ornate appearance. The tinsel may be applied with transparent lacquer. Also shellac or water-glass may be used for this purpose.

Mounted on the back of the target panel, I provide a suitable source of current such as a low voltage transformer 47 comprising a center tapped secondary winding 50 and having terminal posts 49, 51 and 53 connected therefrom. The primary winding 52 of the transformer connects through terminals 54 with service conductors L1 and L2 of a plug-in-cord 56 by which the indicating target may be plugged into a convenient service outlet.

The electric circuits for energizing the respective indicating lamps and the horn from the target are preferably disposed, as diagrammatically represented in Fig. 5. In this system the electrical conductor 27 which connects from the upper conductive layer 19 of the outer ring 17 of the target is extended to the terminal posts 53 on the low voltage transformer 47. As shown, the electrical conductor 27 is also extended through the target board for conductive connection with conductive layers 55 and 57 disposed respectively in the intermediate ring 15 and in the bull's eye aperture 13 of the target.

From the center terminal 51 of the secondary of the low voltage transformer, a conductor 59 is connected to one side of each of the ring indicating lights 33 and 37. From the other side of the indicating lamp 33, a conductor 61 is connected back to the second conductive layer 21 in the outer ring 17 of the target board. From the other side of the indicating lamp 37, a conductor 63 is connected back to a second conductive layer 65 provided in the intermediate ring 15 of the target.

The simultaneous operation of the lamp 35 and the audible member 45 comprises a heavier current load which pulls down the voltage of the small transformer 47 and these elements are therefore connected across the high voltage terminals of the transformer. For this purpose, I connect from the terminal 49 of the transformer, a conductor 65 which extends to one side of the

lamp 35 and to one side of the horn 45, and from the other side of each a conductor 67 is connected to the contact 69 of a relay. From the movable contact 71 of the relay, I provide a conductor 73 which is connected directly to the terminal posts 53 on the transformer. The relay winding 75 which operates the movable relay contact 71 is connected at one end to the conductor 59 and from the other end through a conductor 77 to a conductive layer 79 in the bull's eye.

In this manner, the low voltage current from the center tapped winding of the transformer, is utilized for energizing the relay winding 75 whenever a metallic pointed projectile pierces the bull's eye and contacts the conductive layers 57 and 79 thereon. The movable contact 71 of the relay is then pulled up to engage its stationary contact 69 which completes an energizing circuit through conductor 65, thence in parallel through lamp 35 and horn 45, by way of conductor 67, contacts 69 and 71, and conductor 73 to the terminal post 53 at the other end of the transformer secondary winding, thus applying the high secondary voltage for simultaneously operating the horn 45 and the lamp 35.

If desired the circuit controlling contacts 69 and 71 of the relay may be connected for controlling any high voltage signal device 97 from the high voltage service lines L1 and L2, as shown in Fig. 6. For this purpose a conductor 99 is extended from the service line L1 to the relay contact 69. From the movable relay contact 71 a conductor 101 is connected to one side of the high voltage signal 97, and from the other side thereof a conductor 103 returns to the other service main L2. The controlled device 97 may be any high voltage device either remotely or adjacently disposed.

When electrical service connections are not conveniently available, dry cell batteries may be conveniently utilized by omitting the transformer and relay and providing low-voltage flashlight bulbs, as shown in Fig. 7. In the battery controlled system, a conductor 105 connects from one side of a dry cell battery 107 to one side of each lamp and signal to be controlled. From the other side of the dry cell battery 107 a conductor 109 connects into the conductive layers 21 and 65 in the respective target rings. From the other side of lamp 33 a conductor 111 connects into the layer 19 in the outer target ring. From the open side of lamp signal 37 a conductor 113 is connected into the conductive layer 55 in the second target ring. And from the open sides of the other signals 35 and 45 a conductor 115 connects them in parallel relation to the conductive layer 79 in the bull's eye recess. The other conductive layer 57 in the bull's eye is connected through a conductor 117 to one terminal of a dry cell battery 119 from which the other terminal is connected with conductor 109. The batteries may be conveniently carried in the enclosure on the back of the target.

The dry cell batteries 107 and 119 are thus connected in series voltage additive relation and they supply 3 volts for energizing the parallel connected signals 35 and 45 through the bull's eye of the target. The lamp signals 33 and 37 each receive $1\frac{1}{2}$ volt current from the dry cell battery 107 as controlled through the first and second rings of the target respectively. For this arrangement suitable low voltage flash light bulbs should be used in the colored signals 33, 35 and 37, as will be understood.

After the target board 5 has been installed and

the circuits connected therefrom, as above set forth, a back cover 80 is secured over the frame by suitable screws 82 for completely enclosing and protecting the same, the plug-in-cord extending through a suitable bushing 84 therein.

In playing the game the players stand back from the target a predetermined distance of from 8 to 12 feet and throw the darts at the target. When a player throws a dart 31 which penetrates the outer recess or ring of the target, as shown in Fig. 5, it thereby conductively connects between the conductor layers 19 and 21 therein, and energizes the lamp 33 as indicated. This circuit may be traced from the center tapped terminal 51 of the transformer by way of a conductor 59 to one side of the lamp 33, thence by way of conductor 61 to the conductive layer 21 in the target ring, thence through the point of the dart 31 and by way of the other conductive layer 19 in the ring, through the conductor 27 to the other terminal post 53 of the transformer.

By this arrangement, comprising only half as many signals as target rings, the players are able to definitely ascertain what values they have earned as they throw their darts at the target. Also when a bull's eye is scored, an emphatic visual and audible indication is provided by the red light and the horn which are simultaneously operated, thereby tending to greatly increase the interest and fascination of the game to the players. The main point is obtained by a direct hit on the bull's eye but hits on the concentric rings, including the field rings, are lucky shots for which prizes are given according to the distance from the bull's eye. The signals also show whether a shot should be counted in a field ring or in the adjacent indicating ring when the dart is very close between.

If desired the conductive layers in the recesses of my target board may be provided by installing layers of fine mesh screen wire as shown in Fig. 4. For this purpose a layer 81 of screen wire of annular conformation is first disposed in the bottom of the recess provided in the target board. Electrically connecting from the screen wire, an insulated electric conductor 83 is provided which may be soldered therewith to provide permanent conductive protection. The electric conductor 83, which is covered with suitable insulation material 85, is led off through the back of the target board through a suitable bushing 87. After the annular ring-like layer of screen wire 81 is disposed in the bottom of the recess of the target board 5, melted paraffin or bees-wax, is poured in to provide a layer 89 of insulation thereon.

The second conductive layer is now provided by adding another layer of screen wire 91 thereon which is of suitable conformation to fit into the annular groove. Any suitable insulated electric conductor, may be soldered to the screen wire 91, and directed through the back of the target board, its insulation serving to insulate it from the first layer of conductive material 81 in the bottom of the recess. A second layer of melted insulating wax 92 is then poured into the recess to fill it level with the surface of the target board. The distinctive color is then applied upon the exposed surface of the recess in any suitable manner, as previously described.

Aside from the specific embodiments of the invention herein shown and described, it will be understood that numerous details of the construction may be altered or omitted without departing from the spirit and scope of the invention as disclosed and claimed, and that I do not desire to

limit the invention to the exact constructions herein set forth.

I claim as my invention:

1. A dart receiving target for an indicating target game comprising, a target board for receiving metallic pointed darts, a bull's-eye recess in said target board, concentrically disposed annular recesses in said target board surrounding said bull's-eye recess in substantially spaced apart relation to provide insensitive dart receiving areas therebetween, layers of metallic material disposed in spaced apart relation in said recesses for conductive connection through the metallic pointed darts received by the target board, layers of insulating wax congealed in said recesses for insulating and securing said layers of metallic material in spaced relation, and electrical conductors extending from said layers of metallic material through the back of the target board.

2. A dart receiving target for an indicating target game comprising, a target board for receiving metallic pointed darts, a bull's-eye recess in said target board, concentrically disposed annular recesses in said target board surrounding said bull's-eye recess in substantially spaced apart relation to provide insensitive dart receiving areas therebetween, layers of metallic material disposed in spaced apart relation in said recesses for conductive connection through the metallic pointed darts received by the target board, each of said recesses having side walls diverging apart toward the bottom of the recess to provide for complete penetration of the conductive layers by any dart entering the recess, insulating material spacing apart and insulating said conductive layers, and electrical conductors extending from said conductive layers.

ALBERT E. BROWNING.