Dec. 29, 1942. W. B. FERRIS 2,306,939

FLUORESCENT DEVICE FOR GAMES

Filed Sept. 5, 1940

Fig. 1.

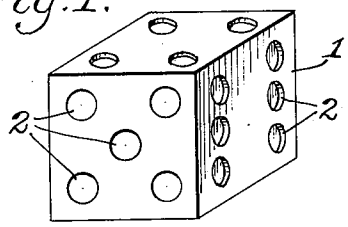


Fig. 2.

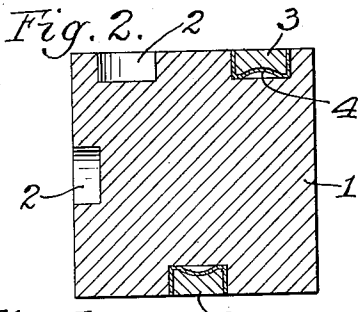


Fig. 3.

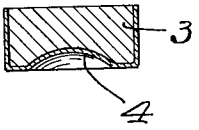


Fig. 4.

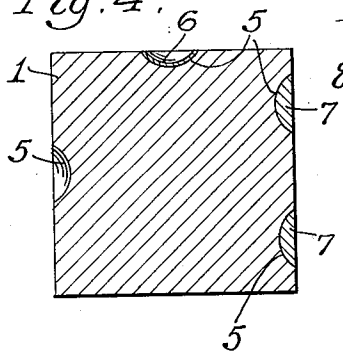


Fig. 5.

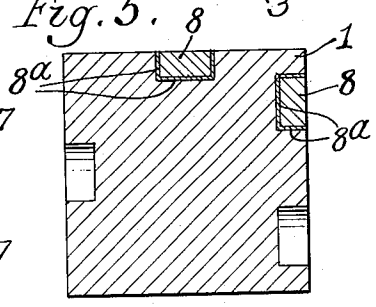


Fig. 6.

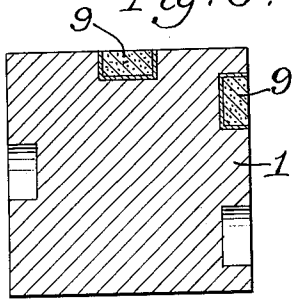


Fig. 7.

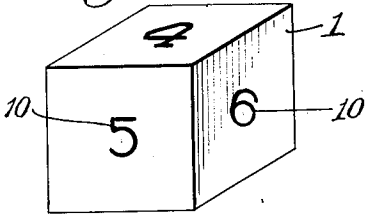


Fig. 8.

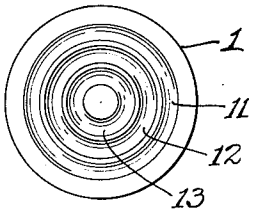


Fig. 10.

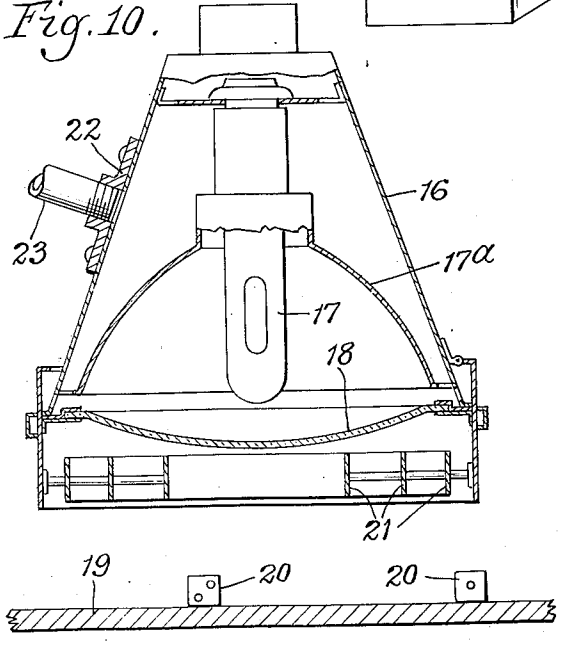
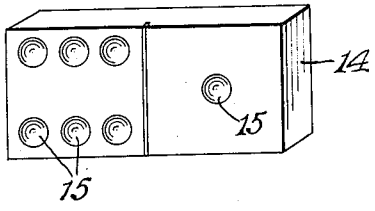


Fig. 9.



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UNITED STATES PATENT OFFICE

2,306,939

FLUORESCENT DEVICE FOR GAMES

Warren B. Ferris, Chicago, Ill.

Application September 5, 1940, Serial No. 355,480

7 Claims. (Cl. 250—71)

This invention relates to fluorescent devices for games and has for its object to provide a new and improved device of this description. The invention has as a further object to provide devices with fluorescent spots or characters thereon, to be used in games, such as parcheesi, backgammon, dominoes, the game of football, monopoly, cargo, nuggets, mah-jongg, and other games. In such games, for example, as parcheesi, backgammon, the game of football, and monopoly, dice are thrown for the purpose of indicating the position of the player and also for indicating the position of the player and also for counting. In the game of cargo, the dice instead of having spots, have numerals. The old game of parcheesi, for example, is played by four players. Each player has two dice and the players take turns in throwing the dice. When any given player throws the dice, the player adds up the spots on the tops of the two dice after they have come to rest, and moves such player's counter on the board with which the game is played, the number of spaces which the summation of these spots represent. For example, if the player throws the dice and the spots on the tops of the dice when they come to rest, add up to five, the player then moves his counter on the board five spaces toward the goal or home. The next player throws the dice and moves such player's counter on the board the number of spaces represented by the summation of the spots on the tops of the two dice when they come to rest. The first player whose counter reaches home, wins the game. The use of the fluorescent devices produces a startling effect and very greatly increases the interest in this game and in any other games where the fluorescent devices are used. The foregoing is simply illustrative and these fluorescent devices may be used for many other purposes and will increase the interest wherever they are used and act to dramatize the game in which they are employed.

The invention has as a further object to provide cold illuminated fluorescent devices with characters thereon, which are illuminated to very great brilliancy without the production of any heat.

The invention has as a further object to provide illuminated fluorescent devices, such as dice, which shall be balanced in weight so as to be accurate at all times. The invention has as a further object to provide illuminated fluorescent devices, such as fluorescent dice, the spots or characters of which stand out with such brilliancy as to cause the body of the dice carrying the spots or characters to sink into comparative obscurity.

The invention has as a further object to provide what may be called "safety dice," that is dice which cannot be changed after they are purchased so as to have the same number of characters on more than one side.

The invention has as a further object to provide dice which cannot be easily palmed, as the fluorescent spots will show through the fingers if palming is attempted. The invention has further objects which are more particularly pointed out in the accompanying description.

Referring now to the drawing,

Fig. 1 is a perspective view of one form of dice embodying the invention;

Fig. 2 is an enlarged sectional view showing one of the spot forming plugs in position and a recess or hole for another spot forming plug before the spot forming plug is placed in position;

Fig. 3 is a sectional view through the spot forming plug before it is placed in position in the body portion;

Fig. 4 is a view showing a modified construction;

Fig. 5 is a view showing a further modified construction;

Fig. 6 is a view showing a further modified construction;

Fig. 7 shows a modified construction where figures instead of spots are used on the dice;

Fig. 8 shows one of the devices in the game of mah-jongg;

Fig. 9 is a view showing a domino embodying the invention;

Fig. 10 is a view showing one form of lamp for directing ultra-violet, near ultra-violet or black light upon the devices.

Like numerals refer to like parts throughout the several figures.

Referring to the dice construction shown, for example, in Figs. 1, 2 and 3, which is the preferred construction, there is provided a dice body 1, preferably in the form of a cube, having a plurality of sides, with spots on the various sides differing in number, as for example, from one to six. The body portion of the dice may be made in any desired manner and out of any desired material and may be of any desired color. I prefer to make it out of dark or black material, the material being preferably plastic material.

In the construction shown in Figs. 1 to 3, the spots are made by forming holes 2 in the body portion 1 and inserting plugs 3 in these holes. These plugs are made in any desired manner and are made of a material which has substantially the same weight per cubical contents as the material out of which the body portion of the dice is made, that is the same specific gravity as the material out of which the body portion of the dice is made, so that the dice will remain perfectly balanced when these plugs are inserted. In the preferred construction the plugs are made of transparent or translucent plastic material and

this plastic material is impregnated in its soft or liquid state with fluorescent material and then hardened and formed into plugs. Any suitable fluorescent material may be used. Before the plug is inserted in the hole 2 in the dice the walls of the hole are lined with fluorescent material. The bottom of the plug is preferably shaped to form a lens 4, the face of which is covered with fluorescent material. This fluorescent material on the lens and the walls of the hole may be placed in position in any desired manner, preferably by spraying. The fluorescent coating on the walls of the hole consists preferably of fluorescent cement.

By providing this lens construction of the plug and coated with fluorescent material, and by coating the walls of the hole with fluorescent material, I have found that an extreme brilliancy is produced in the plug and the top surface thereof, amplifying its brilliancy many times. Furthermore, by having the lens construction at the bottom of the plug, there is produced a small open space between the bottom of the plug and the bottom of the hole and this prevents any contact of the coating on the lens with the bottom of the hole or with any solvent material that might be in the cement used, thus preventing such solvent material from attacking this fluorescent backing or coating and reducing or eliminating its efficiency.

By having this fluorescent backing or coating, the light entering the plug is reflected outwardly, some of it being reflected straight outwardly and some of it striking the fluorescent coating on the walls of the hole and being reflected at different angles, and this forms, as it were, a halo about the plug. When the dice, for example, are made of plastic material and with the fluorescent plugs, with the fluorescent coating on the walls of the hole, and with the lens forming a part of the plug with the fluorescent coating, there is produced a dice wherein the spots stand out with very great brilliancy, particularly when near ultra-violet or ultra-violet light with the visible rays filtered out, and known as black light, is directed upon them and when these black dice are thrown upon a black surface, the body of the dice is hardly visible and the spots stand out with great brilliancy, so that the attention is directed to these spots alone, thereby producing a very alluring, seductive device which captivates the attention and greatly increases the interest in all games in which these fluorescent dice are used. The outstanding things about the dice are these exceedingly brilliant spots. The spots may be made of different colors on the different faces of the dice. It is exceedingly fascinating to throw fluorescent dice and see them roll over with their brilliantly illuminated spots flashing as they roll along, and then see them stop with certain of these brilliantly illuminated spots on top and which stand out with such sparkling radiance that the dice themselves are scarcely noticeable, particularly when the dice are black and are thrown upon a black background.

In Fig. 4 I have shown a modified construction wherein the body portion 1 of the dice has a series of recesses 5 which are preferably circular, the walls of the recesses having a coating 6 of fluorescent material. The recesses may also be filled with fluorescent material 7, as shown in this figure.

Fig. 5 shows a further modification wherein the dice body portion 1 has a plurality of holes therein and in these holes are inserted plugs 8 preferably of transparent or translucent material, flat on the top and bottom. Either the bottoms of the plugs, or the bottoms of the holes, or both, are coated with fluorescent material 8a and the plugs inserted in the holes.

In Fig. 6 I have shown a further modified construction wherein the dice body portion 1 is provided with a plurality of holes in which are inserted plugs 9 of transparent or translucent plastic material impregnated with fluorescent material. These plugs thus formed may be used alone, or in addition, the bottoms of the holes and the bottoms of the plugs are coated with fluorescent material and the side walls of the holes are also coated with fluorescent material. This latter coating may, if desired, constitute a cement for cementing the plugs in position. It is of course evident that all of the plugs may be held in position in any desired manner, either by cement, or a tight fit, or by any other suitable means.

In Fig. 7 I have shown a further modified construction where figures 10, instead of spots, are used on the dice, these figures being placed on the sides of the body portion 1 and being made fluorescent by any suitable means, such, for example, as herein set forth.

In the game of mah-jongg the devices used have fluorescent Chinese characters thereon. One of these devices, for example, has circles thereon, as shown in Fig. 8, where the body portion 1 is provided with three grooves 11, 12 and 13, these grooves being made fluorescent by any of the means herein set out.

In Fig. 9 I have illustrated a domino embodying the invention, which consists of a body portion 14 and having a series of fluorescent spots 15 which are made fluorescent by any of the means herein set out.

In all of these devices when black light is directed on them the fluorescent coating acts to reflect the black light and in addition, the fluorescent material is activated to increase the reflective character so as to increase the amount of light sent out by the spots or characters and produces a startling illumination of the spots or characters. The spots or characters may be colored and I have secured the best results by using the red, green and yellow colors.

In Fig. 10 I have shown one form of lamp for directing filtered ultra-violet or black light upon any of the devices to be used. This consists of an enclosing shade 16 with a lamp 17 therein and a filter 18 between the lamp and the devices upon which the light is projected. There is a board or fluorescent device support 19 upon which the games are played and upon which the black light is directed, the fluorescent devices 20 being used on this board or fluorescent device support.

In the specification and claims I have used the term "black light" to mean ultra-violet light or near ultra-violet light with the visible rays filtered out.

In order to insure the balancing of the dice when the plugs are formed with lenses at the bottom, thus providing empty spaces in the end of each plug, I prefer to arrange the specific gravity of the material of the plugs which form the spots, to compensate for the reduction of the material due to the forming of these lenses. For example, the six spots and the one spot are on opposite sides of the dice. The side with the six spots will therefore have six small spaces at the ends of the plugs, having no material therein. In order to prevent this side from being lighter, the specific gravity of the plugs in these spots would be greater than that of the plug forming

the one spot on the opposite side. It is of course evident that other means of compensating for these lenses may be used.

The means for producing the black light and directing it upon the support and the fluorescent devices thereon may be of any suitable construction. In my application filed of even date herewith, I have shown and described one form comprising a quartz mercury ultra-violet lamp and the associated apparatus.

In Figure 10 I have shown a similar lamp having a reflector 17a and light directing devices 21, which direct the light vertically down on the fluorescent articles. In this Figure 10 I have shown a supporting device consisting of a member 2 connected with the casing and a threaded part 23 to which any suitable support may be connected.

The fluorescent characters on the devices are brightly illuminated and shine out brightly even when in a strongly lighted room, where the room is lighted either by daylight or ordinary electric light.

While in the preferred form the plugs are of transparent or translucent material of the desired color, I may use opaque plugs impregnated with fluorescent material.

I claim:

1. As an article of manufacture a device for use in playing games comprising a movable body portion provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, said faces having fluorescent spots thereon invisible in the dark, said body portion adapted to be thrown upon a supporting surface so as to roll therealong and expose different faces successively to view to bring different spots on said faces to view, which spots become successively brightly illuminated when subjected to black light as said body portion rolls along said supporting surface.

2. As an article of manufacture a device for use in playing games comprising a movable body portion provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other said faces having fluorescent spots of various colors thereon invisible in the dark, said body portion adapted to be thrown upon a supporting surface so as to roll therealong and expose different faces successively to view to bring different spots on said faces to view, which spots become successively brightly illuminated variously colored spots, when subjected to black light, as said body portion rolls along said supporting surface.

3. As an article of manufacture a device for use in playing games comprising a plurality of separate movable body portions, each provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, the faces of all of said body portions having fluorescent spots thereon, invisible in the dark, said plurality of body portions adapted to be simultaneously thrown upon a supporting surface so as to simultaneously roll therealong and simultaneously expose different faces of said body portions to view to bring different spots on said faces to view, which become successively brightly illuminated when seen from the point of view of an observer, when subjected to black light as said plurality of body portions roll along said supporting surface.

4. As an article of manufacture a device for use in playing games comprising a plurality of separate movable body portions, each provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, the faces of all of said body portions having fluorescent spots of various colors thereon, invisible in the dark, said plurality of body portions adapted to be simultaneously thrown upon a supporting surface so as to simultaneously roll therealong and simultaneously expose different faces of said body portions to view to bring different spots on said faces to view which become successively brightly illuminated variously colored spots when seen from the point of view of an observer when subjected to black light as said plurality of body portions roll along said supporting surface.

5. As an article of manufacture a device for use in playing games comprising a movable body portion provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, said faces being provided with holes, plugs impregnated with fluorescent material, and differing in color from said body portion, in said holes, providing fluorescent spots thereon invisible in the dark, each of said sides being provided with a different number of plugs, said body portion adapted to be thrown upon a supporting surface so as to roll therealong and expose different faces successively to view to bring different spots on said faces to view, which spots become successively brightly illuminated when subjected to black light as said body portion rolls along said supporting surface.

6. As an article of manufacture a device for use in playing games comprising a movable body portion provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, said faces being provided with holes, plugs impregnated with fluorescent material, and differing in color from said body portion, in said holes, providing fluorescent spots thereon invisible in the dark, each of said sides being provided with a different number of plugs, certain of said faces having plugs of different color from those on other faces of said body portion, said body portion adapted to be thrown upon a supporting surface so as to roll therealong and expose different faces successively to view to bring different spots on said faces to view, which spots become successively brightly illuminated variously colored spots when subjected to black light as said body portion rolls along said supporting surface.

7. As an article of manufacture a device for use in playing games comprising a plurality of seperate movable body portions, each provided with a plurality of outer flat faces, the adjacent flat faces being substantially at right angles to each other, the faces of all of said body portions having fluorescent spots thereon, invisible in the dark, said plurality of body portions adapted to be simultaneously thrown upon a supporting surface so as to simultaneously roll therealong and simultaneously expose different faces of said body portions to view to bring different spots on said faces to view, and means for directing black light simultaneously upon all of said body portions as they roll along said supporting surface to simultaneously cause certain of the spots on certain of the faces of said plurality of body portions to become brightly illuminated spots when seen from the point of view of an observer in proximity to said supporting surface.

WARREN B. FERRIS.