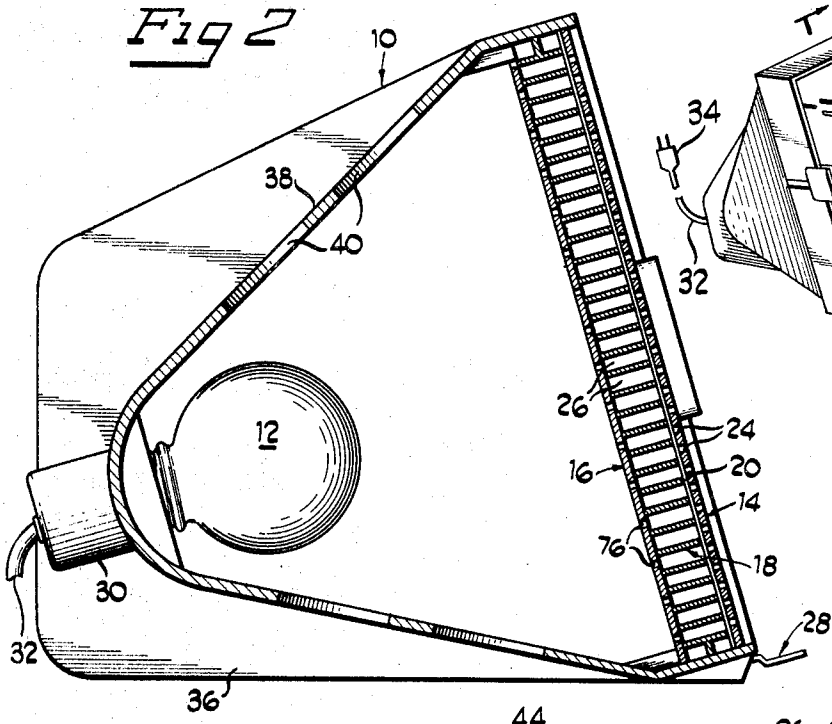
Sept. 29, 1970 B. C. MEYER 3,530,615

ILLUMINATED DESIGN SET

Filed May 13, 1968 2 Sheets-Sheet 1

Fig 2



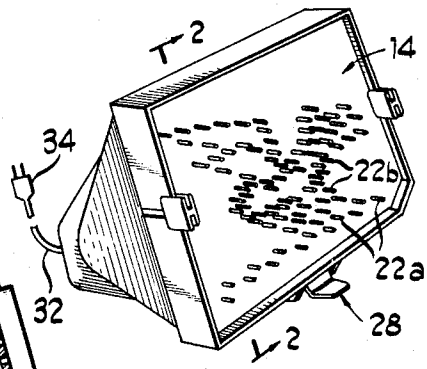
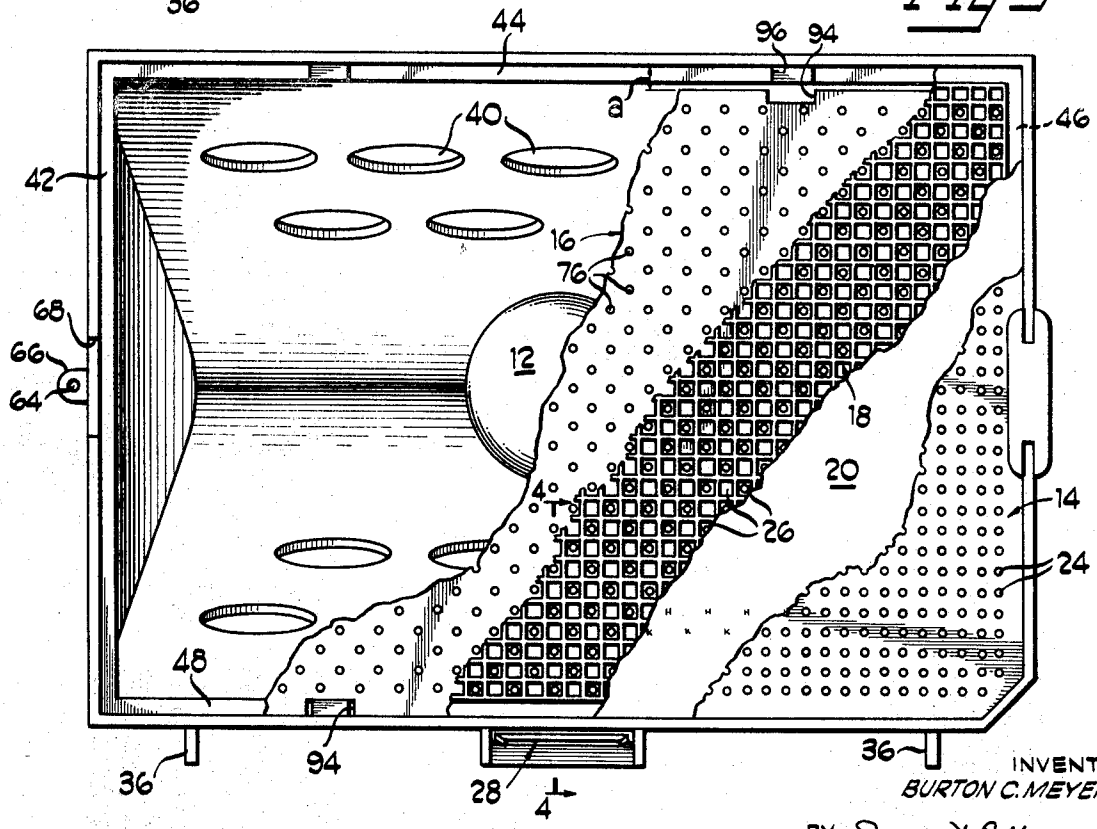


Fig 1

Fig 3



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ILLUMINATED DESIGN SET

Filed May 13, 1968 2 Sheets-Sheet 2

Fig 5

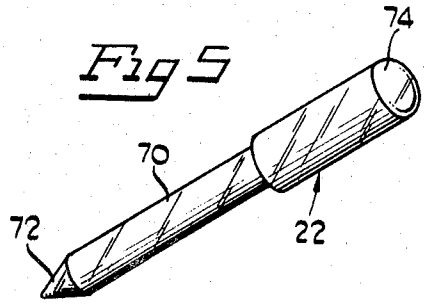


Fig 4

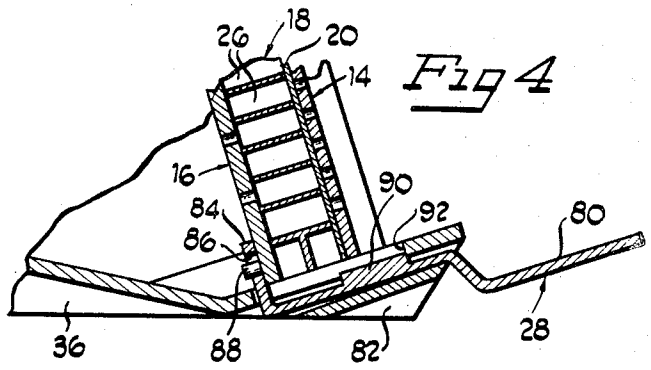


Fig 6

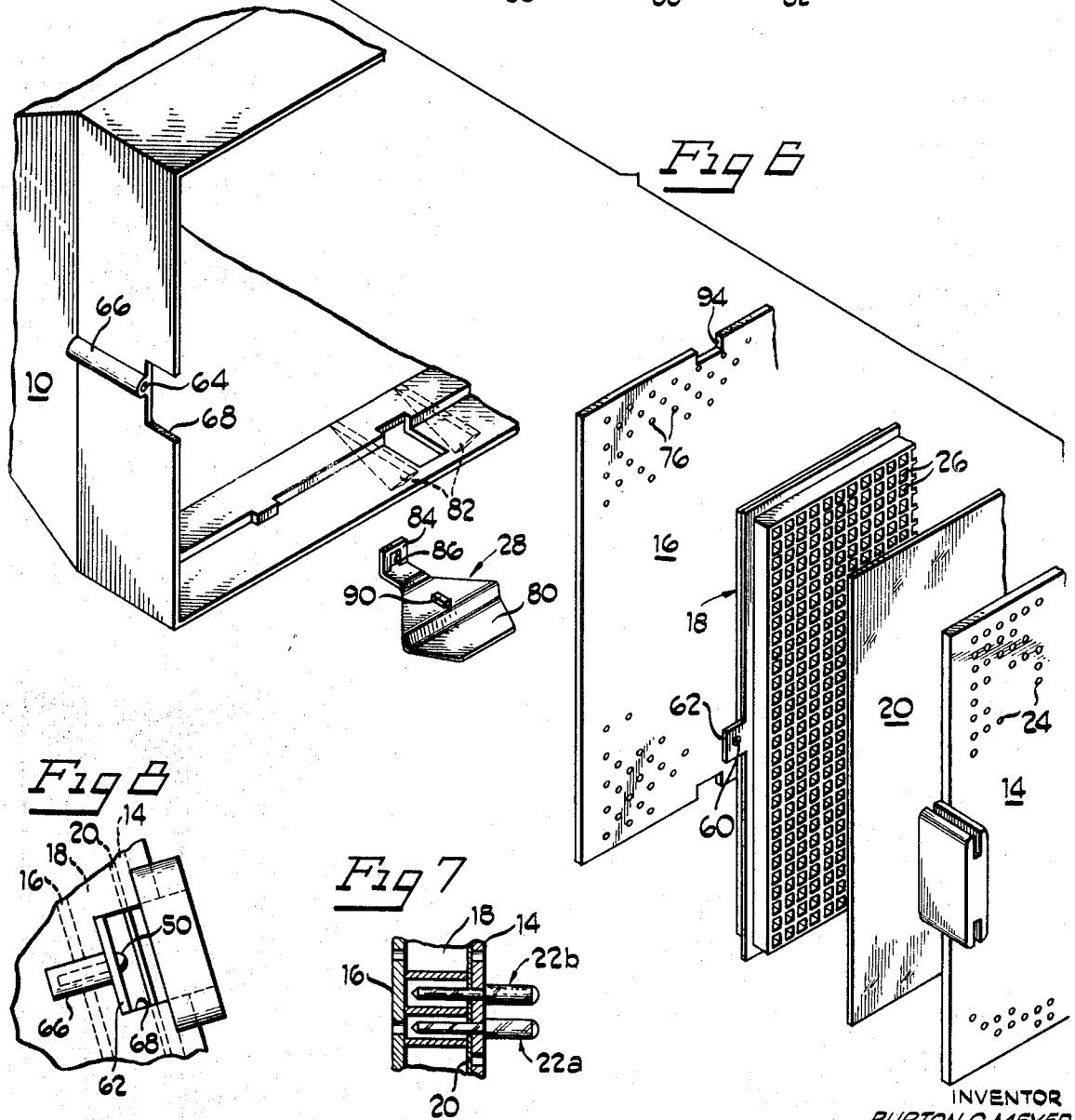


Fig 8

Fig 7

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United States Patent Office 3,530,615
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3,530,615

ILLUMINATED DESIGN SET

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Filed May 13, 1968, Ser. No. 728,488
Int. Cl. A63h 33/00
U.S. Cl. 46—16 2 Claims

ABSTRACT OF THE DISCLOSURE

A toy for creating illuminated designs and means for providing the illusion of motion to the designs including a housing with a light source therein, a pair of perforated sheets and an intermediate grid disposed in covering relation to a front opening in the housing, and a plurality of translucent pegs adapted to be inserted in the front perforated sheet and the grid. The rear perforated sheet is movable to permit light to be transmitted through alternate openings in the grid and front sheet and thereby alternately transmit light to adjacent pegs in the front sheet.

BACKGROUND OF THE INVENTION

Means for providing changeable illuminated designs have been in use for some time, particularly in advertising displays. The present invention is particularly directed to a design set which enables a child to produce either a predetermined design or a design of the child's choice, wherein the design is illuminated and the illusion of motion for the design can be effected by simply moving a lever.

SUMMARY OF THE INVENTION

A design set for creating illuminated designs and providing the illusion of motion to the design, comprising a housing including a source of light and having an enlarged opening opposite the light, a first perforated plate positioned in covering relation to the opening and movable in its plane, a cellular grid structure superposed over said first plate, an opaque, frangible sheet covering said grid structure, a second perforated plate disposed over said opaque sheet, and a plurality of translucent pegs adapted to be inserted in the openings in said second plate in penetrating relation to the opaque sheet and the grid structure.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the design set;

FIG. 2 is an enlarged sectional view taken along the line 2—2 in FIG. 1;

FIG. 3 is an enlarged front plan view of the design set with parts broken away;

FIG. 4 is an enlarged fragmentary sectional view taken generally along line 4—4 in FIG. 3;

FIG. 5 is an enlarged perspective view of one of the translucent pegs;

FIG. 6 is an exploded perspective view of the design set with parts broken away;

FIG. 7 is a fragmentary sectional view, similar to FIG. 4 with translucent pegs added; and

FIG. 8 is an enlarged fragmentary, side elevational view of the panel positioning means seen also in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference particularly to FIGS. 1–3 of the drawings, it is seen that the selected embodiment of this invention comprises a generally concave housing **10** having an enlarged opening across the front portion thereof and including a light source **12**. Removably mounted within the front opening are a pair of perforated plates **14** and **16** separated by a grid structure **18**. A sheet of frangible opaque material **20**, such as black paper, is disposed between the grid **18** and the front plate **14**, and a plurality of translucent pegs **22** are positioned as desired by inserting them in the openings **24** of the front plate, so that a portion of each peg pierces the opaque sheet **20** and is disposed within a cell **26** of the grid **18** while an enlarged end portion remains exposed at the front of the housing. Due to the structural relationship of the perforated sheets **14** and **16** and the grid **18**, the light from the lightbulb source **12** is transmitted through certain ones of the translucent pegs when the movable rear perforated sheet **16** is in a lower position. Upon raising the rear sheet **16**, by means of a lever **28**, the light is then transmitted through certain other of the translucent pegs. Consequently the raising and lowering of the rear perforated sheet provides an illusion of movement of the light transmitted through the pegs and an accompanying movement of the design formed by the pegs.

More particularly, the housing **10** is formed of metal but may be of plastic or other suitable material, and a conventional light socket **30** is provided with an electric cord **32** and plug **34**, which is adapted to be received by a conventional wall socket in the home. The lightbulb **12** is received in the socket **30** at a position to the rear and generally centrally of the housing **10**. A pair of ribs **36** or the like are preferably formed with, or attached to, the housing to provide means for supporting the housing on a plane surface such as a table. The rear wall portions **38** of the housing **10** are preferably provided with a plurality of openings **40** therethrough for escapement of the heat produced by the bulb. In this respect, the inner wall surfaces of the housing are preferably provided with a light reflecting surface of coating material, such as white paint, metal foil or the like, so as to amplify or reflect the light produced by the bulb and thereby reduce the wattage of the bulb required.

The marginal edge portions of the housing **10**, which define the front opening are suitably formed with ledges **42, 44 46** and **48** around all four sides to supportingly receive sheet material in closing or covering relation to the opening. In the illustrated embodiment, the opening is covered by a first perforated sheet or panel **16**, which may be of plastic or other suitable material and having a width generally conforming with that defined by the ledges **42, 46** and having a depth or height which is less than that defined by the top and bottom ledges **44** and **48**. Thus, as seen particularly in FIG. 3, the rear perforated sheet **16** is adapted to be shifted vertically a relatively short distance, indicated at *a*, for reasons to be explained later.

Overlying the rear perforated sheet **16** is the cellular or grid structure **18** having a length and width such that it nests closely within the edges defining the housing opening and is supported by ledges **42, 44, 46** and **48**. This grid is removably fixed in position by a pair of screws **50** (FIG. 8) or the like, which extend through openings **60** in tab portions **62** formed on the opposite sides of the grid **18** and through aligned openings **64** formed in bosses **66** on the opposite sides of the housing **10**. A notch **68** is formed on each side of the housing for locating and receiving the tab portions **62**. The rear perforated sheet **16** and the grid structure **18** are normally retained in position on the housing and need only be removed for access to the bulb **12** in order to replace the latter.

A sheet of frangible opaque material **20**, such as black construction or drawing paper, is placed across the front of the grid **18** and in turn is covered by the removable front perforated plate **14**. The sheet **20** may be printed with a code, such as numbers, colors, etc. which are viewable through the openings **24** in the front perforated sheet, in

order to provide instructions for insertion of particular translucent pegs to achieve a predetermined design. The translucent pegs **22** are preferably of plastic and in various colors. One end **70** of each peg is of a reduced diameter and terminates in a cone **72**. The opposite end **74** of the peg is preferably rounded and enlarged. The reduced end portion **70** conforms closely with the size of the openings **24** in the front plate **14**, and the length of such portion is such that it projects into the grid **18** substantially the entire depth thereof (FIG. 7). The cone shaped end **72** of each peg **22** and the proximity of such end to the light source within the housing serves to provide for a maximum of transmission of light to the exposed outer end **74** of the peg. It will be noted that the openings **24** in the front perforated sheet **14**, the cells **26** in the grid structure **18**, and the openings **76** in the rear perforated sheet **16** are aligned vertically and horizontally. Further, the center of each opening **24** in the front perforated sheet **14** is aligned with the center of one of the square cells **26** in the grid structure **18**. However, it will also be noted that the openings **76** in the rear perforated sheet **16** are double spaced horizontally with respect to the openings **24** in the front perforated sheet **14**. That is, openings **76** in rear sheet are aligned horizontally with every other opening **24** in front sheet **14**. As seen particularly in FIGS. 4 and 7, this arrangement provides for blocking off alternate cells **26** from the light source, so that in either position of the rear perforated sheet **16** the light from the bulb is transmitted only through every other cell **26** and aligned opening **24** in the front sheet **14**. Consequently, by proper placement of translucent pegs **22** and by repeatedly shifting the rear sheet **16** up and down, alternate sets of pegs are illuminated to provide the illusion of motion to the design.

The described movement of the rear perforated sheet **16** is achieved through the lever **28**, which is seen particularly in FIG. 4 and which includes a portion **80** projecting from the front of the housing **10**. The lever **28** is disposed in pivotal relation to a pair of flanges **82** formed at the bottom of the housing, and includes a vertically extending rearward portion **84** having an opening **86** therein for engaging a pin **88** fixed to the rear of the perforated plate **16**. An intermediate portion of lever **28** is provided with a boss **90** or the like for guidedly engaging a forward edge **92** of an opening in the housing lower wall as seen in FIG. 4. Consequently, as lever **28** is depressed at the front, the engagement at the rear with the pin **88** effects elevation of the rear perforated plate **16** through the distance *a* (FIG. 3) to a position with the upper edge of such plate engaging the upper edge of the housing. Accompanying this upward shifting movement of the rear plate **16** is a movement of the openings **76** therein so as to provide for transmission of light through those cells in the grid **18** which were previously blocked off by the plate **16**. Consequently, if two of the translucent pegs **22** are positioned in vertically adjacent openings **24** in the front plate **14**, one of such pegs will be capable of transmitting light whereas the other peg will be dark when the rear plate **16** is in one of its two positions. The shifting of the plate vertically will result in a reversal of this situation, wherein the formerly dark peg will be illuminated and the formerly lighted peg will be dark. This is illustrated simply in FIG. 1, wherein the dark pegs **22***a* represent those positioned similarly to peg **22***a* in FIG. 7 and the light pegs **22***b* are those aligned with an opening **76** in the rear plate **16**, as also seen in FIG. 7.

It will be apparent that proper alignment of the front plate **14**, the grid **18**, and the rear plate **16** are essential in order to produce satisfactory results with the described

design set. In this respect, the rear plate **16** includes a pair of cut-out portions **94** along its top and bottom edges which are adapted to receive complementary bosses **96** formed along the top and bottom ledges **44** and **48**. This arrangement will assure proper positioning of the rear plate **16** in both its raised and lowered positions.

With the described apparatus, designs may be made at random using either colorless or color pegs in any combination thereof, or predetermined designs might be made as suggested previously. In the latter case, the sheets of paper **20** will have code markings thereon which appear through the openings **24** in the front panel **14** and the user will insert translucent pegs in accordance with such code markings.

The perforated sheets **14**, **16** and grid **18** are of opaque material, in order to prevent light from passing therethrough except through the openings provided, and are preferably black molded plastic sheets.

Although shown and described with respect to particular apparatus and material it will be apparent that modifications might be made without departing from the principles of this invention.

What is claimed is:

1. A design set for creating illuminated designs comprising a generally enclosed housing having a source of light therein and an enlarged opening generally opposite the position of said light source, a first perforated plate positioned in covering relation to said opening and movable a relatively small distance in the plane of said plate, said first perforated plate is provided with a plurality of openings which are uniformly spaced and aligned diagonally of the plate, a grid structure positioned in superposed relation to said first plate, said grid structure comprises a plurality of cells having a substantial depth and aligned horizontally and vertically, said cells being uniformly spaced and arranged so that alternate cells both horizontally and vertically are each aligned with an opening in said first perforated plate, a sheet of generally opaque, frangible material disposed in covering relation to said grid structure, a second perforated plate positioned in superposed relation to said opaque sheet and including a plurality of openings axially aligned with each of the cells in said grid structure, and a plurality of translucent pegs adapted to be inserted in the openings in said second perforated plate in penetrating relation to said opaque sheet and said grid structure.

2. A design set in accordance with claim **1**, including means connected with said first plate and having a portion projecting outwardly of said housing, whereby movement of said projecting portion produces movement of said first plate relative to said grid structure.

References Cited

UNITED STATES PATENTS

1,114,267	10/1914	Jones	40—133
1,594,703	8/1926	Ballerini.	
2,068,827	1/1937	Tompkins	40—133
2,149,363	3/1959	Rivkin	40—28
3,082,560	3/1963	Elvestrom	40—137

FOREIGN PATENTS

502,853	7/1930	Germany.

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U.S. Cl. X.R.

40—133