United States Patent [19]

Trop

[11] **3,760,176**

[45] **Sept. 18, 1973**

[54] **LIGHT MACHINE**

[76] Inventor: **Lawrence B. Trop,** 3714 Englewood Blvd., Los Angeles, Calif. 90066

[22] Filed: **Sept. 24, 1971**

[21] Appl. No.: **183,530**

[52] **U.S. Cl.** **240/10.1**

[51] **Int. Cl.** **F21p 3/00**

[58] **Field of Search** 240/10.1; 353/1

[56] **References Cited**

UNITED STATES PATENTS

3,166,973	1/1965	Healey	353/1
475,594	5/1892	Moe	240/10.1
2,107,860	2/1938	Gilbert	240/10.1
3,609,339	9/1971	Smith	353/1

Primary Examiner—Samuel S. Matthews
Assistant Examiner—Russell E. Adams, Jr.
Attorney—Vernon D. Beehler et al.

[57] **ABSTRACT**

A machine for generating multicolored moving light patterns in which light from a source is projected through a plurality of counterrotating transparent globes onto a translucent cover so that constantly changing, never repeating colored light patterns are visible on the surface of the translucent cover.

3 Claims, 4 Drawing Figures

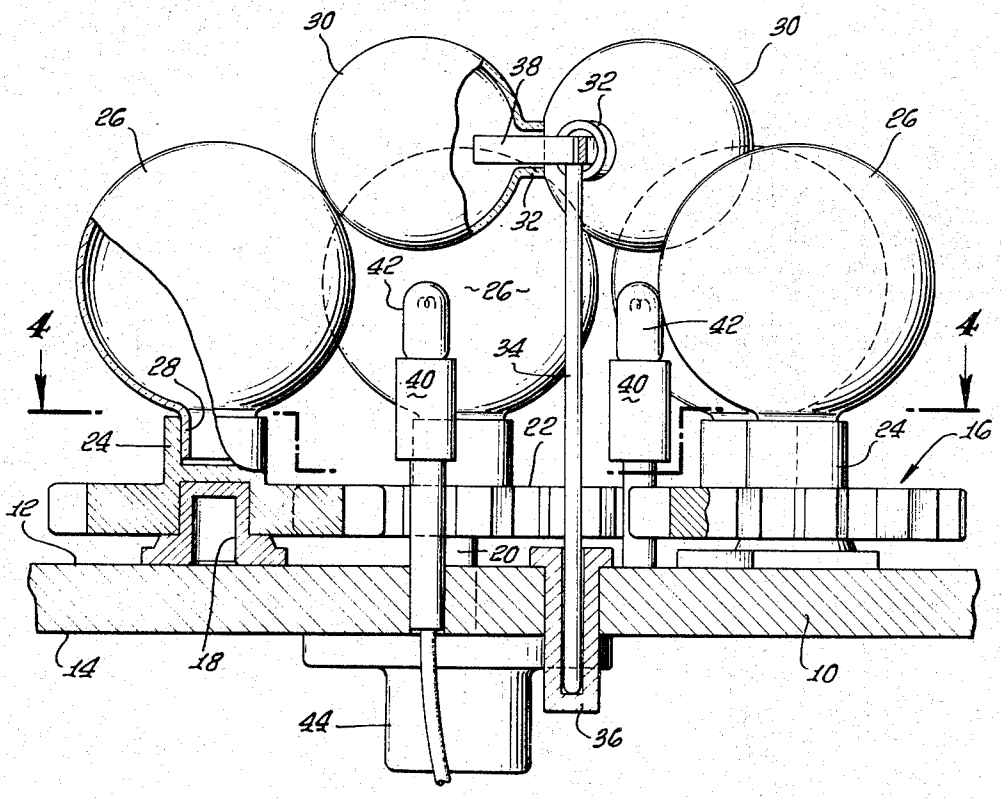


FIG. 1.

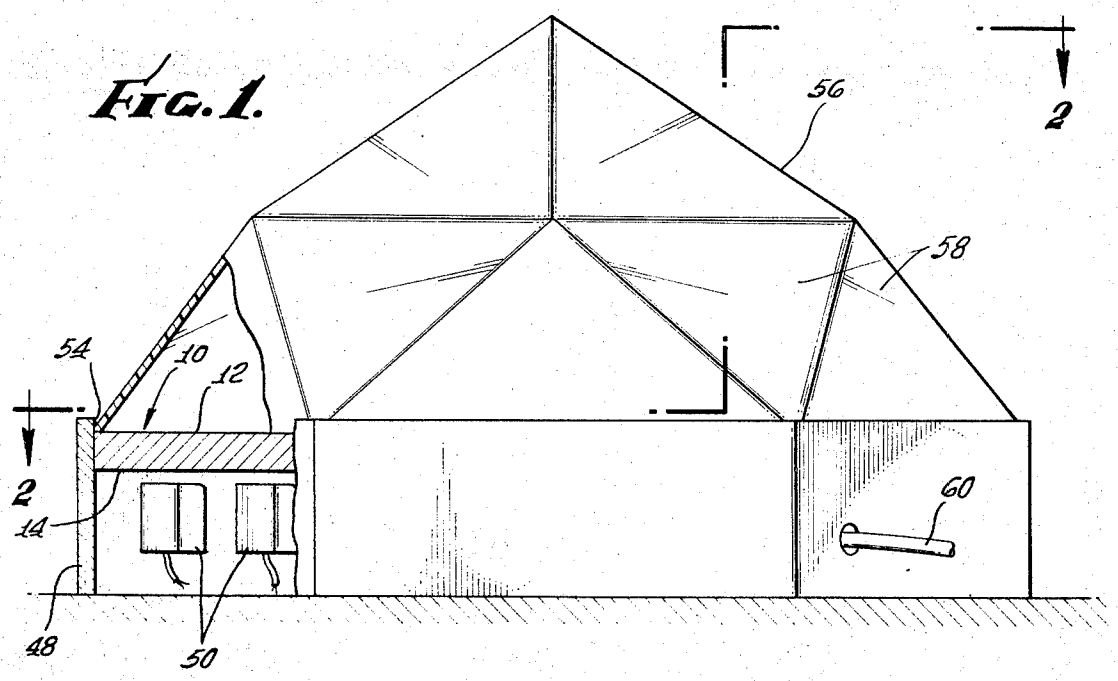

56
2
58
54
10
12
2
14
60
48
50

FIG. 2.

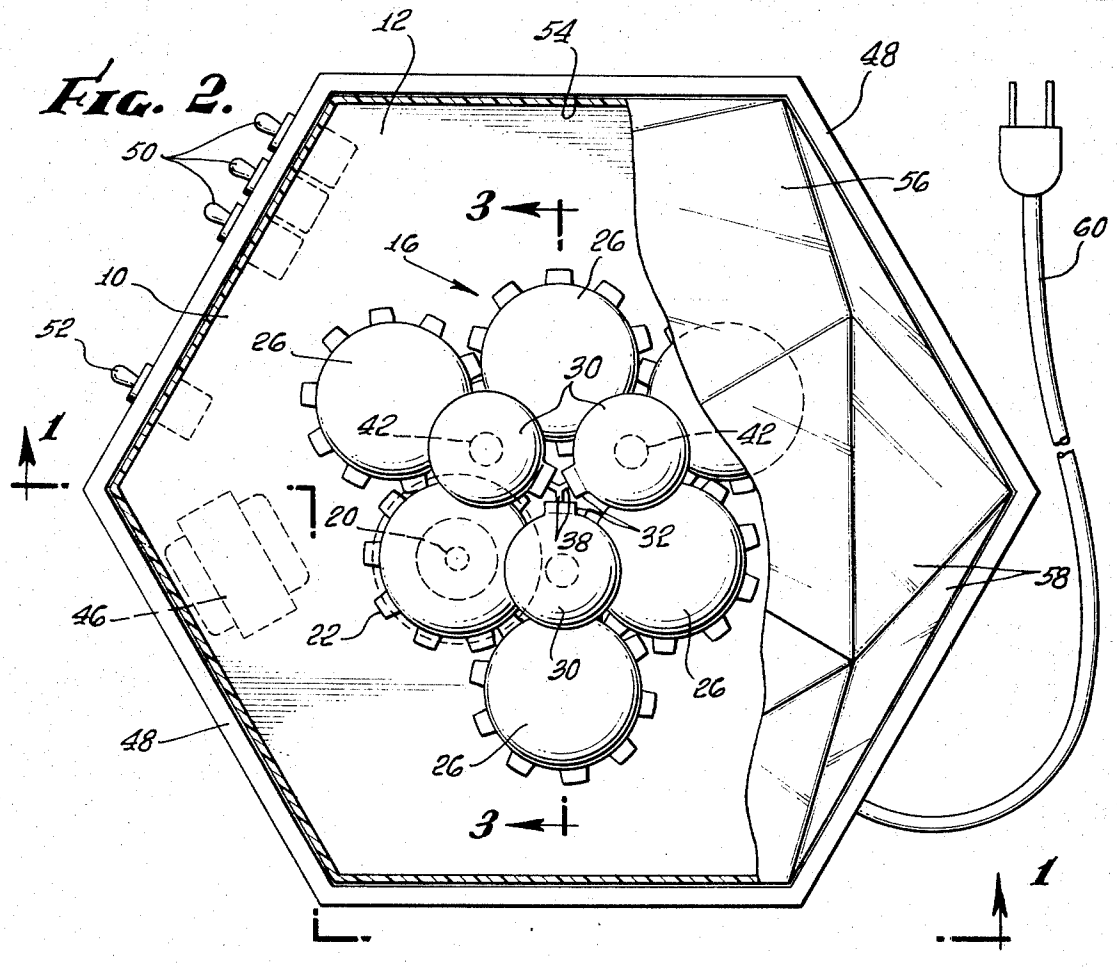

12
54
48
50
56
3
60
16
26
10
52
26
30
1
42
42
20
38
32
58
46
22
30
26
48
26
3
1

FIG. 3.

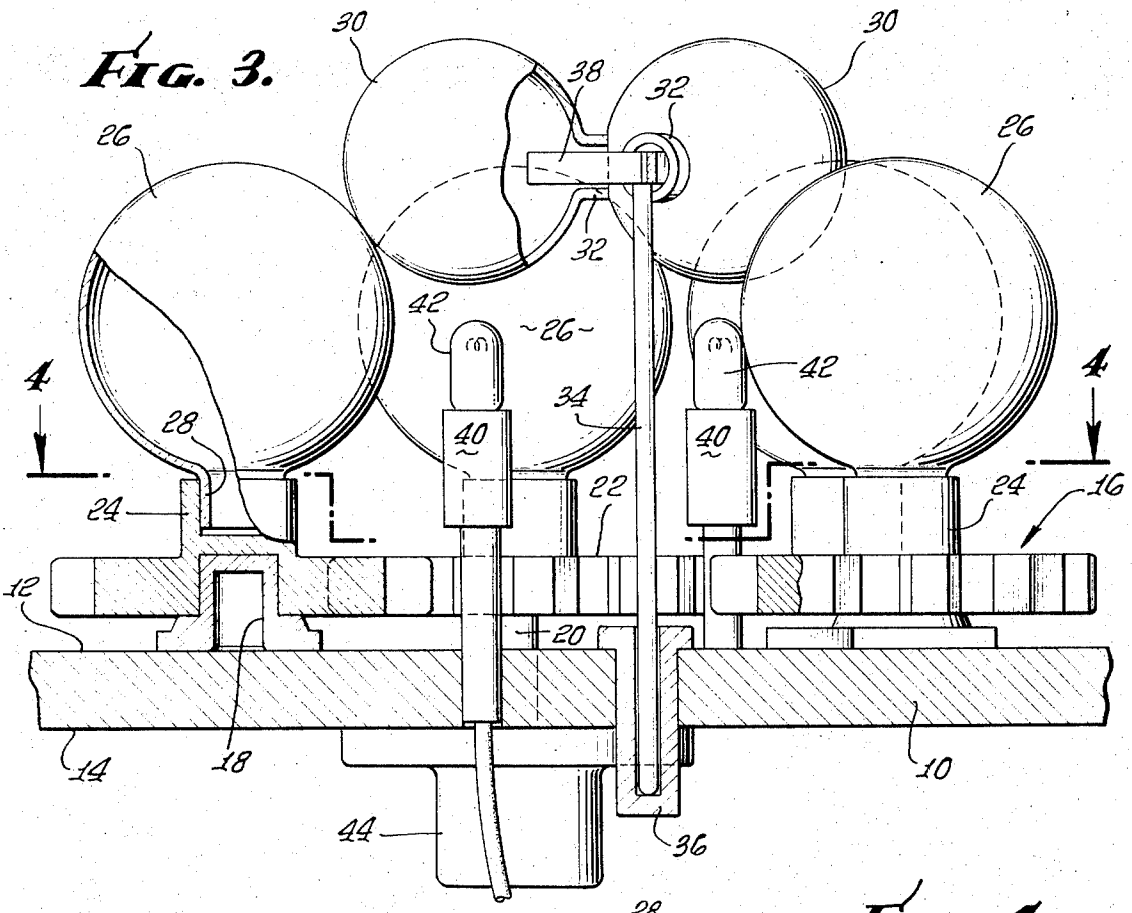
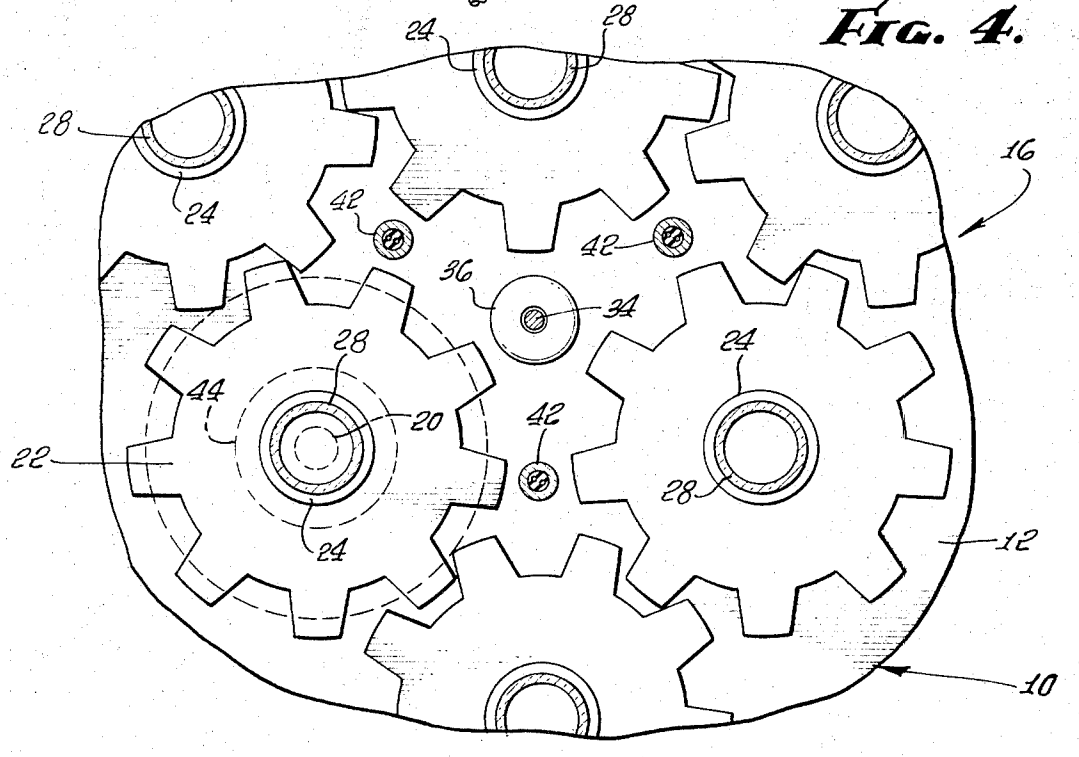

30
30
38
32
32
26
26
26
42
42
34
40
40
4
4
28
24
22
24
16
12
20
14
18
10
44
36

FIG. 4.


24
28
28
24
16
42
42
36
34
28
24
44
20
42
22
28
24
12
10

LIGHT MACHINE

Previously, considerable difficulty has been experienced in generating an aesthetically pleasing, constantly changing, never repeating light pattern in a reliable, efficient manner. According to the present invention, these and other difficulties of the prior art have been overcome.

The present invention includes a light pattern generator in which transparent globes with varying multicolored patterns imprinted thereon are mounted for counterrotation in position between a light source and a translucent cover. The counterrotating globes are positioned in frictional contact with free-floating globes so that the counterrotation of the driven globes causes the free-floating idler globes to also turn. Using a plurality of driven and idler globes insures that the multicolored light patterns projected on the translucent cover will continually move and change in such a fashion that the same pattern almost never repeats.

In the drawings there is illustrated:

FIG. 1 is a side elevation partially in section of a preferred embodiment of the light pattern generator of this invention;

FIG. 2 is a plan view partially in section along line 2—2 of FIG. 1;

FIG. 3 is a partial cross-sectional view taken along line 3—3 of FIG. 2; and

FIG. 4 is a partial cross-sectional plan view taken along line 4—4 in FIG. 3.

Referring particularly to the drawings, there is illustrated a base **10.** The proximal side **12** of base **10** has mounted thereon a cluster of external spur gears indicated generally at **16.** First gear **22** is mounted on drive shaft **20.** The remainder of the gears in gear cluster **16** are intermeshed with one another so that all of the gears are driven by the rotation of first spur gear **22.** The gears other than first gear **22** are rotatably mounted on stub shafts **18.** Stub shafts **18** are mounted to the proximal side of base **10.** Driven globes **26** are provided with stems **28.** Stems **28** are received in globe sockets **24.** Globe sockets **24** are in axial alignment with the axes of rotation of the spur gears. Driven globes **26** are substantially spherical transparent globes upon which multicolored patterns (not shown) are imprinted. Idler globes **30** are tethered in frictional contact with the upwardly disposed surfaces of driven globes **26** by means of axles **38.** Globes **26** are all of substantially the same size, and they are mounted in about the same plane so that when they are clustered together the spaces between them define receptacles into which idler globes **30** are received. The sizes of idler globes **30** are chosen so that they will rest in the receptacles defined by the spaces between the upwardly disposed surfaces of driven globes **26.** Spindle **34** is centrally disposed within the cluster of driven globes **26** and is received in spindle socket **36** of base **10.** Spindle **34** extends generally vertical, and axles **38** extend radially from spindle **34.** The open bases **32** of idler globes **30** receive axles **38.** Axles **38** serve to tether idler globes **30** in position in the receptacles defined by the spacing between driven globes **26.** The substantially spherical idler globes **30** are transparent and have multicolored patterns disposed on their spherical surfaces.

A source of light is provided within the cluster of driven and idler globes. Light bulb sockets **40** retain lights **42** in position on the proximal side **12** of base **10.**

The lights **42** are positioned so that light rays emitted by these lights pass through the driven and idler globes **26** and **30,** respectively, so that the multicolored patterns on these globes are projected radially outwardly.

An apron **48** surrounds the periphery of base **10.** Apron **48** extends downwardly from the periphery of the distal side of base **10** for a distance sufficient to space the structures on the distal side **14** away from contact with the underlying support for this light pattern generating machine. Apron **48** projects above the proximal side **12** of base **10** for a distance sufficient to form lip **54.** Lip **54** receives and retains in position the lower edge of cover **56.** Cover **56** encloses the proximal side **12** of base **10** together with the globes, light sources, and actuating mechanisms positioned on the proximal side **12** of base **10.** The cover **56** is constructed of a generally translucent material so that the several structures mounted on proximal side **12** are not visible through cover **56.** Being translucent, cover **56** acts as a screen to display the moving multicolored light patterns that are projected onto its interior surface. The generally convex configuration of the translucent cover **56** is formed by a plurality of triangular panel surfaces **58** joined together angularly at their edges.

The distal side **14** of base **10** serves as the support for drive motor **44.** The shaft of drive motor **44** extends upwardly through base **10** and becomes drive shaft **20** which drives the cluster of external spur gears **16** through first gear **22,** as previously described.

Conventional house current received through electrical cord **60** is stepped down by means of transformer **46** to permit the use of low voltage, long-life bulbs as lights **42.** Light switches **50** are provided in a number corresponding to the number of lights **42** so that any one or all of lights **42** may be turned on or off, as may be desired by the operator. The drive motor switch **52** actuates drive motor **44** and is independent from light switches **50** so that, if desired, the movement of the driven and idler globes **26** and **30** may be halted so that an existing light pattern will be frozen on translucent cover **56.**

In operation the light pattern generator is placed on a substantally horizontal support surface. Electric cord **60** is connected to a suitable source of electrical energy, and one or more of the light switches **50** are positioned in the on configuration so that the desired lights **42** are lit. If it is desired to have a stationary multicolored light pattern on translucent cover **56,** drive motor switch **52** is not placed in the on configuration. If a moving light pattern is desired, a drive motor switch **52** is placed in the on configuration.

When it is desired to alter the characteristics of the light patterns, the idler globes **30** may be replaced with other idler globes of similar configuration, having different colored patterns on the surface thereof. The idler globes may be moved from one location to another so that they are mounted on different axles **38.** Except for the driven globe that is mounted to first gear **22,** the other spur gears may generally be moved from one stub shaft to another so as to alter their position relative to one another and the idler globes **30.** Also, generally different driven globes may be substituted for those originally present in the machine.

If desired, the configuration of the driven and idler globes may be altered, for example, to cylindrical, conical, or the like, as desired.

The driving mechanism for the driven globes, instead of the spur gears illustrated, may be, for example, rollers frictionally engaged with one another, belts, or the like. The numbers of driven and idler globes and the numbers of lights may be altered as desired to produce various aesthetically pleasing light patterns. If desired, a plurality of independent clusters of driven and idler globes may be mounted on a single base. The base shape may be altered from the hexagonal illustrated in the preferred embodiment to any desired angular or arcuate configured periphery. The translucent cover may be configured with different plane panels, different arcuate configurations, or with one single smooth hemispherical form.

Throughout the specification and drawings like parts have been given the same number so as to avoid the needless proliferation of numbers.

The translucent cover **56** is preferably removable so that it may be removed to service the light pattern generating mechanism. Also, if desired, the cover **56** may be removed and the machine operated in a somewhat darkened room so that the moving light patterns are projected on the walls and ceiling of the room.

The light switches **50** and drive motor switch **52** may be either of the direct on-off or variable type so that the intensity of the light or the speed of the drive motor may be adjusted to any desired setting.

What is claimed is: **8**

1. A machine for generating multicolored moving light patterns comprising:

base means;

a plurality of substantially transparent mulitcolored driven globe means rotatably mounted on said base means;

at least one substantially transparent multicolored idler globe means rotatably tethered in frictional contact with at least one of said driven globes, whereby the rotation of said driven globes causes said idler globes to rotate;

driving means for rotatably driving said driven globe means;

at least one visible light source positioned so that light rays from said source pass through at least some of said driven and idler globe means;

a substantially translucent cover means at least partially enclosing said driven and idler globe means, said cover being positioned so that said driven and idler globe means are between said light source and said cover means, whereby the rotation of said driven and idler globe means causes multicolored moving light patterns to form on said cover means;

wherein the driving means includes a cluster of gears mounted in substantially a common plane on the base means, said gears being intermeshed with one another, each of said gears having a driven globe means mounted thereon, said driven globe means projecting upwardly, the idler globes resting on the upper surfaces of said driven globe means, said idler globe means being loosely mounted on axle means, whereby said idler globes are retained in position on the upper surfaces of said driven globe means.

2. A machine for generating multicolored moving light paterns comprising:

a plurality of gears mounted in substantially a common plane upon said base, said gears being arranged in a closed loop configuration and each gear being intermeshed with the two adjoining gears of the loop;

a plurality of shafts, one for each gear, disposed perpendicular to said common plane, each of said shafts mounting the corresponding gear for rotation relative to said base;

there being an even number of said gears whereby the driven rotation of one of said gears will produce rotation of all of the other gears;

a plurality of substantially transparent multicolored globe means, each of said globe means being supported by an associated gear and shaft pair for rotation relative to said base;

means for drivingly rotating one of said gears;

at least one visible light source disposed within an area bounded by the interior walls of said globe means so that light rays from said source pass through both interior and exterior walls of each of said globe means; and

substantially translucent cover means at least partially enclosing said globe means so that rotation of said globe means causes multicolored moving light patterns to form on said cover means, some of said patterns shifting in opposite direction because of the relatively opposite movements of adjacent globe means, and some of said patterns shifting in relatively opposite directions because of the relatively opposite movements of the inner wall and outer wall of the same globe means.

3. A machine as in claim **2** which further includes at least one substantially transparent multicolored idler globe means rotatably tethered in frictional contact with at least one of said driven globes, whereby the rotation of said driven globes causes said idler globes to rotate.

* * * * *