April 12, 1966 R. L. ALDCROFTT 3,245,310

APPARATUS AND PROCESS FOR PRODUCING VISUAL IMAGES

Filed April 3, 1963 2 Sheets-Sheet 1

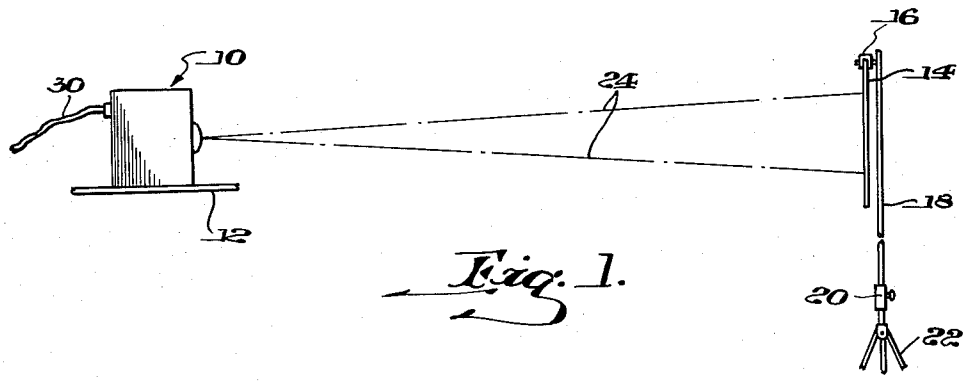
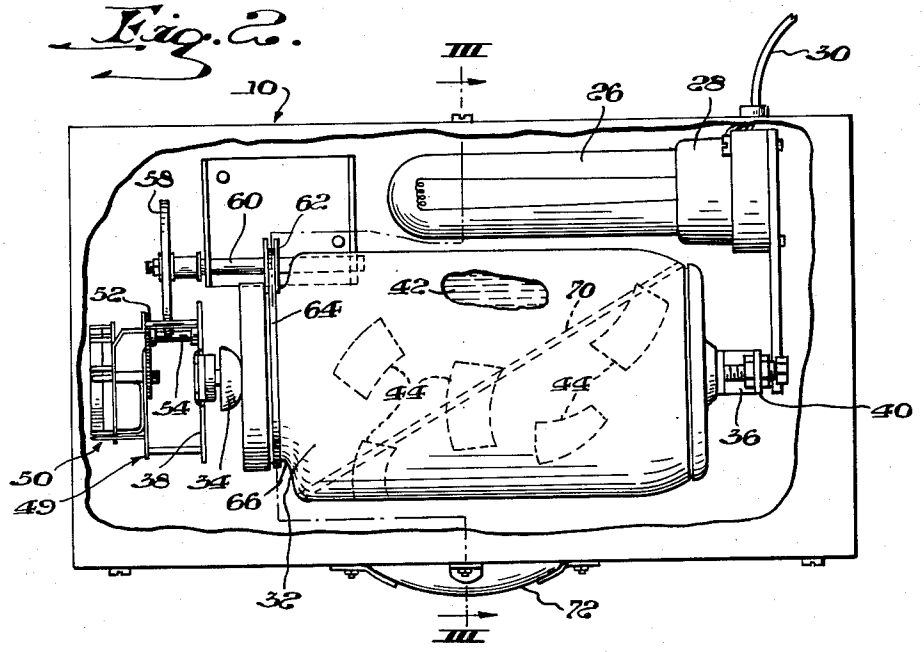


Fig. 1.

Fig. 2.



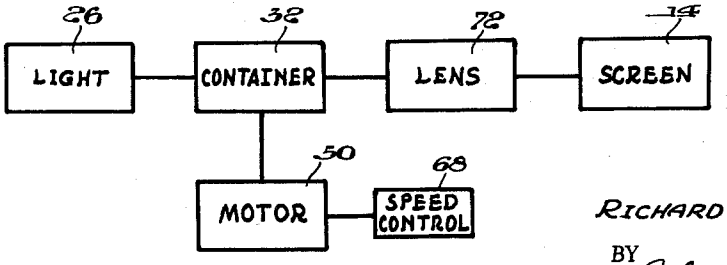


Fig. 4.

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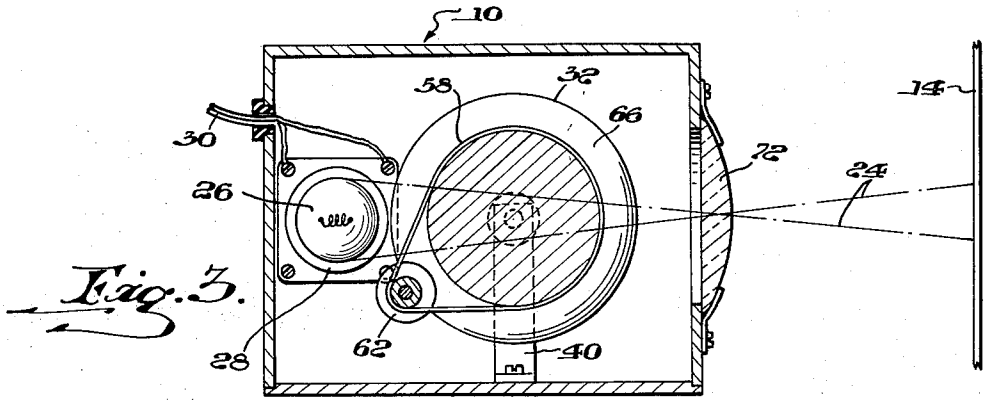


Fig. 3.

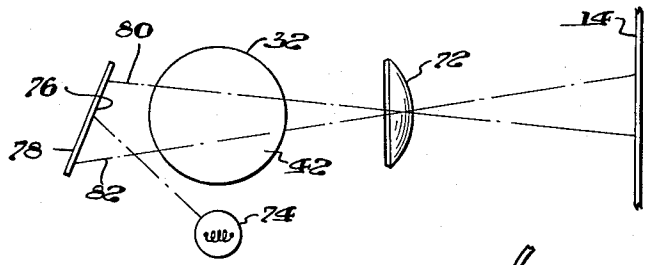


Fig. 5.

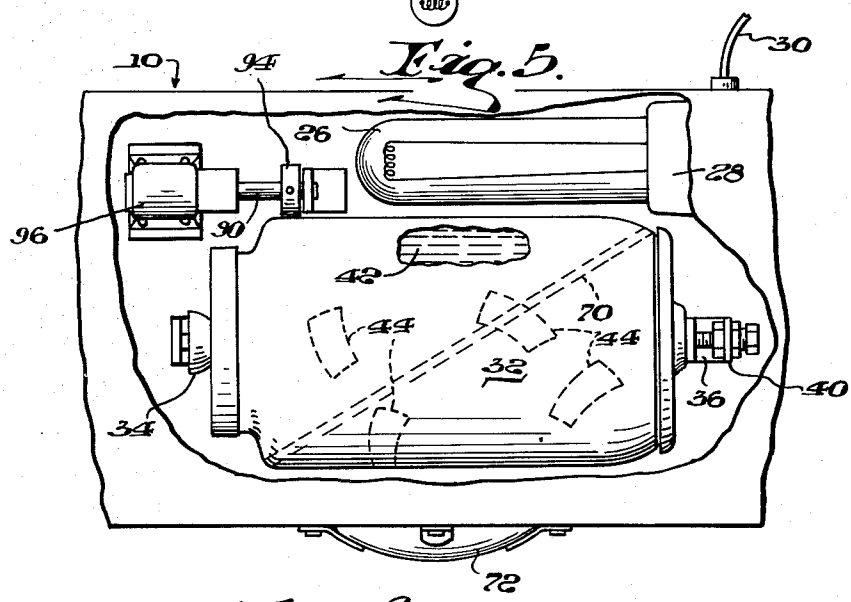


Fig. 6.

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United States Patent Office 3,245,310 Patented Apr. 12, 1966

3,245,310

APPARATUS AND PROCESS FOR PRODUCING VISUAL IMAGES

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3 Claims. (Cl. 88—24)

This invention relates to a process and apparatus for producing constantly variable artistic images. More particularly, to the process for producing by means of light rays, and transparent or semi-transparent members, a substantially endless variety of images which are in a continuous process of change, thereby holding the attention and heightening the interest of the viewer because of the unexpectancy and variety of images.

It has been found, in order to hold the attention of the viewer, that a moving or dynamic system tends to attract and hold interest more than a static image. In dynamic change, there is a factor of unexpectancy, and I find that images produced in accordance with the present invention are both interest-arresting and interest-holding. I have found, that the substantially endless variety of images which are produced at random and projected onto a screen for view, will hold the attention of a viewer and will provide both entertainment and a kind of therapy which tends to reduce tension and provides an interesting diversion. While therapeutic effects of such viewing are somewhat ambiguous, there is reason to believe that usage of the invention has a noticeable effect in reducing various tensions, and the invention is therefore useful in this respect as well as for purely entertainment purposes.

One of the principal objects of the present invention is to provide a series of substantially endless images which can be either colored or uncolored and produce a dynamic succession of such images on a screen for view.

Another object of the present invention, is to provide a substantially endless and variable series of images which continuously change in full view of a spectator and provide interesting combinations which vary in composition, color and the like to provide an endless pattern of change, there being interest in both the change and the particular view at each moment.

Another object of the present invention, is to provide an apparatus which is capable of producing a substantially endess variety of images having color, shape and composition variations to produce a series of artistic images.

One of the important features of the present invention, is to provide both apparatus and process for moving a number of at least partially transparent members within a field of light and by causing random movement thereof, produce a change as to which of the members, and the attitudes thereof, are disposed within the field of vision of the lens which is then used for projecting the image onto a screen. The members are suspended within a fluid medium and the fluid medium is agitated by suitable thermal, electrical or mechanical means both to vary the image and effect a dynamically changing series of images.

Other objects and features of the present invention will become apparent from a consideration of the following description, which proceeds with reference to the accompanying drawings, wherein:

FIGURE 1 illustrates the apparatus in use, showing how the apparatus projects an image upon the screen;

FIG. 2 is an enlarged view of the apparatus, shown at the left-hand side of FIG. 1, with a top portion thereof broken away to illustrate the interior;

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

FIG. 4 is a block diagram showing the functional components of the apparatus;

FIG. 5 illustrates a second embodiment of the invention in which the members in the container are moved by thermal currents as distinguished from mechanical agitation; and,

FIG. 6 illustrates a further embodiment of drive mechanism between a motor and a container.

Referring now to the drawings, apparatus **10** is supported at a suitable vertical level on a platform **12** and projects an image which is generated within the apparatus **10** onto a screen **14** which is suspended from a bracket **16** held by an upward rod **18** through an adjuster sleeve **20** on a tripod **22**. In operation, the spectators view the screen **14** in the direction of the light beams **24** and therefore have a full view of the screen **14** and image projected thereon.

The image is obtained (FIG. 2) from light beams generated by an electric lamp **26** of suitable candle power and is mounted within socket **28** having a cord connection **30** leading to a source of electrical energy, such as the usual household service 110 volts.

Located in alignment with the illuminating source **26** (FIG. 3) is a container **32** which is journaled at its opposite ends **34** and **36** within support brackets **38** and **40**, respectively. The container **32** is thereby free to turn rotatably about an axis of rotation which extends between ends **34** and **36**. The container is filled with a substantially water-white, inert, transparent fluid **42** having a viscosity which permits a plurality of colored members **44** to move freely therein as the container is rotated. The members **44** are of various colors, shapes and sizes and are comprised of color acetate film or colored gels of the kinds commonly available from photographic materials. The members **44** are of approximately the same specific gravity as the fluid medium **42** so that they are at about zero gravity. That is, with very little agitation developed in the material **42** by stirring or the like, developed by rotating the container **32**, the members **44** are caused to move randomly within the container, changing their relative positions both with respect to each other and with respect to the container **12**.

The container is caused to rotate by a clock-drive designated generally by reference numeral **49** which is operated by an electric motor **50**. The clock-drive includes a drive wheel **52** which causes rotation of an output shaft **54** and the output shaft **54** frictionally drives a wheel **58** which in turn rotates shaft **60**. A pulley wheel **62** on shaft **60** has a belt drive **64** connection with neck **66** of the container and thereby drives the container at a preselected speed. A speed control **68** (FIG. 4) causes rotation of the container **32** at a preferred speed and develops currents within fluid **42** which vary the degree of agitation producing random movements of the members **44**. It is generally required that a moderate, gentle, stirring be effected of the members **44**. To insure that the members **44** will not clump together but instead will be separated at all times, there is provided a transparent glass rod **70** which extends diagonally within the container **32** and tends to break up any agglomerations of the members **44**. After the light beams from illumination source **26** pass through the container **32** and are modified by whatever member **44** is in the path of the beams, those beams which are in the field of vision of the lens **72** are projected onto screen **14**. The member **44** provides the modification of light beams which are passed through lens **72** to create the image which is focused on the screen **14**. The term "image" means, and is meant to include, the screen impression which is provided by light from one of the objects within the container **32**.

The lens 72 can be made adjustable, so that depending upon the location of the apparatus 10 the projecting beam can be varied to give a focussed image on the screen 14. Beams of light can pass through two objects within the container as well as one object, and in fact there is no limit to the number of objects through which light can pass except according to the inherent transparency of the objects. Light does carry the image of whatever objects it either passes through or are reflected from, and such light after passing through the lens 72 yields a focused image on the screen 14. Since the members 44 are themselves moving constantly within the container, first some and then others, in various combinations, attitudes and colors, are brought within the field of vision of the lens 72. Such light rays as pass through and are modified by such members and are within the field of vision of the lens 72 are projected onto the screen 14. The members 44, as they move randomly within the container, are brought into and out of the focal range of the lens 72 so that they appear, from time to time, as focused images on screen 14, and at other times, appear as out-of-focus ghost-like images.

Because of the described agitation, of the members 44 by mechanically turning the container, it is possible to speed up the rate at which the members 44 move within the container and thereby pass into and out of the field of vision of the lens 72 and correspondingly change the image projected onto the screen 14. Although it is desirable, to have some rate of change in the image on the screen 14, it has been found that the change most pleasing to the majority of viewers, is one in which the pattern slowly evolves from one image to the next thereby avoiding too sudden change of imagery which tends to impart a sense of instability. At brief periods, however, such speeded-up action is interesting and can be provided by means of the speed control 68 which will change the rate of image variation as desired.

Another method in which the agitation can be achieved, and also an economy effected, is by means of the embodiment shown in FIG. 5. In this embodiment, there is disposed below the container a source of illumination 74 which generates heat as well as light and the heat is used for producing thermal currents within the liquid 42 contained with the container 32. Such thermal currents give rise to movements of the members 44 into and out of the field of vision of the lens 72 and the members 44 likewise assume different attitudes, combinations and relative locations to each other and to the container 32 by means of such thermal currents.

The light source 74 also serves the same function as the light source 26 but this is accomplished by means of a reflective surface 76 on a reflector 78 which is supported within the apparatus 10. Reflector surface transmits reflective beams 80, 82 through the liquid 42, such beams having been derived from 74 and the light beams, being modified by whichever members 44 are within the field of vision of lens 72, provides a changing series of images which are projected onto the screen 14.

In the embodiment of FIG. 5, it is possible to eliminate entirely the motor for turning the container 32 and all of the agitations is obtained by thermal current means as distinguished from the currents derived by mechanical means in the previous embodiment. The embodiment shown in FIG. 5 is therefore more economical to produce and operate but it does take the apparatus some time to commence motion of the members 44 during a "heat-up" period wherein the heating effect obtained from the source of illumination 74 must first be communicated to the liquid 42.

Referring next to the embodiment shown in FIG. 6, it is possible, to eliminate a good portion of the drive mechanism between the motor 50 and the container 32 shown in FIG. 2, by providing a direct friction drive connection between the output shaft 90 and the container through a rotatable resilient friction bearing 94. The motor 96 is electrically operated in the same manner as the motor 50.

Although the present invention has been illustrated and described in connection with certain example embodiments, it will be understood that these are illustrative of the invention and are by no means restrictive thereof.

It is reasonably to be expected that those skilled in the art can make numerous revisions and adaptations of the invention as for example by changing the composition and specific gravity of the fluid 42 and members 44. It is well known, that other combinations of fluid and member can be suitably obtained, the only requirement being that the fluid be of approximately the same specific gravity as the members 44 in order to facilitate free movements of the members and therefore random movement of the members. It is further required, that the fluid 42 not have a solvent action on the members 44 or cause a fading of the colors or change in the colors therein. Also, owing to the fact that heat issued, in the case of the embodiment shown in FIG. 5, is the means for stirring the liquid, the liquid should be of the high boiling point value, so as not to vaporize and thereby present possibility of fracturing of the container 32.

It is intended that all variations and revisions of the invention which incorporate the herein disclosed principles, will be included within the scope of the following claims as equivalents of the invention.

I claim:

1. Apparatus for producing a variety of images of artistic composition and color, comprising:
   (a) fluid means providing a suspending medium,
   (b) a plurality of floatable members received within said fluid medium and having a variation of color, size and shape;
   (c) means for agitating the fluid medium and members therein to effect a random type movement of the members which are freely tumbled therein;
   (d) illuminating means for generating a plurality of light beams which are passed through said fluid medium and the members floatably received therein;
   (e) and a lens having a field of vision through which the light beams are passed as modified by whichever of the members are contained within said field of vision, said members being movable within said container into and out of the focal range of said lens.

2. Apparatus for producing a variety of images of artistic composition and color, comprising:
   (a) fluid means providing a suspending medium;
   (b) a plurality of floatable members received within said fluid medium and having a variation of color, size and shape;
   (c) means for agitating the fluid medium in members to effect a random type movement of the members which are freely tumbled therein;
   (d) illuminating means for generating a plurality of light beams which are passed through said fluid medium and the members floatably received therein;
   (e) a lens having a field of vision into which the light beams are passed and are modified by whichever of the members are contained within said field of vision, said members being movable within said container into and out of the focal range of said lens;
   (f) and a screen adapted to receive a focussed image from said lens and related to the color, size and attitude of the members which are carried into and out of the field of vision of said lens.

3. Apparatus for producing a variety of images of artistic composition, comprising:
   (a) container means having a fluid medium of substantially transparent quality;
   (b) a plurality of floatable members which are received within said medium and are of substantially the same density to be freely floatable therein and assume different relative positions with respect to each other and to the fluid medium;

(c) illuminating means for generating light beams disposed in adjacent relation with the container to generate thermal currents effective for moving the members in random motion;

(d) means for directing said beams through the fluid medium and the members floating therein;

(e) a lens which receives the light beams which emerge from said container after passing through the members within the field of vision of said lens, and are carried into and out of the focal range of said lens during their movement within said fluid medium;

(f) and means for focussing the lens to provide a focussed image which is substantially constantly varying.

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