

[54] APPARATUS FOR OBTAINING CONTINUOUSLY TRANSFORMING PROJECTED IMAGES

[75] Inventor: Bruno Facchini, Milan, Italy

[73] Assignee: Alden Research Foundation

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[51] Int. Cl. G03b 21/00, G09f 13/24

[58] Field of Search 40/106.21, 106.25; 353/1, 353/2, 46; 350/5

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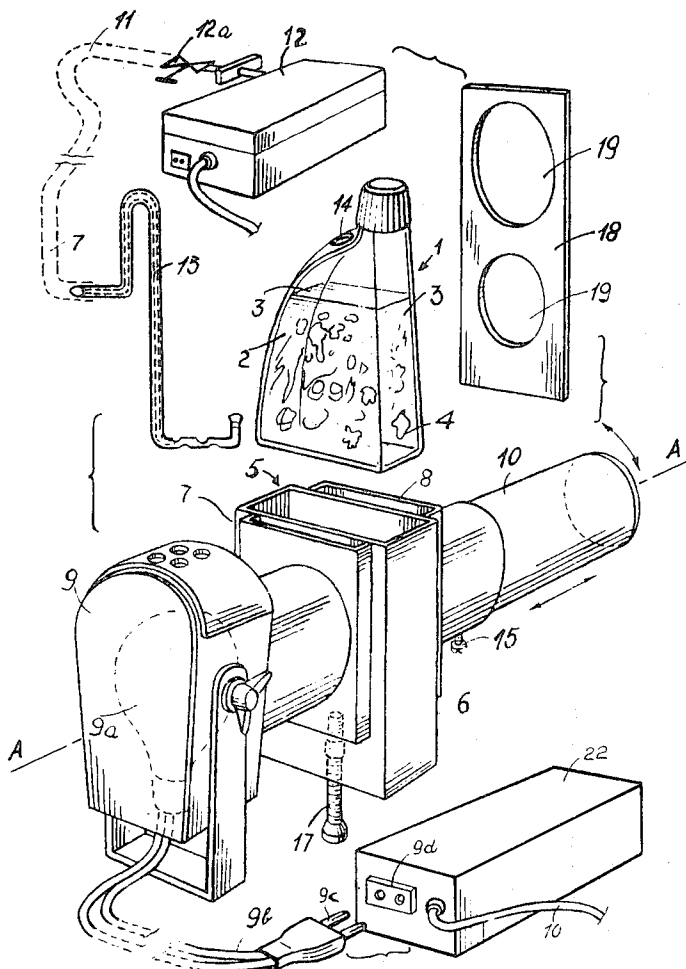
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Primary Examiner—Louis R. Prince
 Assistant Examiner—Steven L. Stephan
 Attorney, Agent, or Firm—Dr. G. Modiano; Dr. A. Josif

[57] ABSTRACT

An apparatus for obtaining continuously transforming projecting images, comprising a projector with a source of light, a seat in said projector capable of removably receiving flattened containers consisting of transparent material and containing at least two differently coloured non miscible liquids.

2 Claims, 7 Drawing Figures



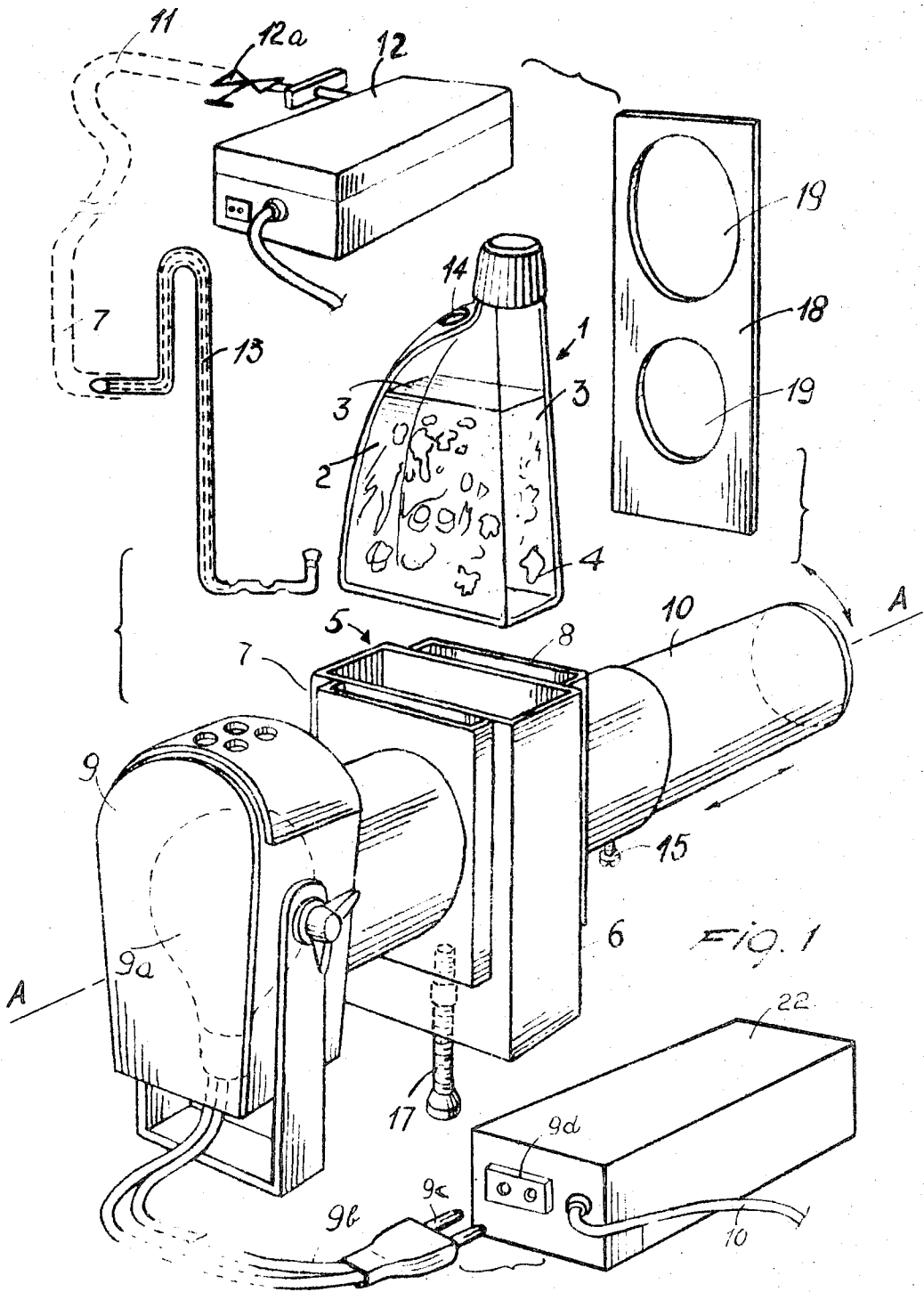


FIG. 1

INVENTOR
BRUNO FACCHINI

BY

Albert Josef
Agent

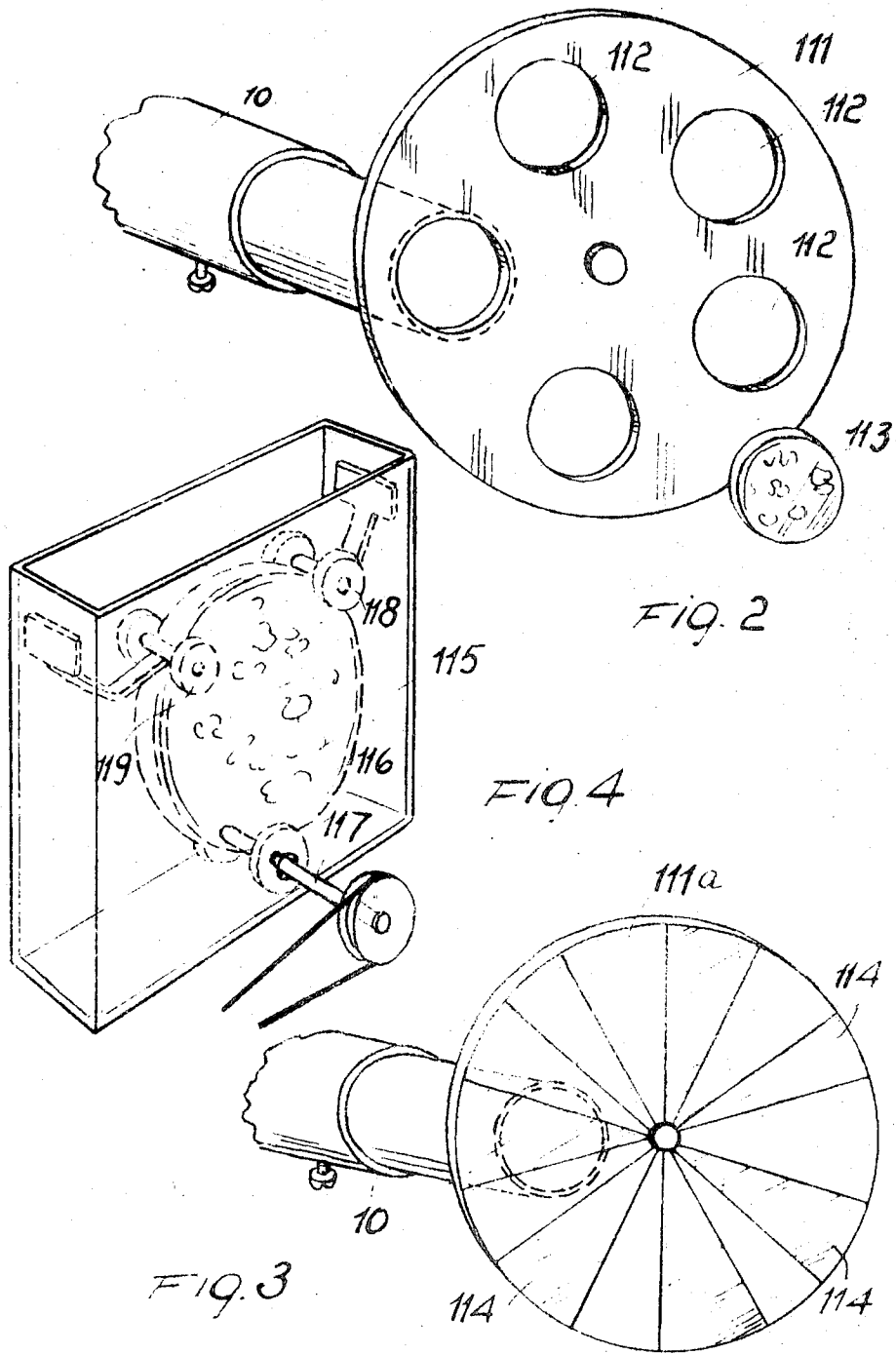


FIG. 2

FIG. 4

FIG. 3

INVENTOR
BRUNO FACCHINI

BY

Albert J. Joff
Agent

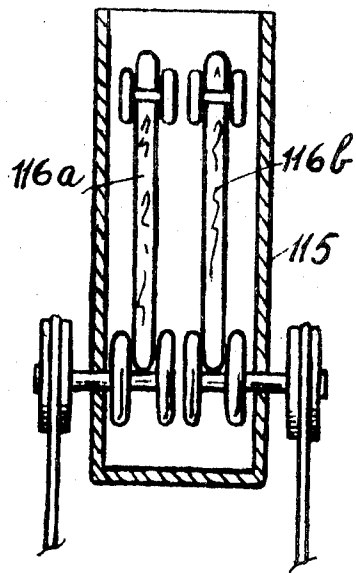


FIG. 5

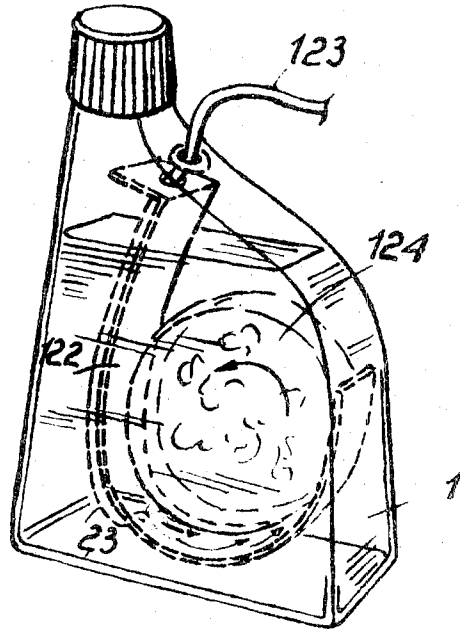


FIG. 7

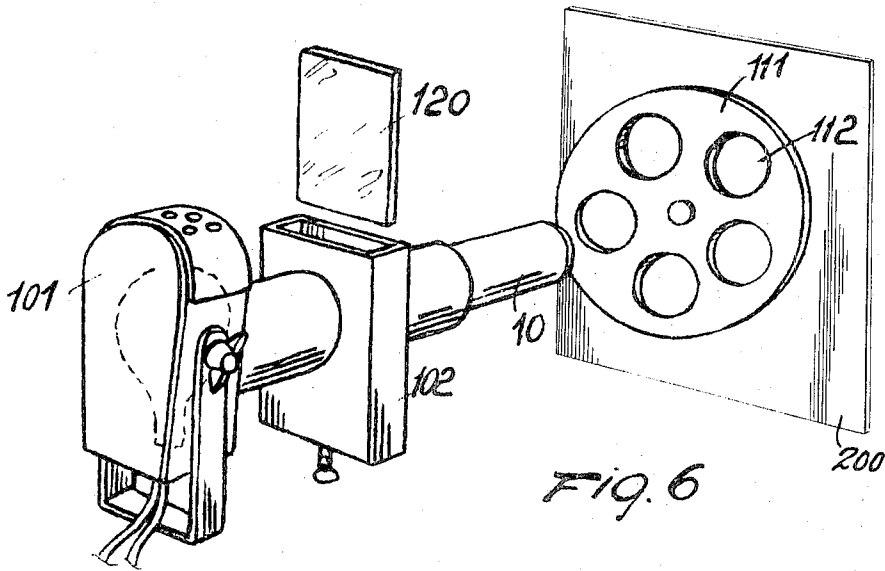


FIG. 6

INVENTOR
BRUNO FACCHINI

BY

Albert Josef
Agent

inserted into the cell or container 1 which, for this purpose is provided with an opening 14. Near the said pumping device 12 is arranged a valve 12a for regulating the speed and the capacity of the fluid under pressure.

In the example shown in FIG. 1 the selected liquid silicone has a specific weight slightly lighter than the glycerine 3 and has therefore the tendency to move upwardly whereas the glycerine has the tendency to sink. Depending on the intensity of the jet of air continuously deforming shapes similar to flowers or trees may be obtained. By selecting suitably the viscosity ratio of the liquids and the jet intensity, different shapes may be obtained, depending also on the structure of the nozzle 13b through which air is injected. If the injection of air is intermittent a very impressing pulsating change of images is obtained.

From the foregoing description the following features should appear evident:

The pipe 13 (FIG. 1) has a diameter less than the opening 14 so that, when pipe 13 is introduced in the bottle 1, there is a vent passage left in the opening 14 for the air. The fluid under pressure is advantageously pressurized air and the pumping device 12 is associated with a source of air under pressure which may be also a blower or an impeller or simply a blowing pipe. The free end of pipe 13 is placed usually on the bottom of the bottom 1.

The process according to the invention provides, during the agitation of the contents of the cell 1, the illumination of the said cell by means of a light beam proceeding from the light source shown in the drawing and also the projection of the light beam proceeding from the said cell, onto any suitable screen (after a possible focusing by means of an appropriate control indicated with reference numeral 15). On the said screen a representation of colored images in continuous movement and in continuous transformation is obtained. According to one of the objects of the present invention it was easily possible to observe that, during said continuous transformation within very short instants of time, the projected image showed a remarkable variation of configurations.

The representational effects obtained and obtainable with the method of the present invention are achieved in relation not only with the agitation intensity and the luminous intensity of the beam of light illuminating the cell but also with the position of the injecting nozzle with respect to the bottom of the said cell. Using other materials and other liquids having different, even if only slightly, physical-chemical characteristics, to those previously chosen for arrangement in the cell 1, a vast range of representations may be obtained in which the variation of form, the continuous movement of the random subjects represented and the great variety and vividness of the colors of the same, are such as render the described process of especial interest.

From what has been described and illustrated the manner in which the method attains all the pre-established objects is clearly evident.

A particular advantage is achieved when the previously described apparatus is associated to a cell-supporting disc member of the type shown in FIGS. 2 and 3. With reference to FIG. 2, such cell-supporting disc member is indicated with reference numeral 111 and is provided with a plurality of circular through holes or seats 112. Said disc 111 is arranged to revolve

(by driving means, not shown) in manner such as not to interfere with the luminous band coming from the projector 10. More precisely, said through holes or seats 112 are arranged coaxial with the axis of rotation of the disc 111 and along a circumference coaxial with the axis of rotation of the disc 111 and which passes through the centre of said band projector, and are of size such as to interfere with the light beam of said projector. Advantageously, variously colored filters (not shown) are arranged in said holes 112 and enable a wider range of aesthetic representations to be obtained whilst employing a single bottle 1. Again advantageously, essentially cylindrical, completely closed containers 113 in the form of tablets are arranged in said through holes 112. Said containers are previously filled with two liquids of the type previously described. If desired also coloured fragments suspended in said liquids may be used. The rotation of said disc 111 is such as to attribute a certain movement to said liquids which are projected either in superimposition to the projection of the bottle 1 or independently therefrom and if desired may be out of focus with respect to the latter projection. The aesthetic results of the representations obtained are of extremely surprising effect. Such effect may be further varied and also improved by employing a second disc (not shown) arranged adjacent said disc 111 and arranged to rotate in opposite sense to the disc 111.

FIG. 3 shows a modified embodiment of the disc member. Such modified embodiment comprises a disc 111a which is essentially fan-shaped. The solid portions 114 of said fan 111a, which may be variously shaped, interfering with the luminous band coming from the projector 10, provide the projection of a bottle 1 with effects of "a new dimension."

Between the solid portion 114 of disc 111a there are void spaces. The solid portions 114 may be either opaque or translucent and colored. The shaft 117 supports the lower periphery of transparent disc-like container 116, which simply rests thereon.

FIG. 4 shows a modified embodiment of a "bottle." According to such embodiment the bottle, which is releasably arranged in the seat 5 of the apparatus according to the invention, comprises a transparent container 115 inside which is arranged a substantially discoid container 116. Said discoid container 116 is completely closed and contains the two liquids previously described and if desired fragments suspended in said liquids. Said container 116 is rotably supported, for example by mechanisms shown in FIG. 4. Said mechanisms comprise a rotating shaft 117, which is connected to the lower end of said discoid container 116, and support members 118 and 119 which are entrained in rotation by said discoid container 116 since they are idly mounted on support spindles. The rotation of shaft 117 imparts a rotation to transparent disc-like container 116, which simply rests thereon. Also in this case, the representations obtained with the previously described apparatus have characteristics within the scope of the present invention and are such as to widen the range of aesthetic representations. Advantageously (see FIG. 5), two counter-rotating discoid members 116a and 116b are arranged inside said transparent container 115. A further widening of the range of representations obtainable is achieved by combining these latter bottles 115 with discs 111 and 111a of the previously described type. Other particular aesthetic effects are

achieved when, instead of the bottle, a simple sheet of printed glass 120 (FIG. 6) is arranged in said seat 5. This is especially so when said sheet of stamped glass 120 is rotated and projected on the diagrammatically shown screen 200 in combination with discs of the previously described type. Other results are achieved when said glass sheet 120 is projected in combination with a bottle 1 or 115.

A further embodiment of a bottle is shown in FIG. 7. In this case a hook support 122, connected to an air pipe 123, is arranged inside a bottle 1 which is specially shaped and dimensioned. On said hook support 122 is arranged a tablet-like container 124 of type described previously with reference to FIGS. 4 and 5. The movement of such tablet-like container 124 is obtained by passing tangential air currents below said container 124. Container 124 may have any suitable thickness and define therein two or more compartments.

Advantageously the bottle 1 is filled with a fluid which may contain suspended fragments. Also in this case, the representations obtained, whilst lying within the scope of the invention, have new and surprising effects. These effects are further increased when the projection of such bottle 1 occurs in combination with a sheet of printed glass of described type and/or with discs 111 and 111a. Obviously, all these projections may, if desired, occur in conjunction with the use of the electronic amplifying device 22 which provides a sound track for said representations.

A further object attained by this invention is to make the intensity of light projecting the continuously transforming images varying in accordance with the variation of the intensity of sound of an external sound source.

In fact, the electronic device 22 incorporates a sound responsive control device for the intensity of electric current passing therefrom through cable 9b to the source of light 9a when the plug 9c is inserted into the socket 9d of the electronic device 22, connected to a source of electric current not shown. The mentioned sound responsive control device is of well known type and is actuated by the intensity of sound in such a way that, when the intensity of sound increases it regulates the intensity of electric current supplied to the lamp 9a so that also the electric current is increased, increasing the intensity of light emitted by 9a and vice-versa. The source of sound may be of any kind such as an orchestra or a recording apparatus or else. The device 22 may be connected to the source of sound (e.g., a microphone or a recording device or else) through cable 10.

The invention realized in this way is susceptible to numerous variations and modifications which fall within the concept of this invention; in this way for example the agitation of the fluid and of the material suspended in it can be obtained by mechanical means, magnetic means or the like, also the characteristics of the said fluid or the said material or the intensity of the light beam used, may be varied. Advantageously the above described apparatus may also comprise a threaded stem 17 associated below said housing 5 and adapted for positioning and adjusting the height of the cell 1 with respect to the beam of light; furthermore the use of a plate-like element 18 provided with a number of circular openings 19 of differing diameters, arranged in the exterior pocket 8 allows the regulation of the emitted beam of light and therefore also allows a regulation of the dimensions of the projection.

I claim:

1. An apparatus for obtaining continuously transforming projected images, comprising a projector with a light beams generating source of light and a screen surface at a distance from the projector, said projector directing said light beams according to its optical axis against said screen, at least one container of transparent material, said container containing a number of variously colored translucent movable substances, supporting means on said projector to support said container within the path of said light beams, said light beams passing through said container and the substances contained therein and projecting their images on said screen surface, means for agitating said movable substances, wherein, according to the improvement, said container has contained therein at least two non miscible translucent differently colored liquids and wherein said container has the shape of a flat box and said supporting means are in the form of a pocket adapted to receive said box shaped container, said pocket extending across the optical axis of the projector and wherein one of said liquids has a specific weight greater than the other of said liquids, and wherein said means for agitating the liquids is a pressurized fluid circuit including a pumping device, said pumping device injecting pressurized fluid into the container at the bottom zones of said container.

2. An apparatus according to claim 1, wherein said pumping device causes an intermittent injection of pressurized fluid.

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