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Thomassen

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[54] **MOVEMENT SUGGESTING DISPLAY**

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[52] **U.S. Cl.** ..... **40/106.52,** 40/133 R, 40/219, 161/6, 350/291

[51] **Int. Cl.** **G09f 13/12**

[58] **Field of Search** ..... 40/106.52, 133 R, 40/133 A, 219, 132 C, 132 D; 161/6, 408–410; 117/72; 350/291

[56] **References Cited**

UNITED STATES PATENTS

1,683,263	9/1928	Ruckelhaus	40/52 R
3,707,792	1/1973	Mabrey et al.	40/63 R X
3,451,877	6/1969	Herschman	161/6 X
778,916	1/1905	Stumm	40/106.52
1,828,177	10/1931	Curtiss	40/106.52
2,176,117	10/1939	Belknap et al.	40/106.52
2,221,889	11/1940	White	40/219
2,689,422	9/1954	Hoff	40/133 R

FOREIGN PATENTS OR APPLICATIONS

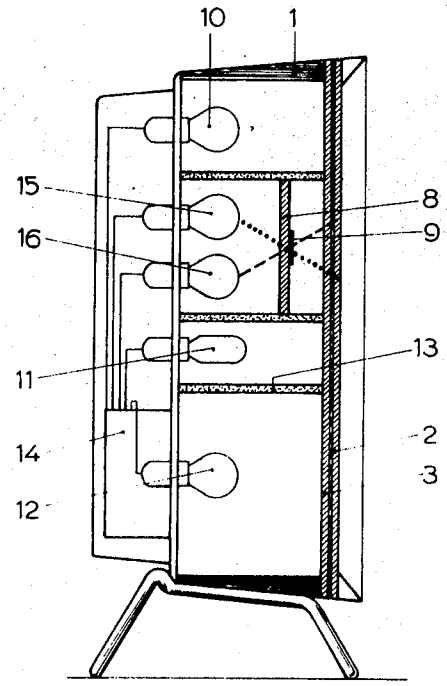
367,335	8/1930	Great Britain	40/219

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Assistant Examiner—John F. Pitrelli
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[57] **ABSTRACT**

Display apparatus suggesting a movement of the displayed objects and having an open front casing of which the front is closed off by a first transparent plate successively coated on the inside surface with a transparent dark layer and a semi-transparent white layer. A second transparent plate spaced at a slight distance behind the first plate bears a picture in the shape of surfaces coated with transparent colored layers and surrounded by an opaque layer serving as a background. The picture consists of a fixed portion which is permanently displayed and at least two portions which are alternately displayed. A plurality of light sources arranged with the casing behind the second plate each illuminate one of the portions and are screened with respect to each other by partitions. The light sources associated with the alternately displayed portions are alternately actuated by a program switch.

8 Claims, 6 Drawing Figures



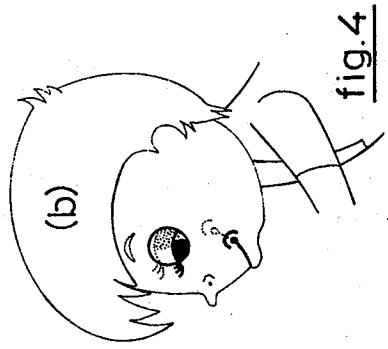


fig.4

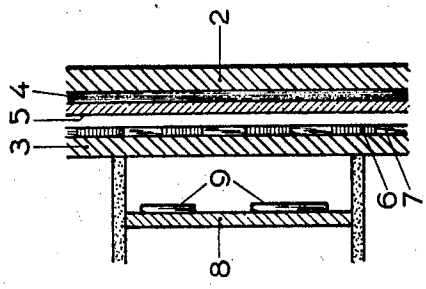


fig.2

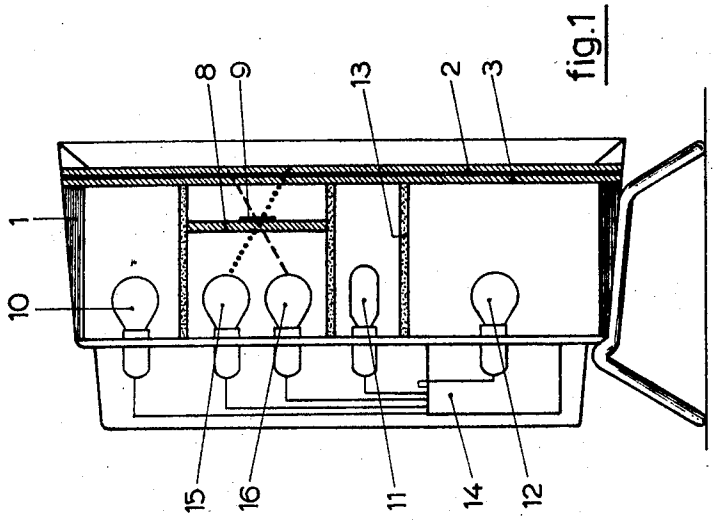


fig.1

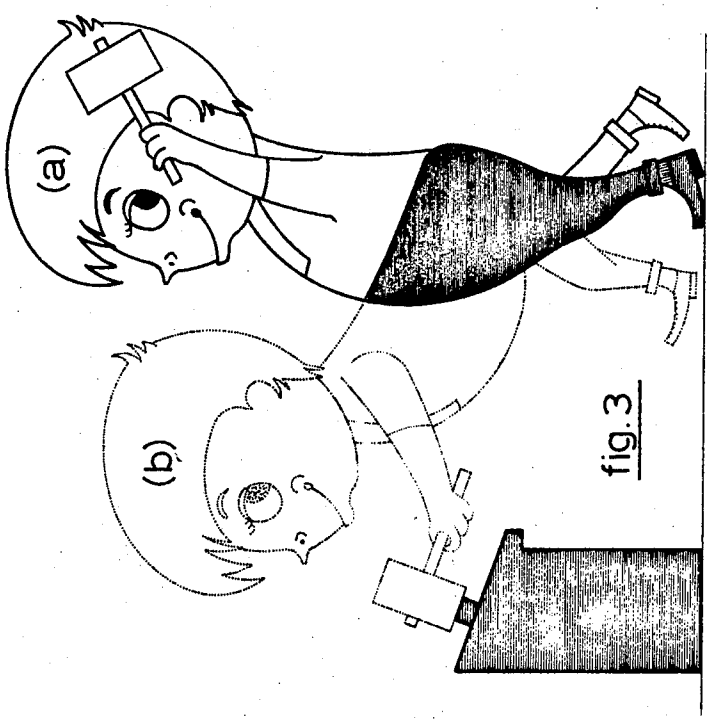


fig.3



fig.5

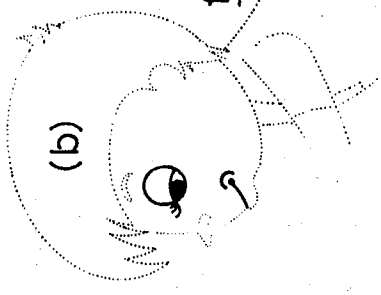


fig.6

MOVEMENT SUGGESTING DISPLAY

BACKGROUND OF THE INVENTION

The invention relates to an apparatus for the display of moving objects, and in particular to an apparatus for advertising purposes on which a picture is displayed in such manner that a movement of the displayed objects is suggested.

A known apparatus of this kind is provided with a transparent plate with a picture in the shape of surfaces coated with transparent colored layers which consists of a fixed portion adapted to the permanently displayed and at least two portions which are alternately displayed. Each portion is illuminated by an associated light source and the light sources are screened with respect to each other by partitions. The alternately displayed portions of the picture are illuminated by light sources which are alternately actuated by a program switch.

In the known apparatus, the casing is closed off at the front by a clear glass plate, so that the alternately displayed portions of the picture are also visible to some extent when they are not illuminated by the associated light sources. This visibility of the non-illuminated portions of the picture is undesirable, because it spoils the desired effect, i.e. the suggestion of a movement of the displayed objects.

BRIEF SUMMARY OF THE INVENTION

It is an object of the invention to remove this disadvantage and to provide a display apparatus of the above-mentioned kind in which the picture is completely invisible from the front as long as it is not illuminated by the light sources.

A further object of the invention is to provide a display apparatus of the above-mentioned kind in which certain elements of the pixture have their own movement independent of the movement suggested by the alternately displayed portions.

According to the invention the front of the casing of a display apparatus of the above-mentioned kind is closed off by a transparent plate whose inside surface has been successively coated with a transparent dark layer and a semi-transparent white layer.

In a preferred embodiment of the invention, a third transparent plate arranged at some distance behind the second plate bears on its outer surface a representation, which may be projected on said picture in two different positions by means of alternately actuated light sources. The third plate may only extend through a fraction of the surface of the first and the second plates. The distance between the second and the third plate is preferably variable in order to control the distance between the two positions in which the representation is projected on the second plate. The distance between the first and the second plate may be about 0.02 inch and the distance between the second and the third plate may be variable between 0.2 inch and 0.8 inch.

In order to get a good display, the composition of the layers on the inside of the first plate is of great importance. Good results have been obtained with oil paint available under the trade mark "Lorilit," the first layer consisting of a mixture of 100 parts azure white and 1 part azure paint and the second layer consisting of **10** parts azure white and 1 part transparent white.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** shows a vertical section of an apparatus according to the invention.

FIG. **2** shows a horizontal section of a part of the plates of the apparatus according to FIG. **1**.

FIG. **3** shows an example of the display, which may be obtained with the apparatus according to FIGS. **1** and **2**.

FIGS. **4, 5** and **6** show how a portion of the display according to FIG. **3** may be put into motion.

DETAILED DESCRIPTION

As indicated in FIG. **2**, the plate **2** arranged on the outside has been successively coated at its inner surface with a dark transparent layer **4** and a white semi-transparent layer **5**. A plate **3** arranged at a distance of about **0.02** inch behind the plate **2** bears on its outside a picture in the shape of surfaces **6** coated with a transparent colored layer and surrounded by an opaque layer **7** serving as a background.

A plate **8** arranged at a distance behind the plate **3** and also consisting of a transparent material, such as glass, bears a representation **9** in the shape of one or more surfaces coated with colored layers.

The picture provided on plate **3** consists of a fixed portion, which is permanently displayed, and at least two alternately displayed portions for the purpose of suggesting a movement. The various portions of the picture are separately illuminated by means of incandescent lamps **10, 11** and **12** separated from each other by partitions **13**. The lamps associated with the alternately displayed portions of the picture are alternately actuated by a program switch **14**. The representation **9** on plate **8** is alternately projected on the picture provided on plate **3** by means of two alternately actuated incandescent lamps **15** and **16**.

The program switch **14** may have any desired construction. It may consist, for instance, of a shaft driven by an electric motor and carrying a plurality of cams each operating an associated pair of contacts. Program switches of this kind are well-known in the art, so that a detailed description thereof appears to be superfluous.

The effect obtained with the apparatus according to FIGS. **1** and **2** will be further explained by reference to FIGS. **3–6**.

In FIG. **3** the fixed portion of the picture has been indicated by a horizontal hatching and the two alternately displayed portions have been indicated by *a* and *b*. If the lamps for illuminating portions *a* and *b* are alternately actuated, the observer gets the impression that the man is hammering on the anvil.

As appears from FIGS. **4–6** parts of portion *b* may obtain a separate movement by means of the representation **9** on plate **8**. In the embodiment as shown, these parts are the eye and the mouth of the man, which have not been included in portion *b* of the picture but have been arranged on plate **8**. Plate **8** bears two representations of the eye and the mouth, which are alternately projected within portion *b* of the main picture, in such manner that the other representation of the eye and the mouth is projected on the dark background. This gives the impression that the eye and the mouth of the man move during the time he keeps his hammer on the anvil.

As mentioned hereinbefore the composition of layers 4 and 5 on the inside of plate 2 is of great importance for a good effect. It will be clear that the effect is completely lost if portions *a* and *b* may be simultaneously observed at the front of the apparatus. Hence, the space between plates 2 and 3 must be so "dark" that an observation of the non-illuminated portions of the picture is impossible. This condition is satisfied by the dark transparent layer 4, which absorbs a part of the incident light and the white layer 5, which reflects the incident light. Nevertheless, layers 4 and 5 are completely transparent for the illuminated portions of the picture so that the picture may be observed clearly without any change of the colors.

In projecting the representation 9 on the plate 3, use may be made of conventional optical means, such as mirrors and lenses. However, experiments have shown that the use of such expedients is generally not necessary.

What I claim is:

1. Apparatus for the display of moving objects comprising a casing having an open front, a first transparent plate closing the front of said casing and having an inside surface successively coated with a transparent dark layer and a semi-transparent white layer, a second transparent plate arranged in said casing at a slight distance behind said first plate parallel with the same and bearing a picture in the shape of surfaces coated with transparent colored layers and surrounded by an opaque layer serving as a background, said picture consisting of a fixed portion adapted to be permanently displayed and of at least two portions adapted to be alternately displayed, a plurality of light sources within the casing behind said second plate and each illuminating one of the said portions, a plurality of partitions screening the said light sources with respect to each other, and a program switch alternately actuating the light sources associated with the alternately displayed portions of the picture, said first plate being capable by virtue of said successive dark and white layers to obscure the portion not being displayed while permitting the image of the illuminated portion to be transmitted without substantial color change.

2. Apparatus as claimed in claim 1, further comprising a third transparent plate arranged in said casing at some distance behind said second plate in parallel with the same and bearing a representation and a pair of additional light sources alternately actuated by said program switch by which said representation may be projected on said second plate in two different positions.

3. Apparatus as claimed in claim 2, wherein said third plate only extends through a fraction of the surfaces of the said first and second plates.

4. Apparatus as claimed in claim 2, wherein the distance between said second and said third plate is variable.

5. Apparatus as claimed in claim 4, wherein the distance between said first and said second plate is about 0.02 inch and the distance between said second and said third plate is variable from about 0.2 inch to about 0.8 inch.

6. Apparatus as claimed in claim 1, wherein the coating layers applied to the inside surface of said first plate consist of oil paints consisting of a mixture of 100 parts azure white and 1 part azure paint for the first layer and a mixture of 10 parts azure white and 1 part transparent white for the second layer.

7. Apparatus as claimed in claim 1 wherein the coating layers applied to the inside surface of said first plate comprise oil paints.

8. Apparatus as claimed in claim 7 wherein the transparent dark layer conists of a mixture of 1 part oil paint in 100 parts azure white and the semi-transparent layer consists of a mixture of 1 part transparent white in 10 parts azure white.

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