PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements relating to Advertising Devices

We, FRANK BAXTER and AUBREY TYRRELL SMYTH-TYRRELL, both British Subjects, of 36, Leadenhall Street, London, E.C.3, and ROBERT WHITE, a British Subject, of Albert Villa, Woodfield Road, Hadleigh, Essex, do hereby declare the nature of this invention to be as follows:—

This invention relates to advertising devices and has for its object to provide improvements in devices of the kind consisting essentially of two chambers or compartments illuminated alternately and viewed the one directly through an inclined (45°) semi-transparent mirror and the other indirectly by reflection from the mirror. By placing different objects in corresponding positions in the two compartments and by illuminating first one and then the other the objects appear to replace one another.

According to the present invention the device is provided with means for gradual increase of illumination of one object simultaneously with gradual decrease of illumination of the other object. A simple and effective way of attaining the desired gradual illuminating effect is to provide a revolving or oscillating screen or shutter around a lamp located substantially in the plane of the inclined mirror so as to shine on both sides thereof, but shrouded by a screen or shutter such as a slowly revolving metal cylinder with one or more gaps or windows in it.

The above mentioned screen or shutter is driven by an electric motor of the kind used to drive electric clocks.

Dated this 21st day of August, 1936,

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COMPLETE SPECIFICATION

Improvements relating to Advertising Devices

We, FRANK BAXTER and AUBREY TYRRELL SMYTH-TYRRELL, both British Subjects, of 36, Leadenhall Street, London, E.C.3, and ROBERT WHITE, a British Subject, of Albert Villa, Woodfield Road, Hadleigh, Essex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to advertising devices of the kind in which two chambers are illuminated alternately and are viewed the one by reflection from the surface of an inclined sheet of glass and the other by direct vision through the glass. It is known that if each chamber contains a different object the alternate illumination of the chambers gives the appearance of one object being replaced by the other; if there is only one object it seems to appear and disappear as the chambers are alternately illuminated. If a single lamp is used as the source of illumination and if it is placed substantially in the plane of the inclined mirror and between the adjacent ends of two rectangular chambers located at right angles to one another, the chambers and therefore also the objects therein can be illuminated gradually and in succession so as to appear to become transformed the one into the other by using a shutter slowly revolving around the lamp.

The chief object of the present invention is to provide a device of the above stated kind that will operate efficiently as a commercial article and in particular will be operable continuously and steadily with small power consumption.

With the above object in view one feature of the present invention consists in providing a device of the above stated kind with an electric motor as the driving means for the revolving shutter. Another feature is the provision of ball bearings for the shutter so that it will be operable efficiently notwithstanding considerable and frequent expansions and

contractions due to heating while in use and cooling when idle.

A still further feature consists in the use of an inclined mirror or reflecting surface in the form of a dark neutral tinted clear glass sheet instead of a semi-silvered mirror.

A further feature resides in the fact that a shutter is used in the form of a partly cut-away cylinder, the trough-shaped light-masking portion being such as to subtend an angle of 126° at the axis of the cylinder.

In order that the invention may be clearly understood and readily carried into practice, reference will now be made to the accompanying drawings wherein:—

Figure 1 is a front elevation of one form of advertising or display apparatus constructed in accordance with this invention, and

Figure 2 is a cross section on line 2—2 Figure 1.

Figure 3 is a cross sectional view and Figure 4 is an incomplete longitudinal sectional elevation of the part cylindrical screen or shutter.

Figure 5 is a corresponding plan view.

The apparatus illustrated in the drawings comprises a box-like casing having an opening at the front through which is seen an inclined transparent reflecting surface or mirror 7 upon and through which images appear, disappear, or apparently change appearance depending upon the manner in which the apparatus is being employed.

Directly above the opening at the front of the casing there is a flat vertical surface 17 running from side 3 to side 4. The vertical surface 17 forms the foremost wall of a chamber 8. The top horizontal wall of the chamber 8 is a lid 5. The vertical walls of the chamber 8 are constituted by part of the sides 3 and 4 of the casing. The base or floor of the chamber 8 is a sheet of clear glass 11.

The interior of the chamber 8 is flat white in appearance to reflect rays of light. The whitened area extends rearwardly as far as the vertical plane 14—14 (Figue 2). The whitening includes the under surface of the lid 5.

The surfaces of the space beyond the vertical plane 14—14 and from the top down to the plane 14*a*—14*a* (Figure 2), but no further, are flat black to prevent reflection of light rays. In this black-walled space is housed the source of illumination and the screen or shutter to control the light rays. The illumination is artificial as by means of a gas-filled electric lamp 20 as shown, and the screen or shutter is shown as a partly cut away cylinder 19 mounted horizontally on ball bearings and rotated by an electric motor 18 preferably a synchronous motor mounted inside the space and connected by sprocket wheels and a chain to the shutter 19.

Vertically below the chamber containing the assembly 18, 19 and 20 is another chamber 15 similar to the previously described chamber 8 excepting that it has no glass component such as the glass sheet 11 of Figures 1 and 2 but is open on the side adjacent the inclined reflector 7. Both of the chambers 8 and 15 are rectangular, one being elongated in the horizontal direction and the other in the vertical direction. The surfaces of the chamber 15 are shown as 15*a*, 15*b*, and 15*c* and are flat white as in the chamber 8. The base and sides extend forwardly from the back to the vertical plane 14—14 and upwards from the base to the horizontal plane 14*a*—14*a*.

It is to be understood that the planes 14—14 and 14*a*—14*a* are only colour boundaries.

The rear wall of the chamber 15 is hinged to form a lid similar to the lid 5 of chamber 8.

In the space in front of the chamber 15 and below the chamber 8 is the reflecting sheet of glass or mirror 7 inclined at a determined angle; the lower edge of this glass is held by a fillet 10, and a fillet 9 supports its top horizontal edge. The colour boundaries 14—14 and 14*a*—14*a* intersect on the centre line of the fillet 9. The surfaces 12 of the side walls 3 and 4 extending forwardly from the glass 7 are flat black as also are the surfaces 13 of the side walls extending rearwardly of the glass, and also the surface 13*a* of the base 6.

The device may be employed either to cause an object to change into an apparently different one or cause an object to appear and disappear alternately.

In Figure 1 will be observed two objects; the upper object 21 in chamber 8 is an ordinary reel such as would have cotton wound round it; access to this chamber is gained through the lid 5. The other object 22 in chamber 15 is an ordinary cone; access is gained to this chamber through the hinged rear wall.

Light from the lamp 20 will be thrown upon the object 21 when the revolving cut away cylinder or shutter 19 has the portion marked D (Figures 3, 4 and 5) occupying the rearmost part of the path of rotation. The inner concave surface of the part D is highly polished thus reflecting the light of the lamp 20. Natural light is excluded and the artificial light of the lamp 20 is not directly visible to the observer. An image of the

object 21 is reflected forwardly by the reflector 7 which consists of a sheet of dark neutral tinted plate-glass. In this instance the glass 7 is acting as an ordinary mirror, and the object 22 is not apparent to the observer.

The electric motor 18 runs continually and so rotates the shutter 19 slowly by means of the sprocket wheel F and chain. As the shutter revolves the rays passing from the lamp 20 to the object 21 are gradually masked and become partially reflected into the chamber 15. At this point both of the chambers 8 and 15 will have approximately equal illumination and both objects will be visible to the eye of an observer, and will appear like a double exposure would on a single photographic plate. This appearance remains for only a brief period on account of the progress of rotation of the shutter. When the shutter has been turned to the position in which the portion D is nearest to the object 21, all light from the lamp 20 will be shut off from this object and only the object 22 will be visible to the eye of the observer.

Light thrown upon the object 22 in the chamber 15 is deflected and penetrates the glass 7, the light being of an intensity great enough to allow the illumined object 22 to be observed clearly. This object, being behind the glass, is seen through it and not by reflection from it. If one object is removed an observer will see only the other object intermittently on or through the glass 7 depending upon which chamber contains the object, and at the alternate periods he will see only the empty chamber, thereby giving the impression to the observer that the object just previously seen has entirely vanished.

The inclination of the glass 7 is upwards towards the rear of the casing, and as the angles of incidence and reflection of light are always equal and as the reflecting glass bisects the angle between the two backgrounds, the reflected background appears to the eye to be in the same position as that of the directly seen background.

Referring now more particularly to Figures 3, 4 and 5, the shutter is composed of the end discs E and E A and the trough-shaped cylinder fragment D and rotates on ball race G and G A supported on the hubs of end brackets H. The part D acts as a reflector when behind the lamp and as a mask when in front of same; the metal employed in this case is stainless steel. C is an arcuate counterbalance weight of lead spot-welded to the end disc E. The opposite end disc E A has a similar weight C A.

The two balance weights C and C A equalise the weight of the trough-shaped cylinder fragment D and allow the assembly to rotate uniformly.

The hub of one bracket H is hollow to allow an electric cable to be passed through, leading to a lamp-holder which is screwed to the said hub as shown in Figure 4. The hub of the opposite bracket merely supports the other ball race.

The angle subtended at the axis of the shutter by the trough-shaped portion D is 126 degrees.

The glass reflector 7 may be a semi-silvered mirror but a dark neutral tinted sheet of clear glass gives a better and clearer effect.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. An advertising or display device of the kind set forth, in which a revolving shutter or the like for masking the light source is driven by an electric motor.

2. The device according to claim 1, including ball bearings for supporting the revolving shutter.

3. The device according to claim 1 or 2 in which the shutter is a cut-away cylinder having a trough-like light masking portion subtending at the axis of the cylinder an angle of 126°.

4. A device according to claim 1, 2 or 3 in which the inclined reflecting surface is a dark neutral tinted sheet of clear glass.

5. The device according to any of claims 1 to 4 in which the electric motor is a synchronous motor.

6. The device constructed arranged and adapted to operate substantially as hereinbefore described for the purposes specified.

Dated this 21st day of September, 1937.

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Fig.1.

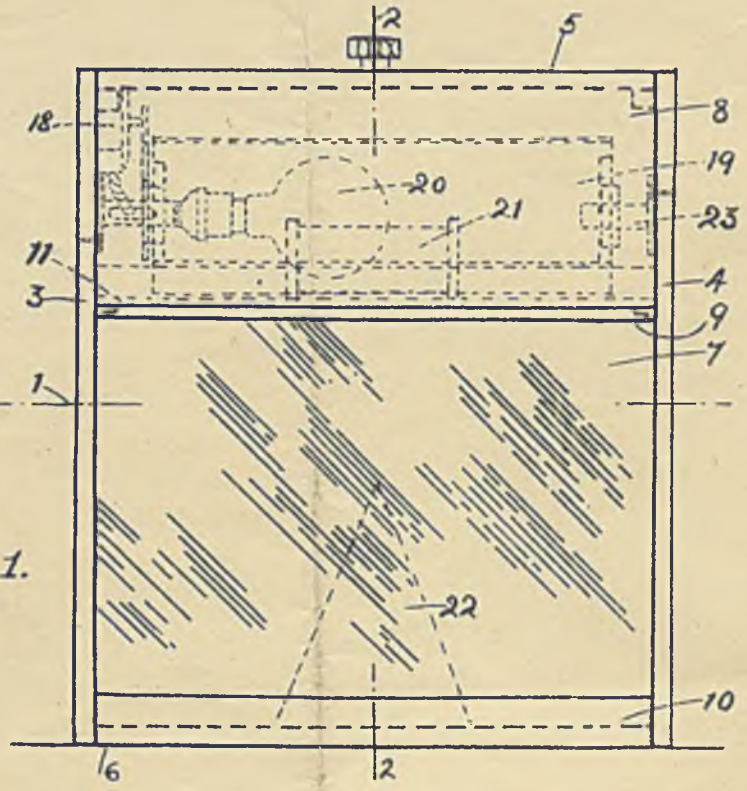


Fig.2.

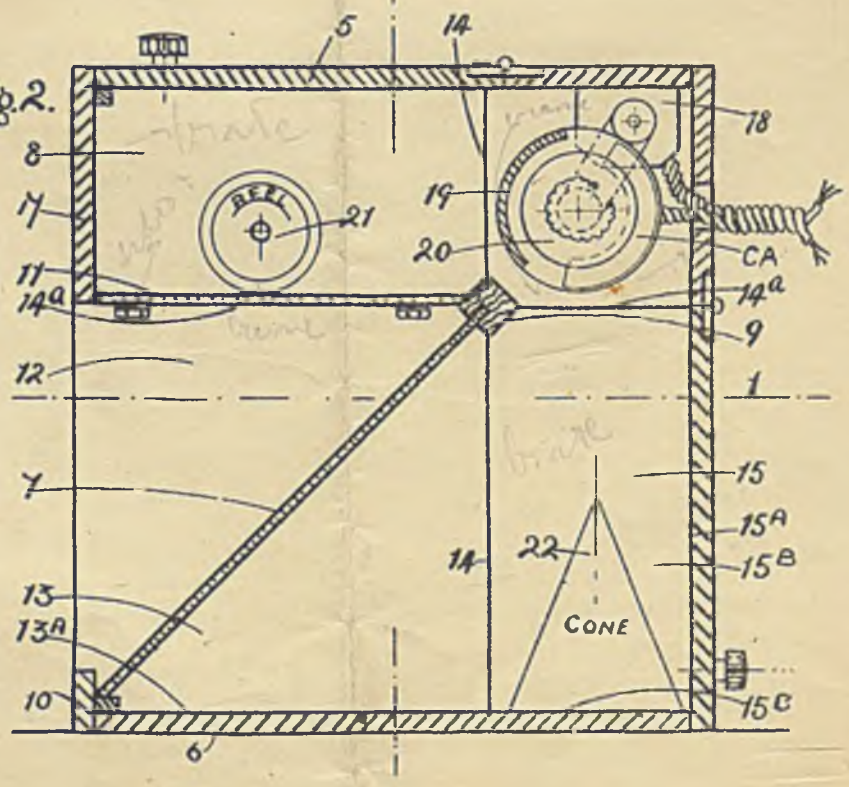


Fig.3.

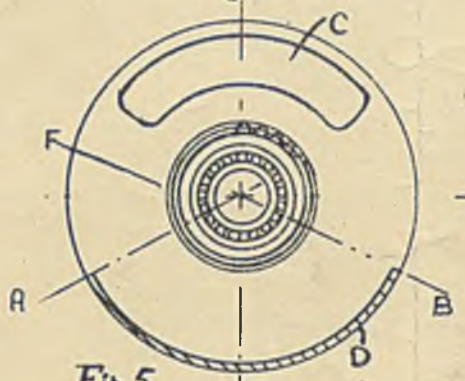


Fig.4.

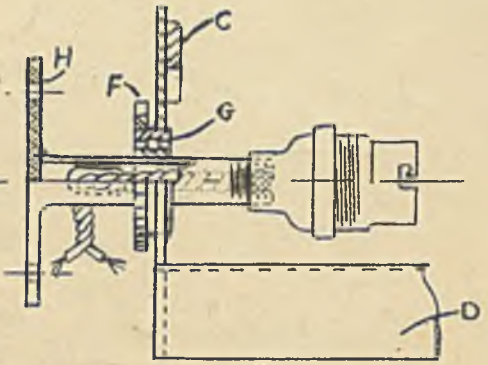
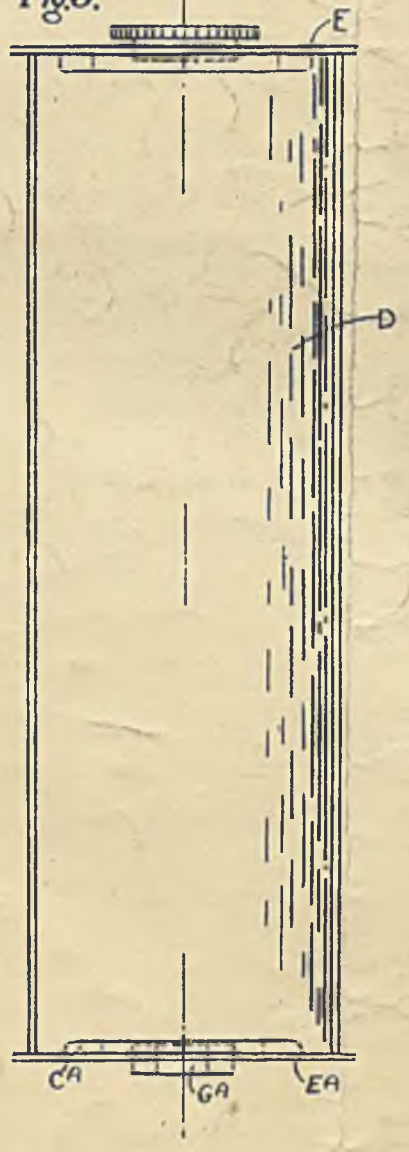


Fig.5.



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