July 13, 1954 H. B. GROW 2,683,797

APPARATUS FOR PRODUCING CONTROLLED LIGHTING EFFECTS

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Fig. 1.

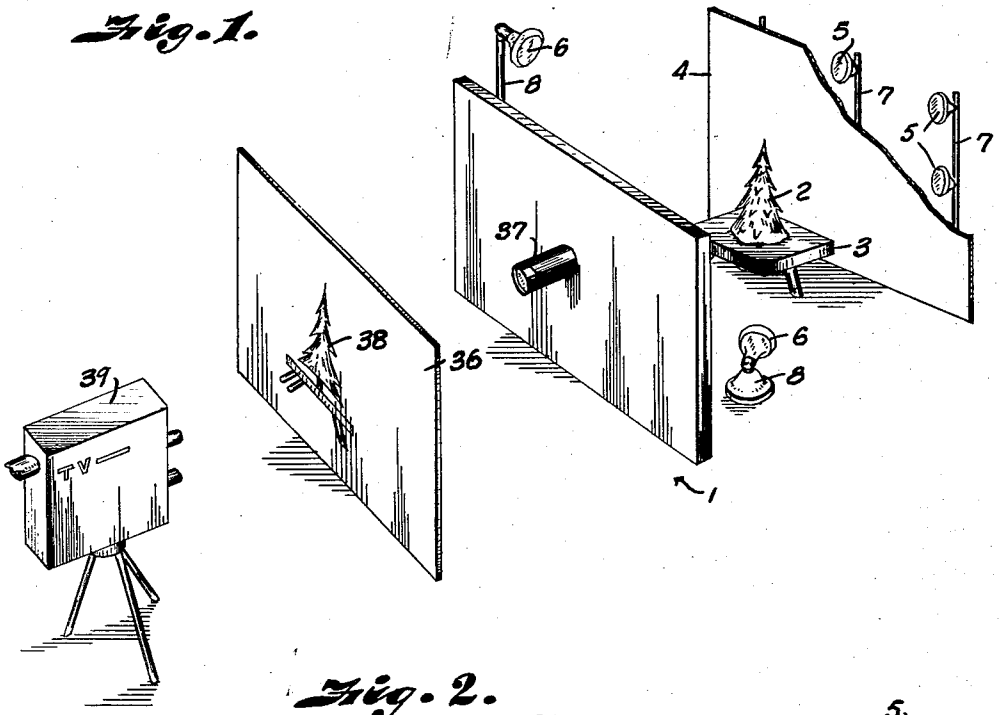
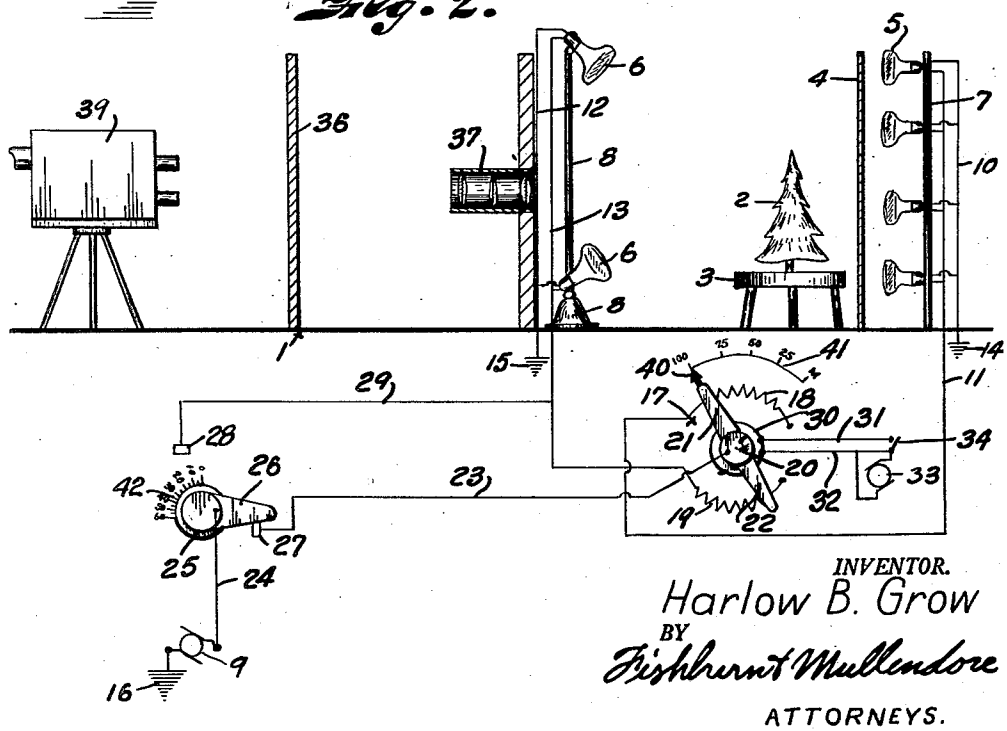


Fig. 2.



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APPARATUS FOR PRODUCING CONTROLLED LIGHTING EFFECTS

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1 Claim. (Cl. 240—9)

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This invention relates to an apparatus for producing controlled lighting effects upon an object to be viewed and/or televised and which is particularly adapted for quiz show broadcasts, the principal objects being to provide means for rendering an object visible in silhouette, in full illumination, or in intermediate degrees of illumination; to provide the illuminating means effective through a given time period; to provide manual means for controlling the lighting effects during the time period as set by the timing means; and to effect full illumination of the object responsive to completion of the time period.

Further objects of the invention are to provide a projecting screen and lens system whereby an image of the illuminated object is projected on the screen; and to provide means for televising the image.

In accomplishing these and other objects of the invention hereinafter pointed out, I have provided improved structure, the preferred form of which is illustrated in the accompanying drawing wherein:

Fig. 1 is a perspective schematic view of the lighting and televising apparatus set up in accordance with the present invention.

Fig. 2 is a longitudinal section through the apparatus showing the electrical controls and circuits for energizing the lighting means.

Referring more in detail to the drawings:

1 designates an apparatus constructed and arranged in accordance with the present invention for illuminating and televising an object 2. The object 2 may be carried on a suitable support 3 that is located in front of a light diffusion screen 4. Located to the rear of the diffusing screen is a plurality of lighting elements 5 preferably comprising flood lights that are adapted to spread light over the diffusion screen and effect a silhouette of the object 2 when the object is viewed from the front side of the diffusion screen. Located on the front side of the support 3 are lighting elements 6 in the form of flood lights for directing light rays directly on the front of the object 2, the lighting elements being suitably carried by supports 7 and 8.

The respective lighting elements 5 and 6 are adapted to be energized and controlled so that the effect of the lighting elements 5 on the object are in inverse proportion to the effects of the lighting elements 6. That is, when the lighting elements 5 are in full effect, the lighting elements 6 are turned off and as the lighting elements 5 are dimmed the lighting elements 6 are correspondingly increased in brightness.

This is effected, in accordance with the present

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invention, by providing a source of current supply as indicated at 9, Fig. 2, and providing each set of lighting elements 5 and 6 with an electric circuit including conductors 10—11 and 12—13 respectively. The conductors 10 and 12 and one side of the source of current supply may be grounded as indicated at 14, 15 and 16. The other conductors 11 and 13 are respectively connected with a rheostat mechanism 17 which in the illustrated instance includes resistances 18 and 19 which may be of any suitable type, for example, resistance coils arranged in arcuate form on opposite diametrical sides of a contact rotor 20 carrying arms 21 and 22 movable in direct contact with the respective resistance elements, with the arm 21 contacting the resistance element 18 at one end thereof and the arm 22 in contact with the opposite end of the resistance element 19. Connected to the contact rotor 20 and in electrical connection with the contact arms 21 and 22 is a conductor 23 that is in turn connected with a conductor 24 through a timing device 25, the conductor 24 being connected with the source of current supply 9.

The timing device 25 may be a spring wound or electric motor actuated type to trip a contact arm 26 between fixed contacts 27 and 28. The contact 27 is connected with the conductor 23 and cooperates with the contact arm 26 in closing circuit through the resistance elements and the contact 28 is connected by a conductor 29 with the conductor 13 to cooperate with the contact arm 26 in closing circuit directly to the lighting elements 6. The contact arm 26 engages the fixed contact 27 to close the circuits through the rheostat elements but after the elapse of a given time period the arm trips to open the resistance circuits and engages the contact 28 to close circuit to the lights 6 indicating the end of the time period.

When the contact arm 21 engages the resistance 18 as indicated in Fig. 2, a full flow of current is established through the conductor 24, contact arm 26, contact 27, conductor 23, rotor 20, contact arm 21, and conductor 11 through the lighting elements 5 to ground 14 and thereby effect full illumination of the elements 5.

Also in this position of the control mechanism, the contact arm 22 is in a position so that the resistance element 19 is fully effective in the circuit including the conductor 13 so that the current flow therethrough is not sufficient to energize the lighting elements 6; consequently, the object appears in silhouette when viewed from the front.

In order that the lighting elements may be

inversely operated, the contact rotor 20 is actuated by a motor 30 that may be of electrical type and supplied with an actuating current through the conductors 31 and 32 that are connected with the suitable current supply as indicated at 33, a manually controlled switch 34 being inserted in one of the conductors for opening and closing the circuit to effect periodic operation of the motor so that the contact arms are moved intermittently across the resistances 18 and 19. Thus the lighting elements 5 become progressively ineffective as the lighting elements 6 become brighter thereby resulting in gradual facial illumination of the object 2.

As above stated, it is the purpose of the present invention to televise or telecast an image of the object and this is effected in the apparatus illustrated by means of a translucent projection screen 36 on which an image of the object 2 is projected by means of a lens system 37 which is of a type to produce an erect image 38. The image 38 may be viewed on the screen 36 and the view telecast by means of a television camera 39. The rheostat means 17 may include a pointer 40 movable over a calibrated scale 41 to indicate a score or the relative amount of illumination on the object 2. The timer 25 may have a scale 42 with divisions indicating periods of time, for example seconds.

In using the apparatus as illustrated and described, for example in conducting a televised quiz program, a contestant is positioned in front of the projection screen 36 and in position so that the image 38 and his actions and answers are televised for the entertainment of studio and television audiences.

An object 2 of any form may be placed on the support 3 and the contestant is given a predetermined time to identify the object from the silhouette thereof that is projected on the screen 37.

The timer 25 is set for a time period, say 60 seconds, with the contact arm 26 engaging the fixed contact 27 and the contact arms 21 and 22 of the control mechanism are placed in position shown in Fig. 2. In these positions of the contact arms a full flow of current is established through the conductor 24, contact arm 26, contact 27, conductor 23, contact arm 21, and conductor 11, to effect full illumination of the lighting elements 5. During this period an insufficient or low current is flowing through the conductor 13 to energize the lighting elements 6 for the reason that the entire resistance element 19 is in circuit.

If the contestant can recognize the object from the silhouette he attains the highest award. But assuming that the contestant fails to identify the object from the silhouette, the contestant closes the switch 34 so that the motor 32 is effective in moving the contact arms 21 and 22 over the rheostat elements 20 and 21 and thereby effect reduction of the current to the lighting elements 5 and gradual increase of current to the lighting elements 6 as the motor effects movement of the contact arms 21 and 22 over the resistance elements.

The contestant opens the motor circuit by means of the switch 34 as soon as he identifies the object which must be before the contact arm 26 of the timer engages the contact 28 or the score does not count. Various scores may be used, for example, if the contestant identifies the silhouette, he scores 100; if he uses one-half the direct illumination, he scores 50; and if full illumination is required, he receives the minimum award or consolation prize.

If a contestant is interviewed over the telephone in his own home, the projection screen and projection system would not be necessary, in which case the object 2 would be directly telecast with the telecast appearing in silhouette and the object gradually illuminated by the quizzer until an answer is given or until the timer 25 functions to flash on all the light elements 6.

From the foregoing it is obvious that I have provided an illuminating apparatus which may be used in connection with televised contest programs wherein the contestant manually controls his score for the time required in making his answer to the question concerning the character of the object telecast.

While I have particularly illustrated and described the apparatus as including a projection screen and lens system between the camera and the object, it is obvious that the screen and lens system may be eliminated and the object directly viewed and/or televised without distinguishing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

In an apparatus for viewing an object from silhouette to full illumination in a selected period of time, a light source for illuminating an object in silhouette, a light source for fully illuminating the object, circuits for supplying an electrical current to the light sources, rheostat means in said circuits for rendering the light sources effective in inverse ratio, a motor connected with the rheostat means for actuating said rheostat means, an electric circuit for supplying current to the motor, a manually operable switch in the motor circuit to effect manual operation of the rheostat means during said selected time period, a time switch for establishing said selected time period, a by pass circuit connected with the last named light source, said time switch having two positions, one in connection with the light source circuit through said rheostat means and the other having connection with the by pass circuit to effect said full illumination of said object independently of the rheostat means after said time switch has operated to end said selected time period, and a current source connected with the time switch for energizing the circuits to the light sources as controlled by the respective positions of the time switch.

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