March 26, 1963 G. H. FANDREY 3,083,293

CHANGEABLE EXHIBITOR

Filed Nov. 25, 1960 2 Sheets-Sheet 1

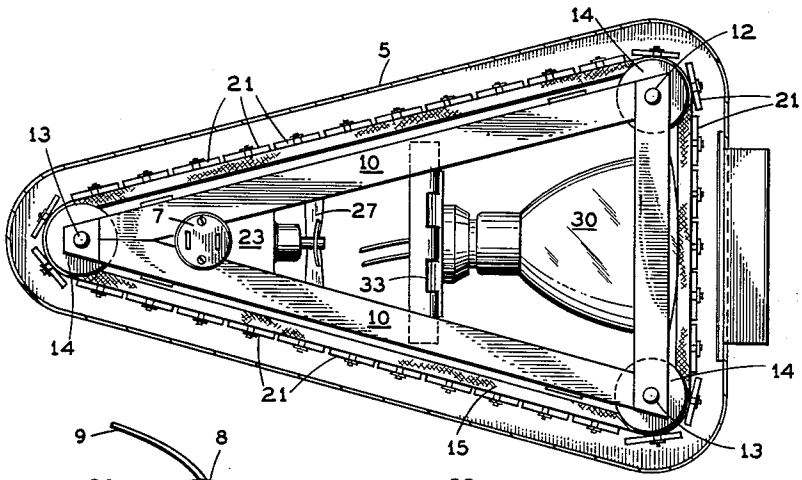


FIG. 1

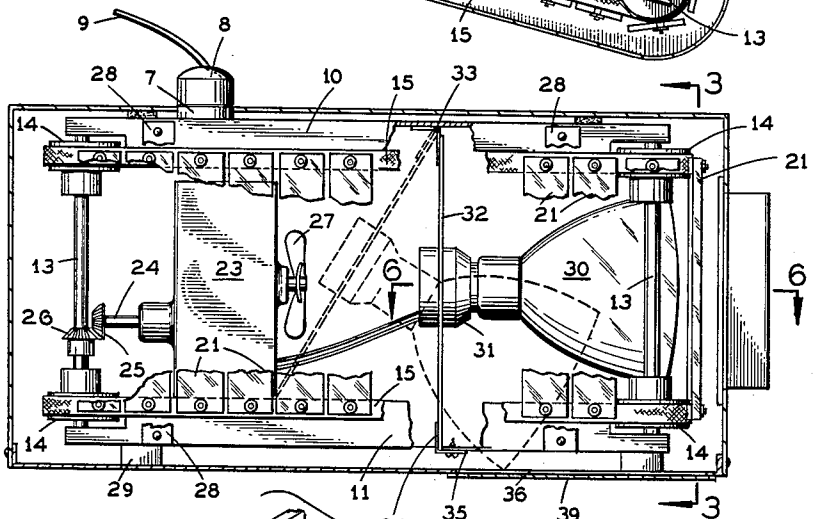


FIG. 2

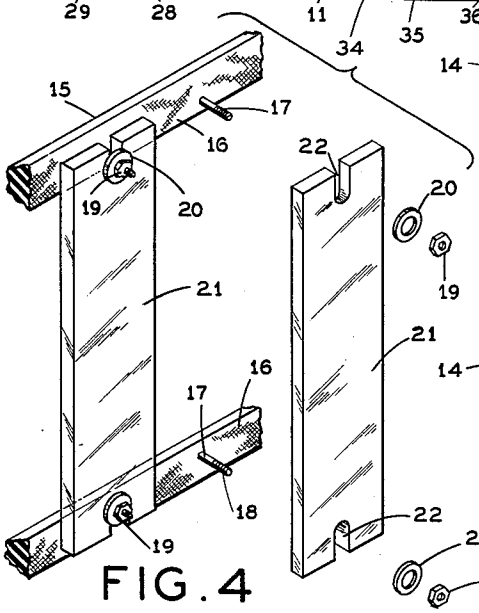


FIG. 4

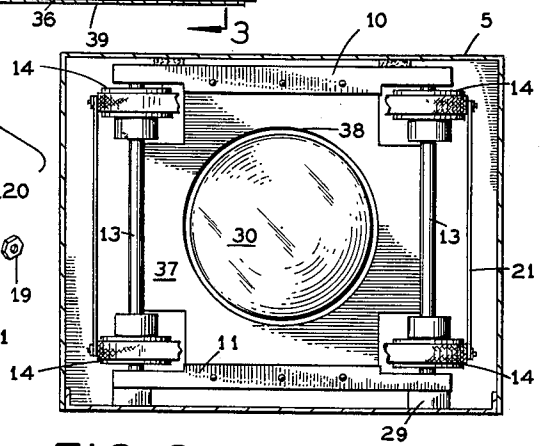


FIG. 3

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FIG. 5

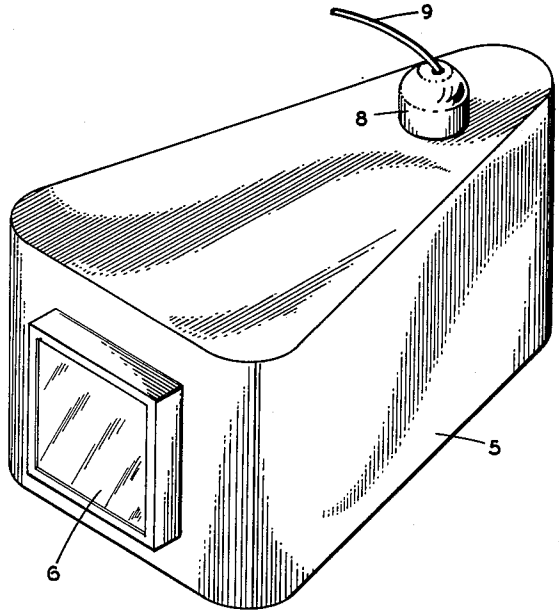
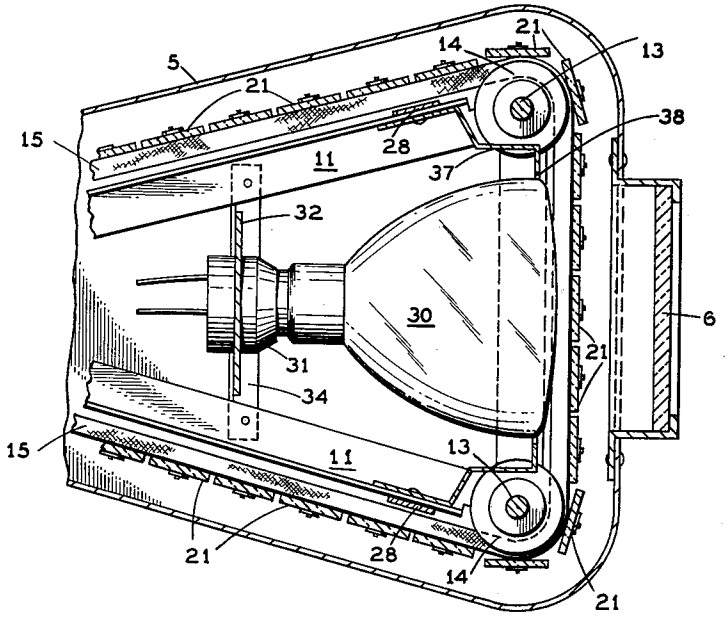


FIG. 6



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3,083,293 CHANGEABLE EXHIBITOR

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3 Claims. (Cl. 240—10.1)

This invention relates to a changeable exhibitor of the type wherein colored panels are successively moved across a source of illumination to project the various colors upon a remote surface.

The invention contemplates an endless conveyor mechanism that supports a plurality of relatively narrow and preferably plastic panels of varying colors with means to drive the conveyor so that groups of colored panels are moved across and in front of an electric lamp whereby the colors are projected forwardly to the remote surface.

The invention further contemplates a changeable exhibitor of the type that is adapted to project various colors in successive order and with the device embodying a pair of spaced apart and horizontally arranged triangular frames and with each corner of the frames carrying grooved pulleys that are adapted to support endless belts upon which the several groups of panels are relatively closely arranged so that the panels are progressively fed in groups past a light source and with the grooved pulleys being simultaneously driven by an electric motor of the type having reduction gearing therein whereby the panels are shifted at a predetermined speed past the source of illumination and with the motor also being provided with a cooling fan whereby to cool the relatively high wattage lamp to be exhausted through suitable vents in a surrounding housing for the mechanism.

The invention also contemplates provision of a mechanism as above noted wherein the mounting for the lamp is such that the lamp can be swung downwardly for removal or replacement.

A further object of the invention resides in novel means for connecting the several panels to the endless belts to permit their movement around the relatively short arc formed by the pulleys and with the connecting means also permitting of expansion and contraction of the panels under the influence of heat generated by the lamp.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a horizontal plan view of the actuating mechanism with the enclosing casing being shown in section,

FIGURE 2 is a side elevation of the actuating mechanism with the casing being shown in section, parts broken away,

FIGURE 3 is a transverse vertical section taken substantially on line 3—3 of FIGURE 2 and looking in the direction of the arrows,

FIGURE 4 is a fragmentary perspective view of a pair of panels and the means for connecting the panels to the endless belts,

FIGURE 5 is a perspective view of the housing device for enclosing the actuating mechanism, and

FIGURE 6 is a horizontal fragmentary section taken substantially on line 6—6 of FIGURE 2.

Referring specifically to the drawings, the numeral 5 designates a housing, preferably formed of sheet metal or the like and with the housing preferably being of triangular shape. The forward wall of the housing is provided

with a projection lens 6. The housing 5 adjacent its opposite end is provided with a cylindrical opening through which extends a connector device 7, adapted to receive the conventional plug 8, carrying a conductor 9 from a source of electrical energy.

Mounted within the casing 5 are upper and lower triangular frames 10 and 11. Each corner of the frames 10 and 11 are provided with journal bearings 12, supporting vertical shafts 13. Fixedly connected with the shafts 13 are upper and lower grooved pulleys 14. The grooved pulleys 14 are traversed by preferably flexible belts 15. The pulleys 14 and the belts are preferably V-shaped, having an outer flat side 16. The belts 15 are provided with studs 17 that are fixed with respect to the belts and project outwardly beyond the flat faces 16. The outer ends of the studs 17 are threaded, as shown at 18, for the threaded reception of nuts 19. Washers 20 are disposed between the nuts and the translucent panels 21. The panels 21 are preferably formed of relatively thick plastics and are colored in accordance with the desired color combinations of the several groups of panels that are supported upon the belts. The opposite ends of the panels 21 are slotted at 22 to engage over the studs 17 and the slots are of such depth that a relatively slight movement vertically may be obtained with respect to the mounting of the panels upon the studs to provide for expansion and contraction of the panels under the influence of heat generated by a light bulb, to be described. The panels 21 are arranged in groups of different colors and the several panels are progressively fed across the lens opening 6. A prime mover 23, such as an electric motor is employed to drive the belts and the motor is of the geared type whereby relatively slow movement of the panels is possible. A rear shaft 13 is driven by a shaft 24, extending from the motor 23 and actuating bevel gear 25, that drives a bevel gear 26 that is fixed upon the rear shaft 13. The motor also upon its opposite side is provided with a cooling fan 27. The frame members 10 and 11 are held in their parallel spaced apart relation by bars 28. The lower frame and the upper frame are held in spaced relation with respect to the upper and lower walls of the casing 5 by spacer buttons 29.

Mounted within the forward part of the casing and within the frames 10 and 11, substantially intermediate the spacing of the frames, is a relatively high wattage electric bulb 30. The bulb 30 is of conventional type and has connection with a socket member 31, carried by a plate 32, that is hinged at its upper end as at 33, and with the lower end of the plate being yieldably held against a stop flange 34 of a bracket 35 that is screwed or otherwise connected to the opposite sides of the lower frame 11. The lamp is thus removable by removing the bracket 35, swinging the plate 32 and the supported lamp downwardly through an opening 36 formed in the lower wall of the housing, such angular movement being such as to clear the mechanism with respect to the lower frame and the belts.

The forward ends of the side members of the frames 10 and 11 support a sheet metal shield 37, having a central opening 38, that receives the forward end portion of the lamp 30 and thus concentrates the light from the lamp 30 to the panels 21 as they are moved across the forward end of the casing behind the lens 6. It will be apparent, that suitable electrical connection for the motor and the lamp will be obtained through the medium of the connector 7 and the plug 8.

The operation of the device will be clearly apparent with the several panels mounted upon the belts 15 in closely parallel relation. The motor being placed in operation, the belts are moved at a relatively slow speed to conduct the several groups of colored panels across

the lamp opening **38**, projecting the various colors upon a remote surface. The mounting of the panels **21** with respect to the belts permit of a twisting action as the belts cause the panels to move around the radius of the pulleys **14**. The device offers a very desirable and highly ornamental means for projecting colors upon the fronts of buildings or other areas to be illuminated and the panels, due to their slow traverse across the source of illumination, may expand under the influence of the heat generated by the lamp but, when traveling in a straight line direction, the panels lie relatively close together so that there is no distinct loss of color illumination as the panels change from one color to another. When a lamp needs replacement, a cover plate **39**, disposed over the opening **36** is removed, the bracket **35** removed and the plate **32** swung rearwardly to the dotted line position upon the hinge **33**, permitting the removal of the lamp from the socket **31**.

It will be apparent from the foregoing that a very novel form of changeable exhibitor has been employed. While the device has been primarily adapted as a means to project color illumination, it will be apparent that the panels may be substituted by panels having any other design or configuration that may be projected through the lens openings. The structure is simple, is strong, durable and cheap to manufacture.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A changeable exhibitor comprising, a triangular housing having upper and lower flat walls and a flat forward end wall, a transparent lens carried by the front end wall, a conveyor device supported in the housing, the conveyor device including upper and lower spaced apart and horizontally arranged triangular frames located within the housing between the upper and lower walls thereof, means for rigidly holding the frames in their spaced relation, journal bearings carried at the corners of each frame, vertical shafts rotatable in the bearings, grooved pulleys fixed upon the shafts adjacent to the corners of each frame, upper and lower endless V-belts engaging the upper and lower pulleys, each belt being provided with an outwardly-disposed flat face having spaced studs projecting from the same, a prime mover geared to one of the shafts for the simultaneous movement of both belts, a plurality of relatively narrow and relatively thick translucent parallel and closely arranged flat panels having upper and lower slotted ends connected to the projecting studs on the upper and lower belts, the stud-and-slot connections for the ends of the panels permitting a slight vertical movement of the panels with respect to the belts under the influence of expansion and contraction of the panels, an electric lamp supported by the frame members and with the lamp being axially arranged with respect to the lens, the panels being closely parallel to each other and arranged in various colored groups that travel in a horizontal path across the forward end of the lamp for projecting changing colors through the lens, and a shield fixedly carried by the frame and having an opening that receives the forward end of the lamp to concentrate light rays through the colored panels.

2. A changeable exhibitor as provided for in claim 1, wherein the panels are each in the form of a flat, rectangular member having their slots extending inwardly and toward one another and with the studs passing through said slots, the housing being provided with an access opening in its lower wall, the lamp being mounted on a panel which is normally disposed parallel to the front wall of the housing, said lamp-carrying panel being provided with a hinge at its upper end attaching it to the upper triangular frame so that said panel can be swung to bring the lamp toward the access opening, and cooling means within the housing at the rear of the lamp.

3. The structure according to claim 1, wherein the connecting means for the ends of the panels comprises the fixed studs carried by the belts and projecting outwardly from the flat outer faces thereof, the free ends of the studs being threaded, the slots in the panels being at the upper and lower ends of the panels to engage the studs of the upper and lower belts, a washer and a nut engaging the threaded ends of the studs to bear against the outer faces of the panels, the slots in the panels being relatively wider than the studs to permit twisting of the panels as they are conducted around the arc of the pulleys, the slots also having a length capable of permitting vertical expansion of the panels under the influence of heat generated by the lamp.

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