Feb. 2, 1932. F. A. GRITT 1,843,897

LUMINOUS ANIMATED OUT-DOOR BILLBOARD

Filed May 10, 1930

Fig. 1.

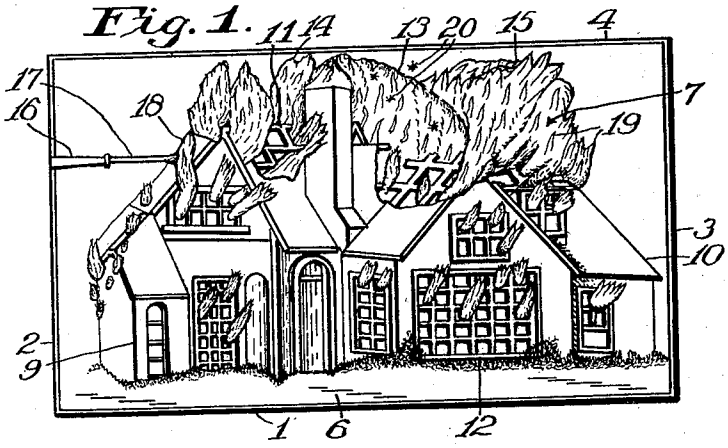


Fig. 3.

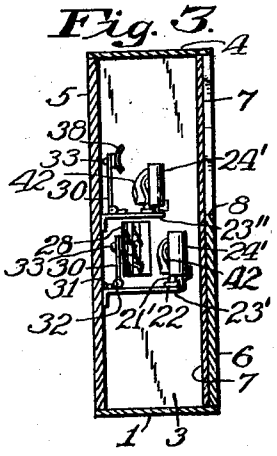


Fig. 2.

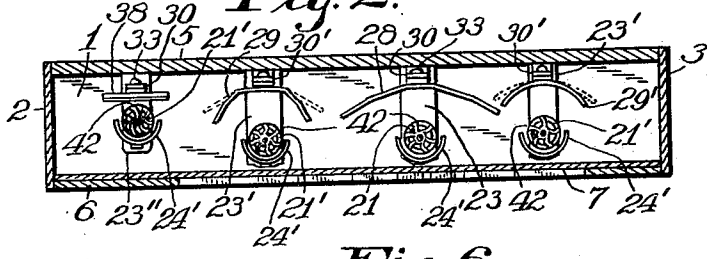


Fig. 4.

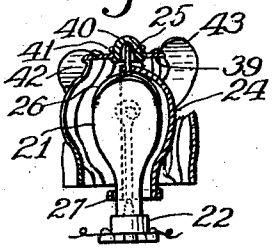


Fig. 5.

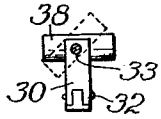


Fig. 6.

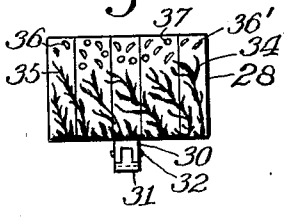


Fig. 8.

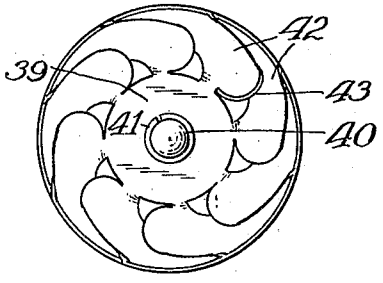
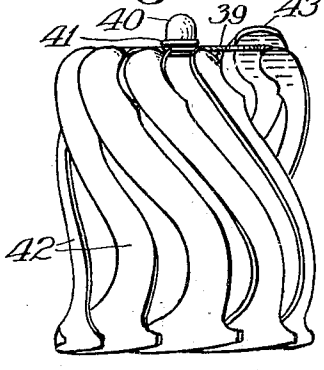


Fig. 7.



INVENTOR:
Frank A. Gritt,
BY
E. T. Silvius,
ATTORNEY.

Patented Feb. 2, 1932 1,843,897

UNITED STATES PATENT OFFICE

FRANK A. GRITT, OF INDIANAPOLIS, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO GRITT, INC., OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA

LUMINOUS ANIMATED OUT-DOOR BILLBOARD

Application filed May 10, 1930. Serial No. 451,349.

This invention relates generally to apparatus whereby to obtain various luminous animated effects or simulation of motion while being adapted to afford a still picture when desired or in day-time, the invention having reference more particularly to an out-door bill-board having the above-mentioned characteristics and capable of being understood as a plain sign board in the absence of animation effects and luminosity.

An object of the invention is to provide a novel bill-board or sign board of such construction as to be variously observed and which shall be adapted to be used either out-doors or in-doors and be effectively illuminated.

Another object is to provide novel means whereby to obtain various improved simulations of moving objects on a bill-board.

A further object is to provide means whereby to obtain novel effects in the production of luminous animated objects on a bill-board and thereby enhance the value of a bill-board, especially as an attractive advertisement.

A still further object is to provide a bill-board having a complete luminous animated picture, and having means adapted to cause various simulations of different but blending picture features.

A still further object is to provide improvements in apparatus structures whereby various animated effects may be harmoniously obtained in a single picture, and which shall be of such a nature as to be adapted to be inexpensive, durable and economical in use.

With the above-mentioned and other objects in view, the invention consists in a novel sign board having a translucent portion and an opaque front portion bearing a display sign or picture on the face thereof, the opaque part or portion having a still portion of a sign or a pictorial illustration on its face and the translucent portion having a representation on its face side adapted to be rendered luminous and so as to constitute a complete sign or picture having the simulation of moving liquid or vapor and to be rendered luminous and animated with realistic effects, particularly such as when smoke and flames in a conflagration are wafted hither and thither by air currents; and further the invention consists in novel bill-board apparatus including illuminating means comprising improved reflectors, rotors or light-interrupters, and permissibly also light-intercepters, and in the novel arrangements thereof, and in the parts and combinations and arrangements of parts, as hereinafter particularly described and further defined in the claims appended hereto.

Referring to the accompanying drawings,—Figure 1 is a front view of a bill-board having a picture representing a house afire as illustrative of the purposes and accomplishments of the invention in one form thereof; Fig. 2 is a horizontal section of the bill-board on a plane a short distance below the top thereof in which appear internal features of the bill-board; Fig. 3 is a vertical transverse section of the bill-board showing the internal features thereof; Fig. 4 is a vertical section of an improved rotor and mounting thereof, on an enlarged scale, preferably used in practice rather than the corresponding devices appearing in Figs. 2 and 3 on a necessarily small and indistinct scale; Fig. 5 is a rear elevation of one of the reflectors required for obtaining certain results in the picture illustrated; Fig. 6 is a front elevation of an amplified reflector required in the production of a luminous animated sign such as illustrated; Fig. 7 is an elevation of a preferred form of rotor or light-interrupter; and Fig. 8 is a top plan of the rotor.

Similar reference characters in the various figures of the drawings indicate corresponding elements or features of construction herein referred to in detail.

An embodiment of a display apparatus illustrative of the invention in one form comprises a frame having a bottom 1, end walls 2 and 3, a top part 4 and a back or base part 5, the frame supporting a face plate or board 6 having a translucent lining 7 composed of any suitable material to which paint or coloring matter may be applied, the front plate being opaque and having an opening or openings 8 through which the translucent lining may be seen, such openings corresponding in area and location to transparent cover portions which the face plate

6 may be suitably provided with if desired in order to protect the translucent lining face against rain or damaging weather conditions.

A burning building affords various phases of animation and is here adopted whereby to clearly explain the means and mode of operation involved in the invention. In an illustration such as referred to the numeral 9 indicates the walls of the building and 10 the roof parts thereof, the latter having the usual roof timbers 11. The picture is painted on the front face part 6, and on the exposed face of the lining, and portions of the roof parts are represented as having been burned away and exposing the roof timbers which are represented as charred wood projecting from other portions of roof parts. The numeral 12 indicates windows from portions of which flames appear to be bursting from internal combustion. The numeral 13 indicates the main or central zone of the conflagration, other fire zones being indicated by the numerals 14 and 15, the colors for the representation of the fire being painted on the translucent lining portion of the billboard. The numeral 16 indicates a fire hose nozzle painted also on the face plate 6, the nozzle presumably being projected from a fire tower or from another building and directing a stream of water 17 to a portion of the conflagration, the representation of the stream being translucent on the lining and appearing to be drenching a portion 18 of the conflagration. The upper portion of the complete picture largely represents smoke clouds in which tongues of flame 19 appear. The background colors of fire and smoke representations are painted on the translucent portion 7, the natural fire color predominating, and in portions of the smoke clouds representations of flames and also sparks 20 are made to appear realistically by novel means hereinafter pointed out.

A source of light, preferably an electric lamp 21 is arranged back of the middle portion of the sign board lining 7, slightly lower than the main fire zone representation 13, the neck of the lamp being supported in a socket 22 mounted on a bracket 23 which is supported by the back part 5, other brackets 23′ and 23″ for other lamps being supported also by the back part. A light-intercepter 24 preferably is arranged to prevent direct light rays from being directed onto the face part lining 7, simple shades 24′ being in some cases supplied for the purpose and suitably supported. Preferably the intercepter extends partially about and above the lamp and is provided on its upper portion with a bearing pin 25 and elastic arms 26 steadied upon the top of the lamp, the lower portion of the intercepter, which is shade-like in contour, having a ring or clasp 27 that is steadied on the neck of the lamp. A flexible reflector 28 is arranged opposite to the lamp to reflect the light therefrom to the translucent portion and fire zone 13. The face of the reflector is polished or mirror-like, and other reflectors 29 and 29′ are provided as may be required. Each reflector has a supporting stem 30 or 30′ that is adjustably supported on a base 31 which is secured to the appropriate bracket, a hinge screw 32 adjustably securing the stem to the base, the reflector being provided with a screw 33 adjustably securing it to the stem. The face of the reflector has opaque characters 34 and different other characters 35 thereon resembling bearded stems leaning generally in one direction to aid in causing simulation of moving tongues of fire in the representation. The face of the reflector preferably has also irregular indentations 36 and 36′ and also circular indentations 37 which cause simulation of sparks mingled with the fire flames and smoke in the representations.

In order to cause simulation of a stream of water a narrow reflector 38 having a concave reflecting face is arranged behind the lamp 21′ that is supported on the bracket 23″, the reflector being approximately parallel with respect to the stream representation but may be adjusted to various angles upon manipulation of the binding screw 33.

Each rotor preferably is composed of thin pliable sheet metal and has a top plate 39 provided with a bearing cup 40 that is removably supported upon the bearing pin 25, a split ring 41 being sprung onto the bearing cup to retain it in a suitable center hole in the top plate in which the cup is placed. A suitable number of blades 42 are carried by the top plate and extend downwardly, the lower ends of the blades being suitably secured together so as to constitute a bottom ring, the blades collectively extending about the lamp and preferably about the light-intercepter or shade. The blades are suitably spaced apart for the passage of light rays to the opposite reflector. The upper ends of the blades are suitably inclined so that heated air rising from the lamp against their under sides insured rotation of the light-interrupter, and in order to obtain most realistic representations of the conflagration representation, one rotary blade is suitably bent and distorted so as to constitute a relatively long upper blade portion or fin 43 and consequently a practical enlargement of the space adjacent thereto for the passage of light, resulting in appearance of moving light spots alternately with shadows across the fire zones. Permissibly the width of the spaces between the blades may be varied by otherwise bending the blades downwardly.

It is to be understood that the light-intercepters may be rotated by any suitable means when preferred other than by heat generated

by the electric lamps. Also that the representation of the conflagration may be more or less distinct, in some cases only blended reddish and yellowish colors of varying depth appearing on the translucent portion of the sign board when not illuminated by the apparatus above described with the animated or motion effects usually much desired. The tongues of flame from smoke clouds and sparks appearing in Fig. 1 are intended to represent such as are caused artificially by the illumination and apparatus above described.

In practical use the front of the sign usually is rendered visible by the common street lamps or by means of other external lamps. At such time as may be desired the electric lamps in the bill-board are switched into circuit and the rotors are started, the light rays from the lamps being reflected or turned back to the translucent portion of the sign board. The movement of the rotors cause shadows to appear on the opposite reflectors and they are reflected together with reflections of the characters and indentations on the reflectors to simulate realistic movements on the colored portion of the sign representing the characteristic features of the conflagration, it being understood that the inclinations of the rotor blades are such as to give the appearance of upward and lateral movements of the characteristic portions of the conflagrations, variations being obtained to advantage by re-shaping and readjusting of the several reflectors and the rotor blades or a suitable number of them.

During the practical operation of the sign board to simulate movement of various portions of a complete pictorial or other representation, still parts of which may be borne by the opaque face plate or board, the lining sheet being translucent and vari-colored to correspond with the subject of the representation, the rotors and the opposite reflectors cooperate to project on the lining sheet a co-related part of the representation and to effect simulation of movement of various portions of the co-related part of the representation, fire flames and smoke apparently rising and floating sidewise, the various relative positions of reflectors causing reflection of light at different angles so as to produce blending effects of elements of the simulation effected on the representation. The simulation is accentuated or heightened by the characters, some of which are non-reflecting, on the face of the reflector, such reflectors being adapted to be complementary to the light-interrupting rotors, the latter in some cases having reflecting surfaces. Depending upon the nature of the representation, as that of a shooting geyser or a volcano, with falling matter, the direction of rotation of some of the rotors may be reversed so as to cause simulation of downward and side movement of liquid and vapors.

What is claimed is:

1. A display sign having an opaque front portion and a house afire illustrated on the face thereof, the front portion having a sight-opening and being provided on its back with a translucent lining having thereon a representation suggestive of a conflagration emanating from the top of the house illustration, and a source of illumination and adjustable reflecting means arranged behind the lining of the sign.

2. A display sign having a translucent sheet, an opaque front plate with a pictorial representation on its face having definite characteristics, and apparatus arranged rearward of the translucent sheet including a plurality of spaced-apart groups of instruments, each group comprising a lamp, a rotary light-interrupter, and a reflector having a distorting face adapted to be complementary to the light-interrupter, for effecting a continuation of the representation on the sheet with simulation of animation of a character suggested by the character of the representation on the front plate.

3. A display sign having an opaque front portion and an illustration of a conflagration on the face thereof, the front portion having a sight-opening and being provided on its back with a translucent lining having thereon a representation suggestive of a conflagration emanating from the top of the illustration, a source of illumination arranged behind the lining of the sign, and means arranged behind the source of illumination having characterizing devices to effect simulation of moving portions of the conflagration representation.

4. A display sign including an opaque front plate bearing a pictorial representation and having a translucent lining sheet directly on its back, the plate having a sight-opening, a frame supporting the front plate comprising a back board, a plurality of brackets secured to the back board, a plurality of lamps supported upon the brackets respectively and having each a distorted rotary light-interrupter thereon, and a plurality of flexible cooperating reflectors mounted upon the brackets respectively and having variantly distorting faces effectively complementary to the light-interrupter.

5. A display sign having means for simulating the motion of free vaporous products of combustion comprised in a pictorial representation of a conflagration illuminable by light passing therethrough, such means including a translucent sheet bearing characteristic portions of the pictorial representation, a plurality of reflectors adjustably arranged opposite to the back of the sheet, a plurality of lamps arranged intermediately of the reflectors and the sheet, and a plurality of rotary light-interrupters movable between the lamps respectively and opposite reflectors respectively.

6. A luminous animated pictorial display board characterized by a translucent sheet having a field of blended colors and color tints, a plurality of electric lamps arranged at a distance from the back of the sheet and in spaced-apart relations, a plurality of reflectors adjustably arranged rearward of the lamps and variantly co-operating to impart luminosity of different degrees to different portions of the color field, one of the reflectors having on its face a variety of characters co-operatively arranged, and a plurality of light-interrupting rotors opposite to the reflectors respectively and co-operating therewith and one with another to turn light rays from the lamps with various shadows onto the colored translucent field.

7. In a luminous animated bill-board, the combination with a translucent displaying sheet, of a reflector arranged opposite to the back of the sheet, a lamp arranged intermediately of the reflector and the sheet, and a light-interrupter movable between the lamp and the reflector and having alternate blades and spaces, one of the spaces being larger than each of the remaining spaces.

8. In a luminous animated bill-board, the combination with a stationary translucent sheet and a lamp behind the sheet, of a supported bracket, a stem adjustably supported upon the bracket, a reflector adjustably supported on the stem, and a light-interrupter movable between the lamp and the reflector.

9. In a luminous animated bill-board, the combination with a translucent sheet, the sheet bearing a pictorial representation, of a reflector arranged opposite to the sheet, a lamp bulb arranged intermediately of the reflector and the sheet, and a light-interrupter rotatably supported by the bulb and having blades to be carried between the lamp and the reflector, one of the blades having a distorted upper portion effecting an augmented light passage between the blade and others of the blades.

In testimony whereof, I affix my signature on the 5th day of May, 1930.

FRANK A. GRITT.