July 26, 1927. 1,636,970

N. SULZBERGER

PROCESS AND APPARATUS FOR LIGHTING

Filed May 12, 1922

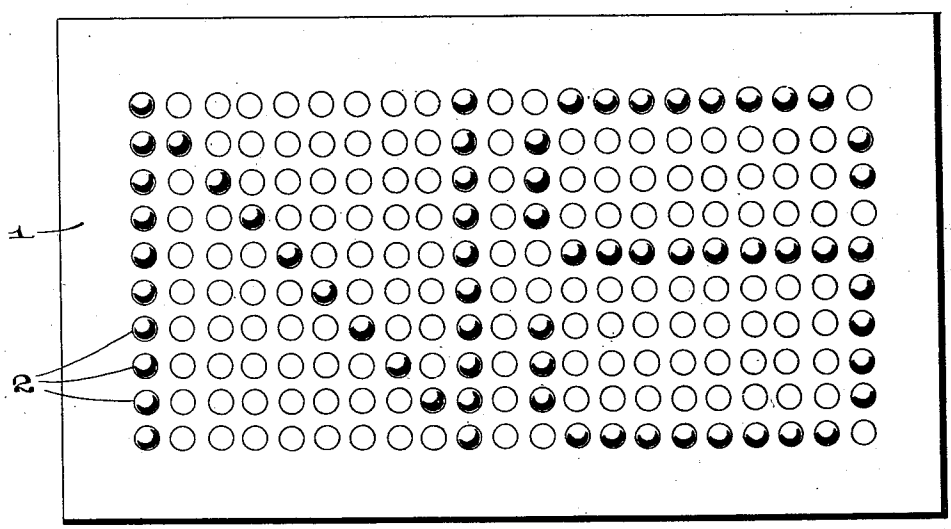


Fig. 1.

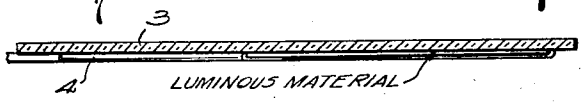


Fig. 4

Fig. 2.

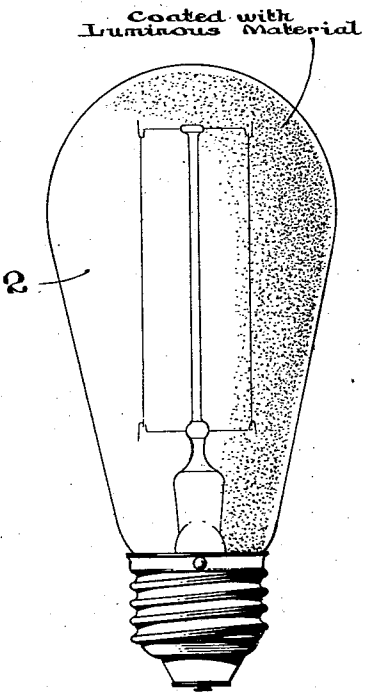
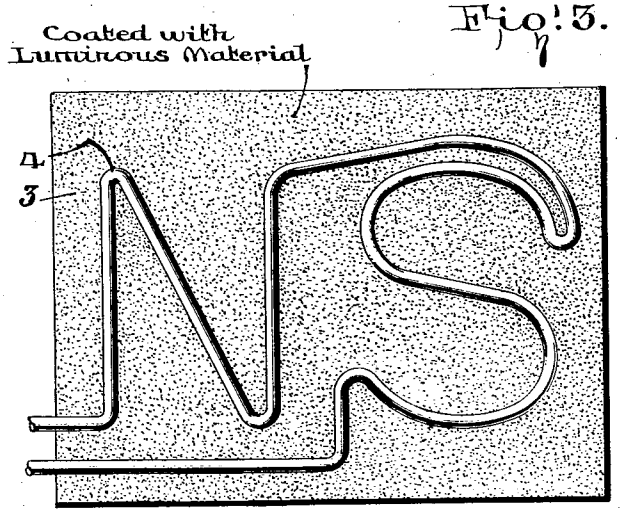


Fig. 3.



INVENTOR.

Nathan Sulzberger

BY

ATTORNEYS.

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UNITED STATES PATENT OFFICE.

NATHAN SULZBERGER, OF NEW YORK, N. Y.

PROCESS AND APPARATUS FOR LIGHTING.

Application filed May 12, 1922. Serial No. 560,500½.

The invention relates to the use and application of luminous material (chemicals, colors, alone or in mixture) used in connection with surfaces which are for longer or shorter periods exposed to light (daylight and artificial). These luminous materials will for varying periods remain visible even after the light has been turned or dimmed off. Time and color of effect will depend on ingredients used (small amount of radio-active, radium-material, etc.). By use of more or less invisible light (ultra-violet) the luminous material, in cases, may be excited to luminosity for indefinite periods, while the surroundings may be in more or less complete darkness. Depending on the material used, different color effects may be obtained. Suitable vehicles for material are to be used.

My invention is more or less diagrammatically illustrated in the accompanying drawings in which—

Fig. 1 is an advertising or display board embodying the invention,

Fig. 2 is an elevational view of an electric light bulb such as is used in connection with the display board shown in Fig. 1,

Fig. 3, is a view of a modified form of the invention, and,

Fig. 4 is a sectional view of the modified form of the invention shown in Fig. 3.

The invention as illustrated in Figs. 1 and 2 comprises a board 1 having a bank of electric light bulbs 2 which are coated on the glass surface (outside, inside or both) with, for example, luminous zincsulfide (Sidot blend). Such light bulbs may spell some word to be advertised. While the sign will appear more or less like ordinary light signs, when the bulbs are lit up the advertised matter will be visible, even when the current is turned off, perhaps, in a different color now, say, greenish. Thus, although the current may be turned off intermittently, a continuous lighting effect is obtained and in different color, thereby not only saving electricity, but also not requiring a double set of bulbs for a desired different color effect. Dependent on the luminous chemicals used, the electric current may be shut off for longer or shorter periods. The arrangement will also be found useful in connection with certain stage-lighting effects. The bulbs etc. may also be made to glow by neighboring bulbs without using the current directly in both sets.

As another way of using my invention, I will call attention to the use of phosphorescent Balmain's colors, calcium sulphide etc., as well as fluorescent chemicals such as anthracene, etc., either alone or in combination, on various surfaces and subjecting such surfaces to the action of invisible (more or less complete), ultra-violet rays by using mercury lamps with proper filters etc., thus the treated parts of the object will appear visible under the action of such rays and by changing from an ordinary (visible) light to this invisible light different effects, pictures, writing, etc. may appear on the same surface. Furthermore, objects etc., placed in the way of the visible or invisible rays of light and the prepared surface (screen) will show on such surface, when such surface is brought in lesser light or darkness.

Since the luminosity of many materials used is increased by temperature, certain effects, pictures, writings, etc. may be shown by having certain parts of the prepared material subjected to higher temperatures, as, for example, by having hot air or water run through piping (wiring) in touch with the surface in such bending as to produce the desired lettering, etc. Such an arrangement is illustrated in Fig. 3 in which a display board 3 has one surface thereof coated with a luminous material. Immediately behind this surface a suitable piping (wiring) arrangement 4 is arranged to form the suitable design. As the heating material passes through the pipes (wires) the heat radiates and causes that portion of the luminous material to luminesce and produce the desired lettering, etc. A decrease of temperature may also be used in cases. As red light will more or less extinguish the luminous action, desired effects may be obtained by use of the same to illuminate certain parts of the surface.

Various modifications and combinations as may suggest themselves to those skilled in the art, shall be considered as coming under the scope of the above invention. The term "luminescent" refers to phosphorescent and fluorescent material, either or both, as the case may be.

I claim:—

1. A process for producing displays, comprising subjecting to the influence of light a luminescent surface and maintaining certain parts of said surface at different temperatures whereby a greater or less luminosity is produced at the points subjected to varying temperatures, thus bringing out pre-determined designs.

2. A process of producing displays which comprises subjecting a luminescent surface to radiation at different points and causing the surface to luminesce a greater or less amount at said points by varying the intensity of the radiation.

NATHAN SULZBERGER.