

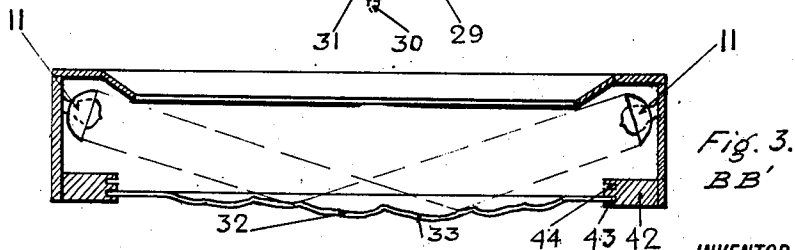
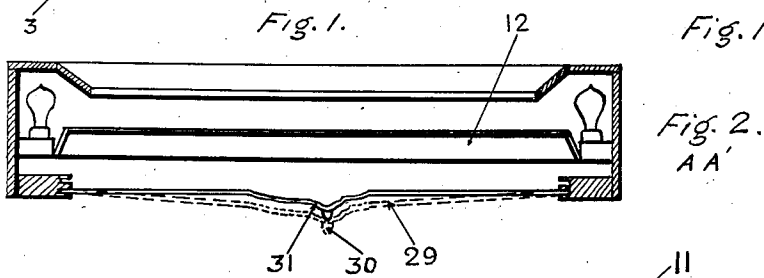
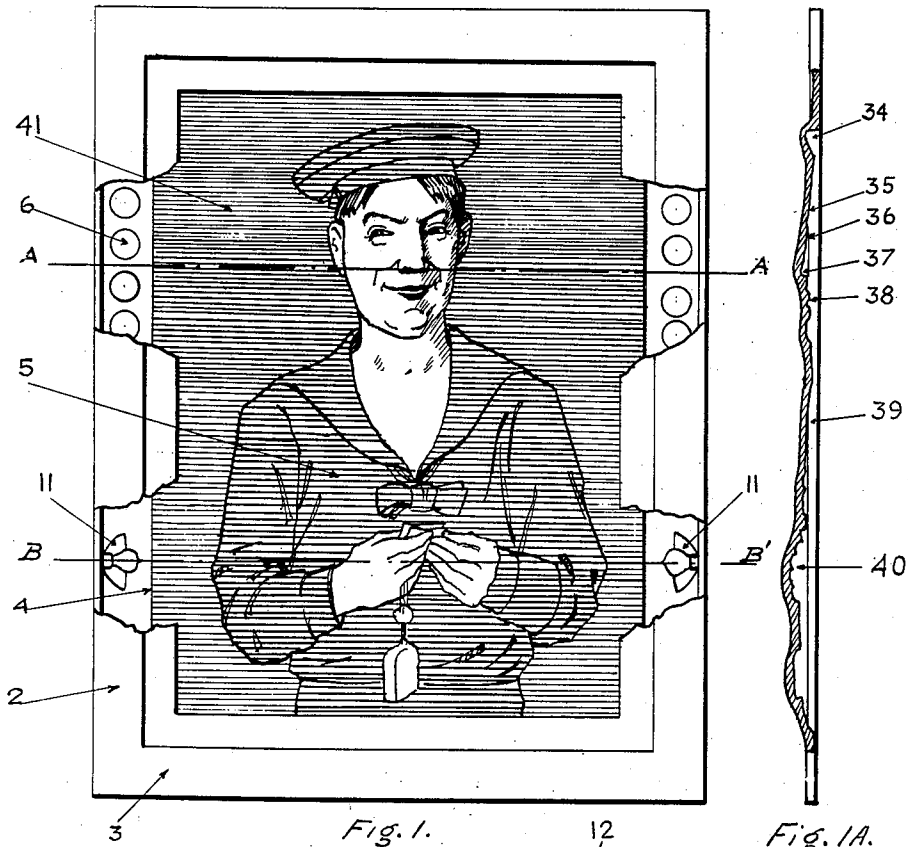
Jan. 8, 1924.

1,480,375

C. C. CRISTADORO

ILLUMINATED INTAGLIO DISPLAY DEVICE

Original Filed Jan. 29, 1917 3 Sheets-Sheet 1



INVENTOR  
Charles C. Cristadoro  
BY  
Frank H. Belong  
ATTORNEY

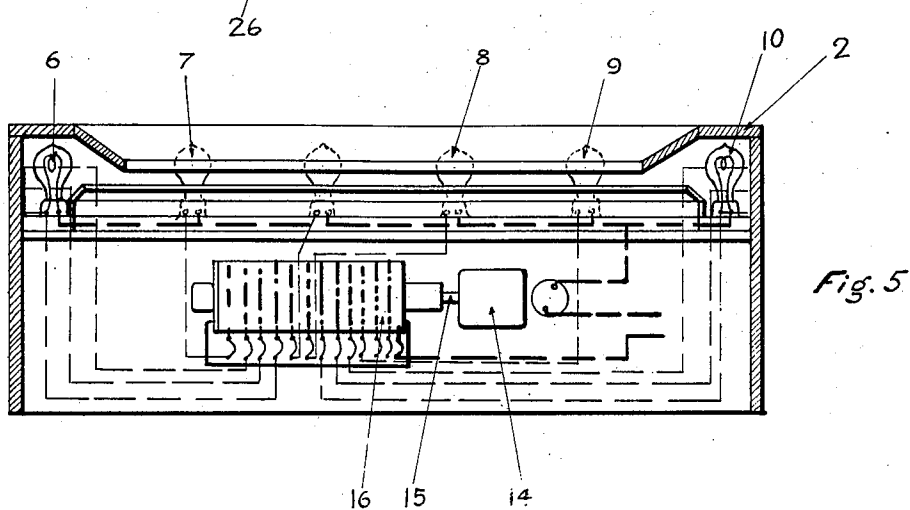
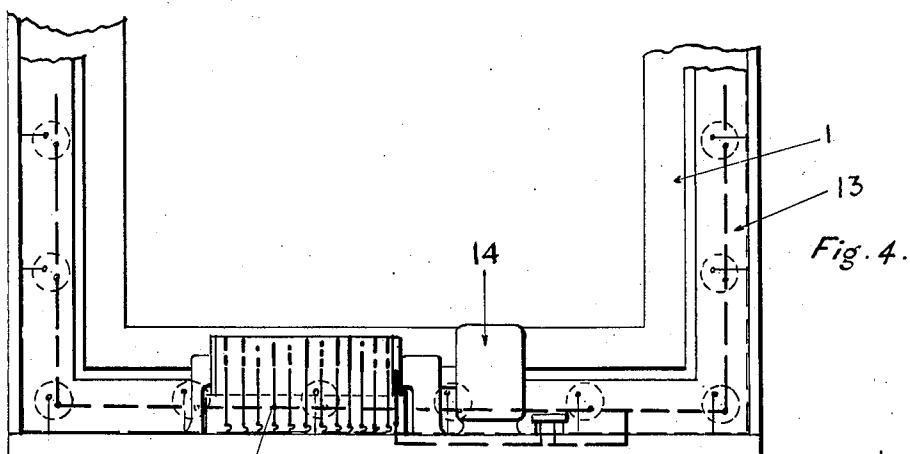
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ILLUMINATED INTAGLIO DISPLAY DEVICE

Original Filed Jan. 29, 1917 3 Sheets-Sheet 2



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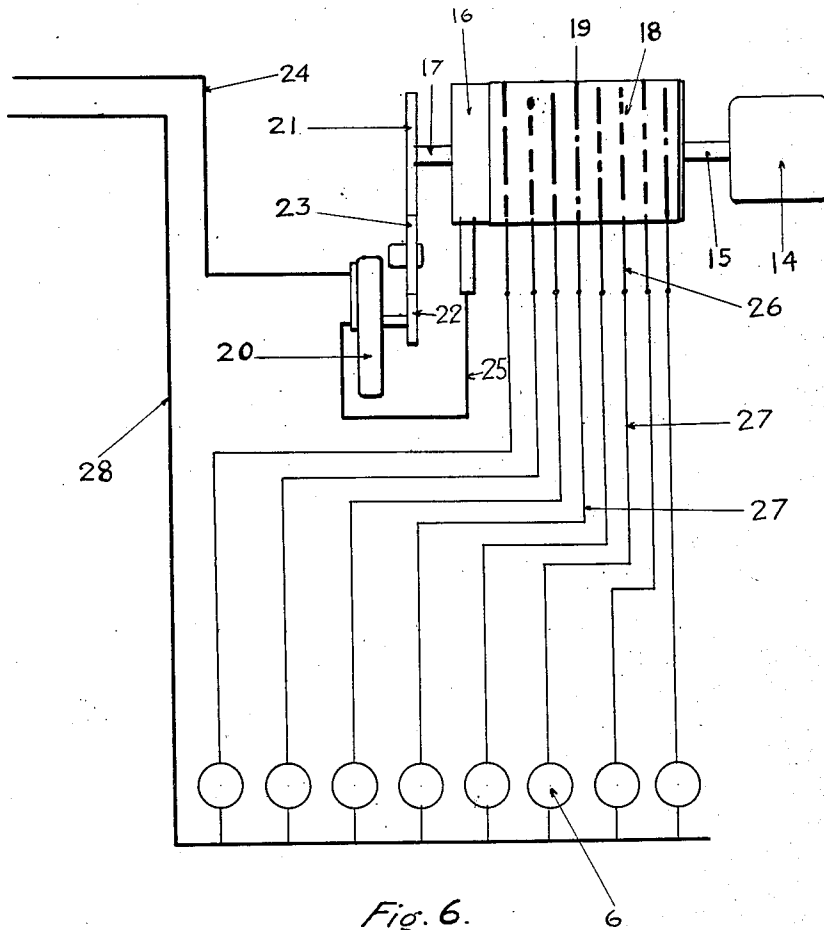
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C. C. CRISTADORO

ILLUMINATED INTAGLIO DISPLAY DEVICE

Original Filed Jan. 29, 1917 3 Sheets-Sheet 3



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Patented Jan. 8, 1924.

1,480,375

# UNITED STATES PATENT OFFICE.

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## ILLUMINATED INTAGLIO DISPLAY DEVICE.

Application filed January 29, 1917, Serial No. 145,098. Renewed June 8, 1923.

*To all whom it may concern:*

Be it known that I, CHARLES C. CRISTADORO, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Illuminated Intaglio Display Devices, of which the following is a specification.

10 This invention relates to a novel product, process and apparatus of the above character and has among its salient objects to provide a device or structure in which a painted intaglio can be made to display or show a plu-

15 rality of predetermined illusive effects by projecting on the intaglio different light rays varying either in color, intensity or direction; to provide a structure in which the character and design of the intaglio itself

20 can be readily reproduced by those skilled in the art so as to present the proper elevations and depressions and shading to harmonize with the lighting system and which at the same time allows of sufficient latitude

25 to reproduce artistic effects, reflecting the individual skill and ability of the artist; to provide a structure in which the intaglio itself can be formed either on a large scale or in miniature without in any way lessen-

30 ing the illusive effect, and in which said intaglio can be produced either by steel dies, or the like, or by modelling a relief and then taking from the relief a solidifying plastic form such as plaster of paris or cement, the

35 latter being the more practical for intaglios of maximum size, whereby the intaglio itself can be economically and commercially manufactured and reproduced in any desired quantity; to provide a structure in which

40 the intaglio is preferably adjustably and detachably mounted in a suitable and simple frame work which contains the lighting system and in which the latter can be arranged to project either direct or reflected rays on

45 the surface of the intaglio; to provide a structure in which the mechanism for projecting the light rays on the surface of the intaglio can be automatically regulated by a simple rheostat control, thereby not only

50 automatically producing successive and predetermined different effects, but also obviating the necessity and expense of manual control which is of importance where the device is used for commercial purposes such

55 as in advertising; to provide a structure in

which, if desired, the intaglio can be made flexible within certain limits and this flexibility taken advantage of in producing additional effects by bending the intaglio into one or more positions whereby the light rays will strike at different angles on the various raised or depressed surfaces of the intaglio; to provide a structure in which the various surfaces of the intaglio are painted with different colors whereby the dark and light surfaces of the intaglio harmonize with the multicolor light rays to obtain the desired effect; the arrangement being such that certain portions of the depressed surfaces exclude the light showing shadow areas while others appear light, the variation and contrast being obtained by varying the color and intensity of the light rays, by varying the distance of the lights from the intaglio, or by varying the direction from which the rays come relative to any given side of the intaglio, or by a combination of one or more of said variations.

Before taking up the detailed description of the structure and apparatus, certain essential facts may perhaps be incidentally referred to.

The intaglio is at all times preferably a painted intaglio, the color given to any depressed or plane surface of the intaglio bearing a given relation to the lighting effect. The intaglio itself is so formed that certain surfaces which it is desired to keep in the shadow, exclude light, while other surfaces receive the maximum of intensity of the light rays. It is, of course, well known to those skilled in the art, that the shadows decrease and the light surfaces increase as the lights in front are turned on and the amount of shadow portion in proportion to the amount of light surfaces can be determined by the distance of the source of illumination from the plane of the intaglio itself.

In the drawings:

Fig. 1 is a front face view of my improved device, with parts broken away to show details of construction.

Fig. 1<sup>A</sup> is a vertical sectional view of the intaglio itself.

Fig. 2 is a horizontal sectional view taken on lines A—A<sup>1</sup> of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line B—B<sup>1</sup> of Fig. 1.

Fig. 4 is a fragmentary vertical sectional

view showing more particularly the technical control mechanism.

Fig. 5 is a horizontal sectional view showing the details of the electric control mechanism.

Fig. 6 is a diagrammatic view of the electrical control.

Referring to the drawings:

1 designates as a whole the main frame which consists of vertical channel members 2 and horizontal channel members 3 surrounding the opening 4. This frame may be made in any suitable manner as long as it will support the intaglio designated 5 and hereinafter more particularly described, and also preferably the frame should be so constructed as to support the lights and lighting apparatus. In the channel portion of the frame are a series of electrical lamps or lights 6 which extend around the periphery of the frame. The globes of these lights are preferably of various colors, the white lights being designated 7, the red lights 8, blue lights 9, yellow lights 10, etc. It is to be understood that the number of lights for any given color, which lights shall be red and which blue and so on, is largely left to the discretion of the operator. As shown in Figs. 2 and 5, the lights extend horizontally and the direct rays from the lights are directed on to the intaglio. However, if desired, all or part of the lights may be so mounted as to obtain the advantage of reflected rays. As is seen in Figs. 1 and 3, the lights are mounted to extend angularly and are provided with reflectors 11. One advantage of using the reflected rays is that the light can be concentrated on any given point, as for example, by alternating the light from reflectors 11 at opposite sides of the frame the illusion of motion being obtained. This of course can be obtained by alternating the lights where the direct rays are used but the light cannot be concentrated as effectively at any given point on the figure. Where the direct rays are used and in order to prevent the light being too strong at the points nearest the lamps, I preferably use a baffle plate 12 extending entirely around the frame except at the point where reflectors are used. The lamps may be mounted in a suitable base frame 13 as shown in the drawings.

Describing now the manner in which the lights can be selectively and successively operated, I provide a motor 14, the armature shaft of which is connected to the drive shaft 15 of a contact drum 16 having on its other side a journal shaft 17. This contact drum is covered with an insulating fibre sleeve or cylinder 18. This sleeve 18 is provided with a plurality of apertures 19. In order that the lights may be gradually increased in strength as the circuit is closed through any particular lamps, I provide a

suitable rheostat 20 interposed in the circuit in any suitable manner. This rheostat 20 may be driven from the shaft 17 by gears 21, 22 and intermediate gear 23.

Describing now the electrical circuit, it leads from a suitable source of current through conductor 24 through the rheostat 20, branch conductor 25 by a commutator to the contact drum 16. From the contact drum the circuit leads through the spring mounted contact members 26 to corresponding conductors 27, thence through the lamps 6 to return by conductor 28 and back to battery. The arrangement is such that as the drum rotates the contact members 26 will, at predetermined intervals in the rotation of the drum, pass through the corresponding aperture in the drum and close the circuit through the lamp corresponding to such contact member. As the drum continues to rotate the contact members wipe out of the apertures 18 and engage the insulating fibre 19. This of course immediately opens the circuit and the light for that particular lamp goes out. It is to be understood that by properly arranging the apertures in the insulating shell 19, that the circuit through the lights can be automatically opened and closed in any predetermined order and at any predetermined intervals; for example, if desired, there might be more than one aperture in the drum for any light or lights. The particular manner of arranging the electrical control is of course open to considerable variation and it is to be understood that this invention is not in any sense limited to the electrical control here shown.

Describing now more particularly the picture or intaglio designated as 5, it comprises a base portion 29 which may be of suitable paper composition or plaster and if desired may be made flexible. In such case it is preferably provided at its rear side with lug 30 which can be moved, shown in dotted line in Fig. 2. In most instances, however, it will not be necessary that it be flexible. The front face of this picture takes the form of an intaglio as shown more clearly in the cross-section of Figs. 2 and 3. The parts which are to be more strongly brought out are depressed, the depressions varying with the prominence of the parts to be shown, this of course being left very largely to the skill of the artist in making the intaglio. For example in the present illustration the nose is one of the most prominent parts of the head and has a maximum depression as shown at 31; the two hands are also prominent in the picture and are also shown as having a maximum depression as shown at 32 and 33. The manner in which the intaglio is formed is shown more clearly in Fig. 1<sup>A</sup> in which 34 designates the hat, 35 the forehead, 36 the eyes, 37 the nose, 38 the mouth, 39 the chest, 40 the fingers of the

hands 32 and 33. It will be seen that the most prominent parts are depressed to the greatest extent. The background which may take the form of sky designated 41 is practically flat. The intaglio is colored to make it resemble a natural scene and to obtain local color; for example, in the present instance the background is blue and the suit is blue, the suit being a darker blue than the background; the face and hands flesh color, the hair red, the cap blue and the sack white.

The intaglio as a whole is preferably detachably seated in the frame, the front face of the rim of the frame having a channel portion 43 to receive the edges of the intaglio. If desired, the intaglio can be moved closer to the lights by inserting it in the channel 44 formed in the member 42. When the intaglio is in place numerous and varied effects can be obtained by varying the number of lights, the direction of the rays or the color of the rays which are thrown onto the intaglio itself.

The relief from which the intaglio is made should be modelled on a uniformly smooth surface which can either be flat or, if desired, slightly convex. For practical purposes I have found that from one inch of relief to one foot of modelled surface gives the best results. For example, in modelling the front view of the head which is about six inches wide, the highest point or the tip of the nose of the relief, would be one-half inch from the board. All other parts of the relief should be modelled on the same scale. Details of objects as represented as further in the distance are more flatly modelled than objects in the foreground. It is, of course, to be understood that more skillfully the intaglio is formed the more effective are the illusions. While

this is true, any one skilled in the art will have no difficulty in forming a suitable intaglio for the use of the present invention. After the relief has been modelled a negative or mould is cast from it. This is the intaglio on the surface of which are the depressions corresponding to the modelled parts of the relief. When the light rays play over these depressions they produce the illusions of relief.

It is to be understood that the invention in its broader aspects is not limited to the details here shown except as set forth in the appended claims.

I claim as my invention:

1. An intaglio consisting of the representation on an opaque surface of a given object formed in opaque material the prominent parts thereof being depressed, the degree of depression varying directly with the prominence of the detail to be emphasized and predetermined parts of the intaglio surface being permanently colored to give harmonic light and shadow effects when the face of the device as a whole is subjected to the action of light rays.

2. In an apparatus of the character described, the combination with a frame work, of a painted intaglio seated in said frame, multi-colored ray projecting members mounted in said frame and extending around the periphery of the intaglio, means for producing variable harmonious illusive effects, consisting in depressing the details of the intaglio to variable degrees, variably coloring the depressed features of the intaglio reproduction and varying the color, intensity and direction of the light rays.

CHARLES C. CRISTADORO.

Witnesses:

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THOS. H. ROSENBERGER.