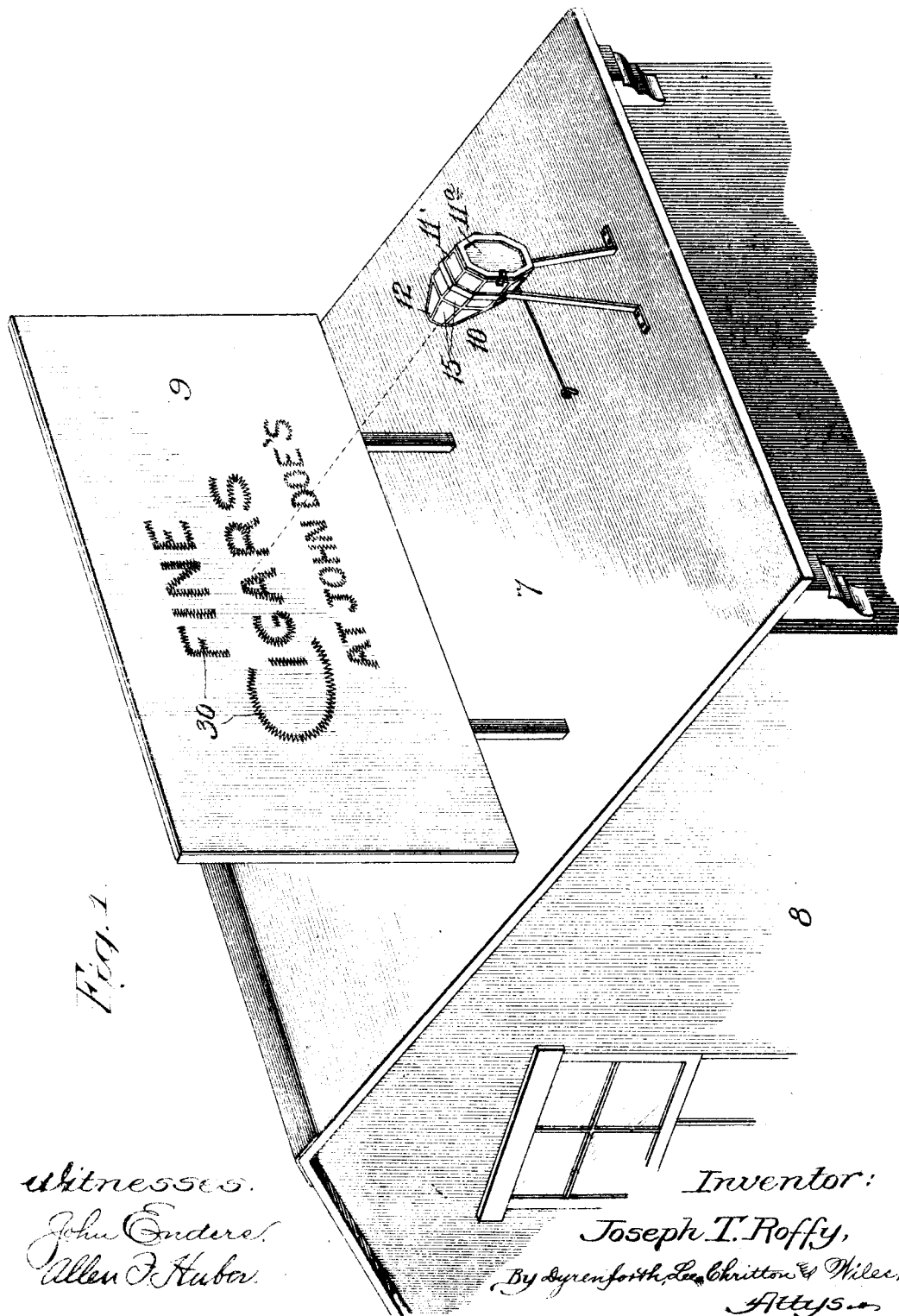


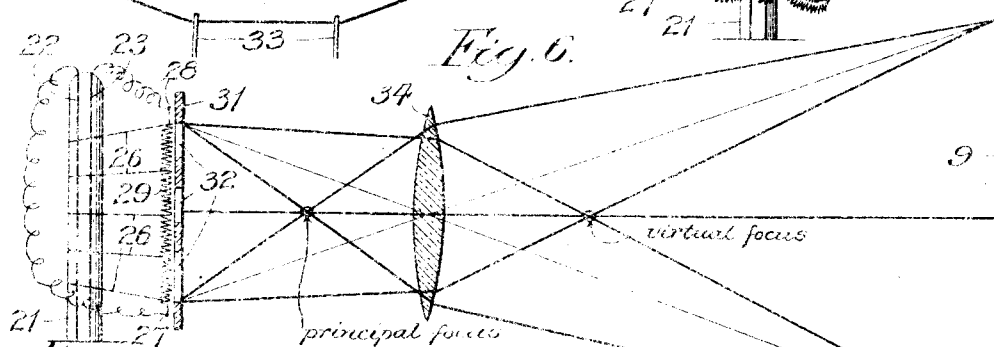
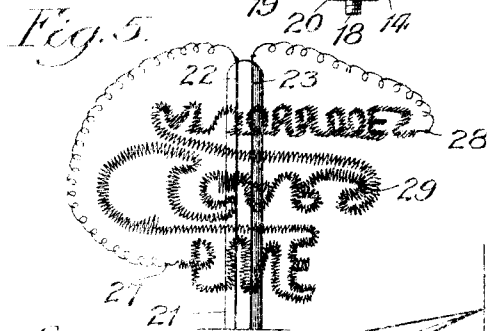
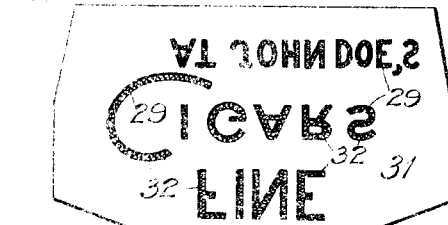
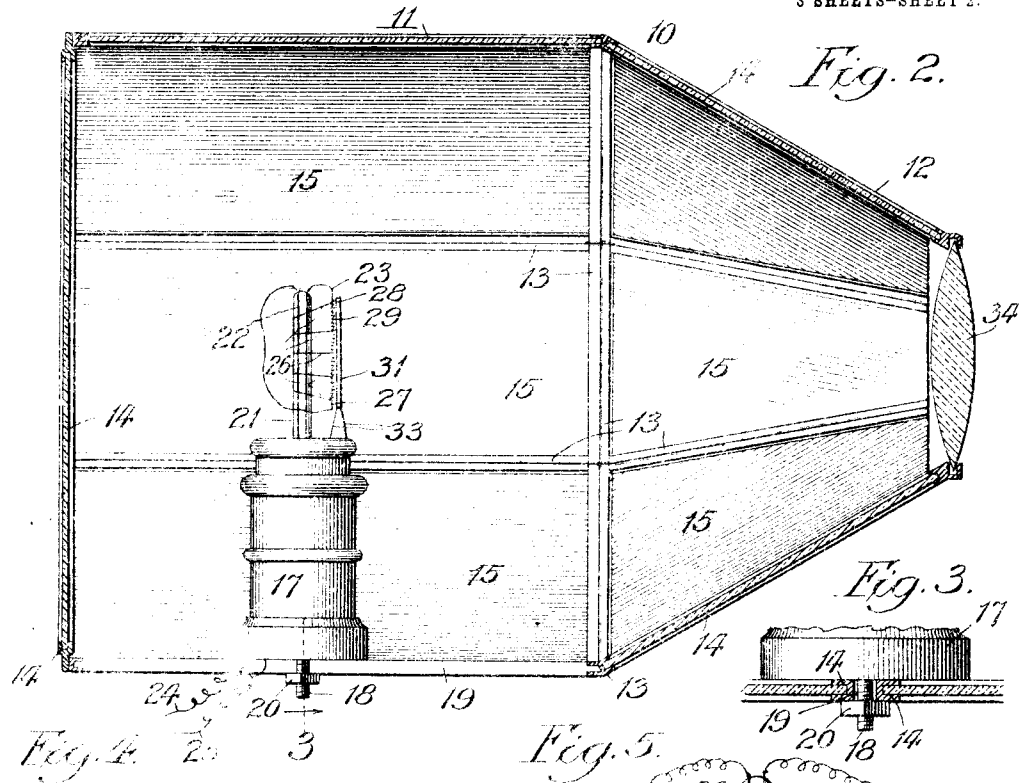
3 SHEETS-SHEET 1.



J. T. ROFFY.
 ADVERTISEMENT DISPLAYING APPARATUS
 APPLICATION FILED JULY 7, 1909.

1,026,126.

Patented May 14, 1912
 3 SHEETS-SHEET 2.



Witnesses:

John Enders,
 Allen J. Huber.

Inventor.

Joseph T. Roffy.

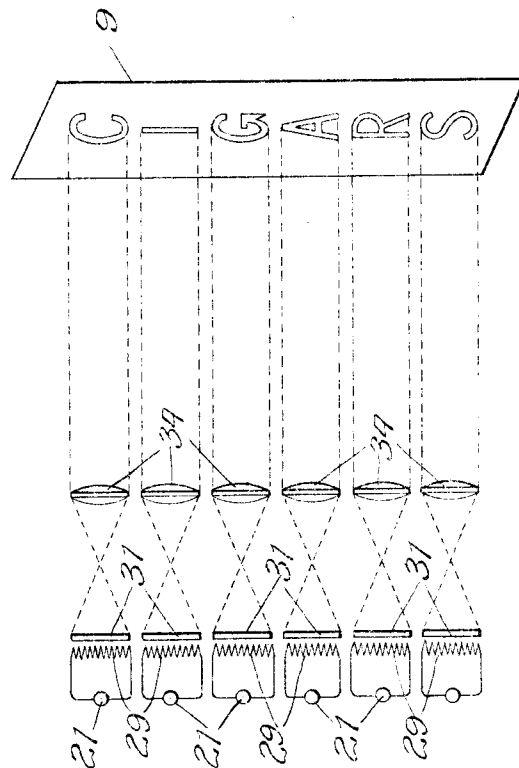
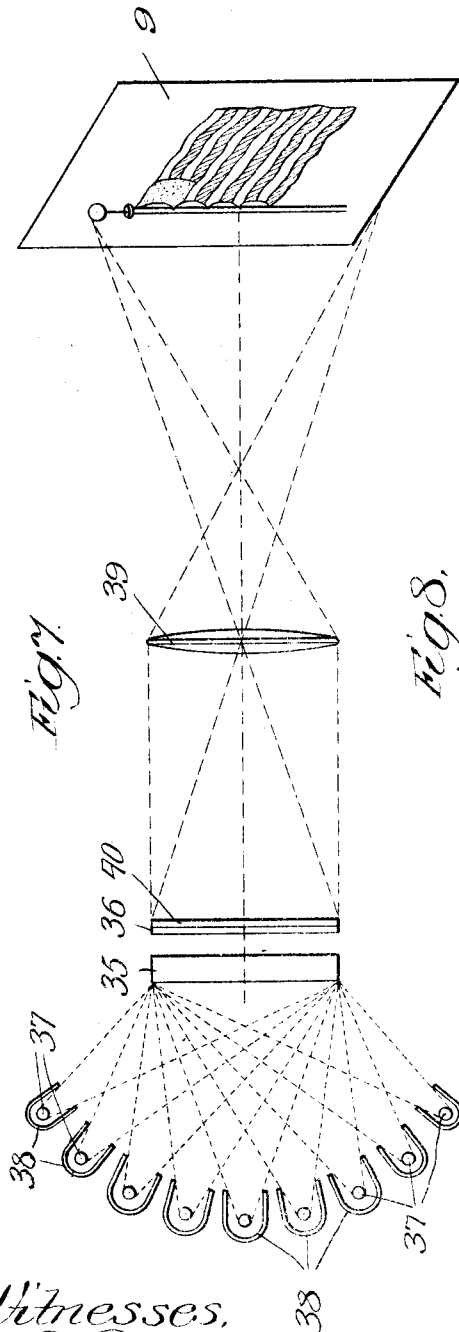
By Syngforth, Lee, Christian & Miles,
 Attys.

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1,026,126.

Patented May 14, 1912

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOSEPH T. ROFFY, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
NERNST LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

ADVERTISEMENT-DISPLAYING APPARATUS

1,026,126.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed July 7, 1909. Serial No. 506,264.

To all whom it may concern:

Be it known that I, JOSEPH T. ROFFY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Advertisement-Displaying Apparatus, of which the following is a specification.

My invention relates to advertisement-displaying devices designed for the display of advertising matter upon a suitable display-surface by the use of artificial light.

My object is to provide for the display of advertising matter in a manner to render it attractive and conspicuous to passers-by, at night and on cloudy days, regardless of the location of street arc-lights, or the like, in relatively close proximity to it.

In the accompanying drawings—Figure 1 shows by a perspective view the roof of a building on which an advertisement-displaying apparatus constructed in accordance with my invention is supported. Fig. 2 shows my improved apparatus by a view in longitudinal vertical sectional elevation. Fig. 3 is a broken enlarged section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow, this view showing a detail of the focusing means for the apparatus. Fig. 4 is a view in front elevation of a plate having transparent sections employed in connection with a body exposed through said sections and capable of being incandescent. Fig. 5 is a similar view of the incandescent body and its supporting means. Fig. 6 is a diagrammatic view of the luminous body and cooperating plate placed near but slightly in front of the principal focus of a double convex lens, and a display surface upon which the real and inverted image is formed, the whole being shown in vertical sectional elevation. Fig. 7 is a view in the nature of a diagram of a modification of my invention showing another form of luminous body which may be employed; and Fig. 8, a similar view of still another embodiment of my invention.

For the purpose of illustrating one of a number of locations or positions in which my improved apparatus may be used, I have shown it as applied to the roof represented at 7, of a building 8, a display-surface upon which the advertising matter may be conspicuously displayed being indicated at 9.

My improved apparatus is represented at

10 and is preferably formed with a shell or casing 11 having a frusto-conical forward end-portion 12 and a hinged end 11^a. This casing, which may be formed of any desirable material, may, if desired, be composed of a frame formed of channeled strips 13 affording series of grooves 14 in which pieces of glass, or other suitable material, forming sides 15 may be confined, the glass or other material being opaque or translucent depending on whether or not it is desired to radiate light through the walls of the casing from the incandescent body contained therein as hereinafter described.

Located in the casing 11 is a receptacle 17 which rests upon the bottom of the casing and carries a depending threaded stud 18 projecting downwardly through a longitudinally extending slot 19 provided in the frame 13 and upon which screws a nut 20 through the medium of which the receptacle 17 may be held in any position of adjustment longitudinally of the casing for a purpose hereinafter explained. The receptacle 17 contains a glass standard 21 held securely in position by a filler (not shown) and embedded in said standard are the terminals 22 and 23 of the wires 24 and 25, respectively, leading from a source of electric-current supply, and stiff wires 26 extending laterally and forwardly of the standard 21. The terminals 22 and 23 are connected with the extremities 27 and 28 of a strip of refractory metal 29 which is preferably formed, as illustrated, of platinum wire bent upon itself to give it the broad zig-zag formation illustrated, and so shaped as to cause its bent portions to be in the same plane and generally conform in shape to the legendary matter to be displayed on the display-surface as, for instance, that indicated at 30 in Fig. 1, but in reverse and inverted condition when viewed from the front of the casing, as represented in Fig. 5, it being understood that by connecting the terminals 22 and 23 with the extremities of the strip 29 a current of electricity may be passed through the entire strip and thus its convolutions be heated to incandescence. To hold the convolutions of the strip 29 in position against sagging, I secure the strip at intervals to the outer ends of the wires 26 which, by being embedded in the glass standard 21 out of contact with each other and the wires 22 and 23, do not affect the passage of the cur-

rent through the strip. Coöperating with the strip 29 is an opaque plate 31 having transparent sections 32, these sections being so shaped as to conform to the outline of the legendary matter, as, for example, the letters of the words shown as displayed on the display-surface in Fig. 1, but arranged in the plate 31 in reverse and inverted order when viewed from the front of the casing. This plate which may be suitably supported in any desirable manner in close proximity to the strip 29 and in parallel relation therewith as by wire uprights 33 embedded at their lower ends in the receptacle 17 and connected with the plate 31, registers at its sections 32 with those portions of the strip 29 which conform in general to the legendary matter to be displayed, as clearly indicated in Fig. 4, and is preferably formed of opaque material, calcium, or cement, being preferred, the transparent sections 32 being formed by cutting away portions of the plate to form openings through it so shaped as to spell the legendary matter backward, as represented in Fig. 4, though it will be understood that the plate may be formed of transparent material made opaque, except by the sections 32, by coating it with any suitable material for obscuring those portions of the luminous body, the image of which, if formed on the display-surface, would prevent the display of the desired legendary matter. Furthermore, the transparent sections may be tinted with any desirable color provided such tinting does not prevent the transmission of the image of the incandescent body through said sections, as hereinafter explained.

The outer end of the portion 12 of the casing is provided with a lens 34, preferably of the double-convex variety illustrated, through which the real and inverted image of the unobscured portions of the luminous body is formed on the display-surface by virtue of the fact that, as in mirrors, the image of a body is the collection of the foci of its several points, and that property of image formation is inherent to a double convex lens. Varying the distance of the lens 34 with relation to the display-surface for increasing or decreasing the size of the image displayed necessitates varying the distance of the luminous body 29 and obscuring plate 31 with relation to the lens, this adjustment being rendered possible by means of the sliding mounting of the receptacle 17 on the casing 11. By thus producing on the display-surface a direct image of those portions of the luminous body 29 which are not obscured by the opaque portions of the plate 31, the image displayed on the display-surface spells the legendary matter to be displayed, and by reason of the transparent condition of the sections 32 in the plate and the single lens produces an

image of such character that it is capable of being seen on a display-surface on cloudy days and very conspicuous in the night-time, despite the location of arc-lamps or other artificial light in close proximity to the display-surface.

It is manifest that the form of lens used may be varied as desired provided the shape and arrangement of the lens or lenses is such as to cause the magnified image of the portions of the luminous body exposed through said plate to be displayed on a suitable display-surface. Thus a double-concave lens may be substituted for the double-convex lens illustrated, in which case the image cast upon a display-surface being merely reversed in a horizontal plane, the sections 32 in the plate and the convolutions of the refractory strip would be so arranged as to spell the legend in reverse, but not in inverted condition.

While I have illustrated and described words as the legendary matter to be displayed, it will be understood that the display-matter may be representations of objects in the form of silhouettes.

While I prefer to employ a platinum strip as the luminous body, in which case it need not be incandesced in a vacuum, and bend it to conform generally to the sections 32, I do not wish to be understood as intending to limit my invention to the use of a strip of platinum or other material capable of being incandesced in the air, as any other material capable of being incandesced in a vacuum or in the air may be used. Furthermore, the strip need not be bent as described, but may be provided of any other shape provided portions thereof register with all of the sections 32. My invention contemplates the use of any other luminous body suitable for the purpose, whether such body be rendered luminous by the passage of an electric current through it, or subjection to heat, light rays, or to chemical action, as is well understood in the art, as for instance the flame of a kerosene lamp, or a plate of material capable of being rendered luminous by subjection to light rays, provided it be flat or substantially flat and register with all of the sections 32 of a partially obscuring plate, in which case the legendary matter, whether words or outlines of objects, would be displayed by the image of portions of the flame or luminous plate exposed through the sections 32.

In Fig. 7 I have illustrated a form of construction in which the luminous body is of such material as to be rendered luminous by subjection to light rays as above stated. In this construction I provide a plate 35 preferably of quartz glass which is located in the rear of a plate 36, like the plate 31 of the preceding figures, having sections cut through it to provide openings therein of a

shape corresponding to the legendary matter to be displayed on the surface 9, the plate 35 being of approximately the same area as the plate 36 so that portions of the plate 35 are directly in line with all of the openings in the plate 36. The plate 35 is rendered luminous by any suitable light-producing devices, such as electric incandescent lamps represented diagrammatically at 37 and arranged in a curved series with reflectors 38 behind them for focusing the light upon the body 35, the image of the portions of the luminous body 35 exposed through the openings in the plate 36 being cast upon the display surface 9 by means of a lens 39, as described of the construction illustrated in Figs. 1 to 6 inclusive. It is desirable in this construction that a transparent, slightly colored, plate, such as that represented at 40, be positioned between the plate 36 and the lens 39. If desired, the body 35 may be provided in a form corresponding to the contour of the legendary matter to be displayed as described of the filament 29.

When it is desired that the luminous body in the casing serve the double purpose of displaying advertising matter on a display surface and illuminating the space around the casing, as for instance where the casing is placed in a store, the sides 15 may be formed of white or colored glass.

If desired, the display of the advertising matter may be effected by the employment of a plurality of cooperating apparatus constructed in accordance with my invention, as, for example, each element of a group of apparatus may be constructed to cast an image forming one letter only, the apparatus cooperating to display the word or collection of words forming the advertisement to be displayed. Such an embodiment of my invention is illustrated in Fig. 8, in which a plurality of the lenses 34, luminous bodies 29 and partial obscuring plates 31 forming elements of the construction illustrated in Figs. 1 to 6 inclusive, are employed, each cooperating lens 34, luminous body 29 and partial-obscuring plate 31 operating to display a portion only of the legendary matter to be displayed on the surface 9. Thus, when the matter to be displayed is the word shown in Fig. 8, six apparatus of the construction shown in Fig. 6 would be employed. The plates 31 of the apparatus would have sections cut through them as described of the plates shown in Figs. 1 to 6 inclusive, of such shape as to cause the images of the portions of the luminous bodies 29 exposed through each of them and upon the surface 9 to be of a contour corresponding to the letters forming the legendary matter to be displayed.

From the foregoing, it will be readily understood that an apparatus constructed in accordance with my invention operates on

a principle involving the formation of the image of a luminous body on a display-surface, and that it therefore differs from the ordinary light-projecting apparatus involving the projection of light rays from a concentrated light highly condensed, through translucent lenses.

As hereinbefore stated, the sections 32 of the plate 31 may be formed by providing openings through the plate when the latter is formed of opaque material, or by applying an opaque material to a transparent plate, excepting at those portions forming the sections 32 and through which it is designed that the luminous body be exposed. Thus by employing in the claims the phrase transparent sections, I wish to be understood as intending to cover a plate with the sections 32 formed in either of the ways above referred to.

What I claim as new, and desire to secure by Letters Patent, is—

1. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections, a luminous body cooperating with said opaque body, and means for forming a magnified image of said luminous body exposed through said sections upon a display-surface, for the purpose set forth.

2. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections, a luminous body behind said opaque body, a display-surface exposed to portions of said luminous body through said sections, and means for forming a magnified image of said luminous body through said sections upon a display-surface, for the purpose set forth.

3. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections, a luminous body behind said opaque body, a display-surface exposed to said luminous body through said sections, and a lens for forming a magnified image of said body upon the display-surface, for the purpose set forth.

4. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections, an incandescible strip supported behind said body, and means for forming a magnified image of said strip exposed through said sections, upon a suitable display-surface, for the purpose set forth.

5. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections of a shape corresponding, generally, to the advertising matter to be displayed, a luminous body behind said opaque body and registering with said sections thereof, and means for forming on a suitable display-surface the

magnified image of those portions of the luminous body which are exposed through said sections, for the purpose set forth.

6. An advertisement-displaying apparatus comprising, in combination, an incandescible strip shaped to conform generally to the advertising matter to be displayed, and means for forming the image of said strip upon a suitable display-surface, for the purpose set forth.

7. An advertisement-displaying apparatus comprising, in combination, an incandescible strip shaped to conform generally to the advertising matter to be displayed, and a suitably supported lens cooperating with said strip for forming the image of the latter upon a suitable display-surface, for the purpose set forth.

8. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections conforming in shape generally to the advertising matter to be displayed, a suitably supported incandescible strip behind said body so formed as to cause portions thereof to register with said sections, and means for forming a magnified image of the portions of the strip thus registering with said sections upon a suitable display-surface, for the purpose set forth.

9. An advertisement-displaying apparatus, comprising, in combination, an opaque body containing transparent sections conforming in shape generally to the advertising matter to be displayed, a suitably supported incandescible strip of zig-zag shape behind said body so formed as to cause portions thereof to register with said sections, and means for forming a magnified image of the portions of the strip thus registering with said sections upon a suitable display-surface, for the purpose set forth.

10. An advertisement-displaying apparatus comprising, in combination, an opaque body containing transparent sections, an upright standard of insulating material through which electric-current conductors extend, an incandescible strip disposed behind said body and registering with said sections thereof and connected with said conductors,

supports for the strip connected with said standard and with said strip, and means for forming a magnified image of said strip through said sections upon a suitable display-surface, for the purpose set forth.

11. An advertisement-displaying apparatus comprising, in combination, a plate formed of opaque material and containing openings therethrough forming transparent sections therein, a luminous body behind said plate registering with said sections, and means for forming a magnified image of said body through said sections upon a suitable display-surface.

12. An advertisement-displaying apparatus comprising, in combination, a casing containing a slot in its bottom portion, a device for producing a luminous body seated on said bottom-portion and having a stud extending through said slot, means cooperating with said stud for clamping said device in adjusted position in the casing, an opaque body containing transparent sections in front of said luminous body, and means in the casing for forming a magnified image of said luminous body through said sections upon a suitable display-surface, for the purpose set forth.

13. An advertisement-displaying apparatus comprising, in combination, a casing, a lens mounted in one end of said casing, an incandescible strip generally conforming to the advertising matter to be displayed and disposed in a straight plane, and a plate of opaque material having openings extending therethrough and forming transparent sections therein generally conforming in shape to the advertising matter to be displayed and registering at such sections with said strip, for the purpose set forth.

14. An advertisement-displaying apparatus comprising, in combination, a body presenting incandescent legendary matter, and means for forming the image of the incandescent legendary matter upon a display-surface, for the purpose set forth.

JOSEPH T. ROFFY.

In presence of—

W. B. DAVIES,
R. A. SCHAEFER.