

Feb. 19, 1929.

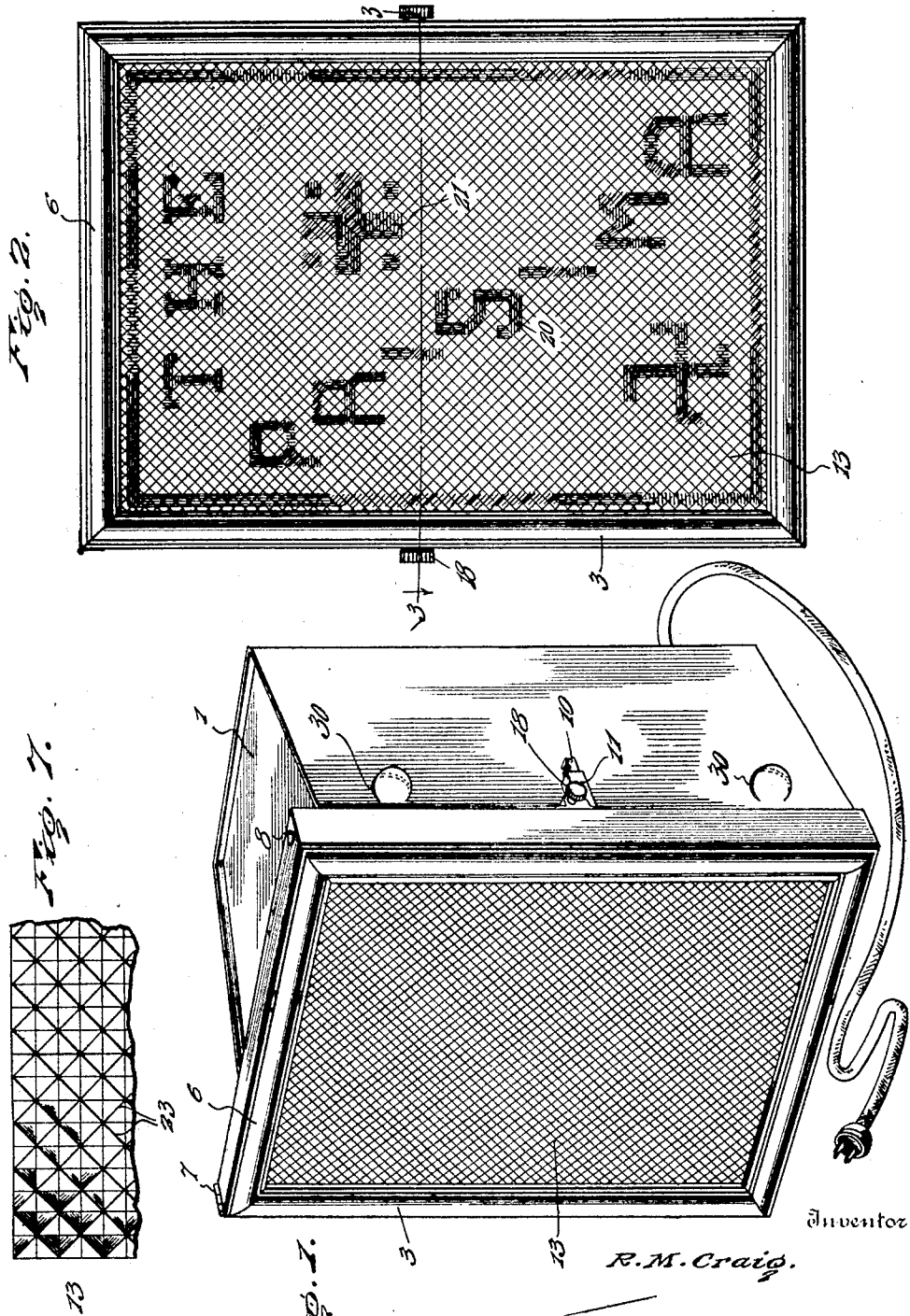
1,702,497

R. M. CRAIG

SIGN

Filed April 25, 1928

3 Sheets-Sheet 1



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R. M. Craig.

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1,702,497

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3 Sheets-Sheet 2

Fig. 5.

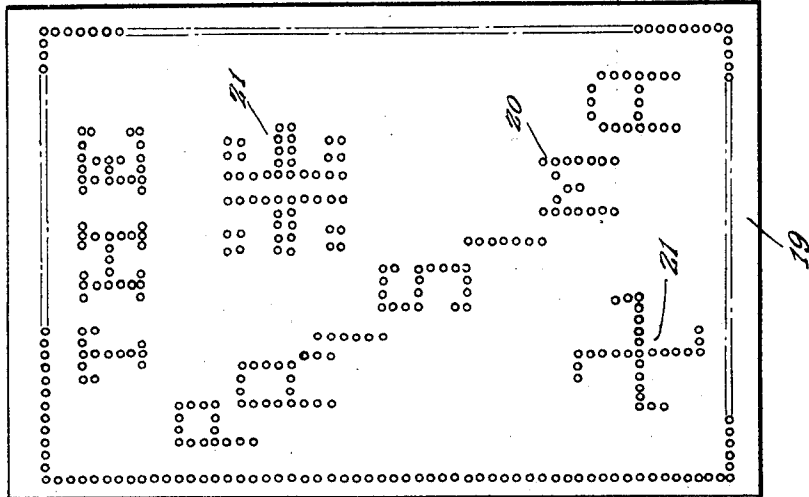
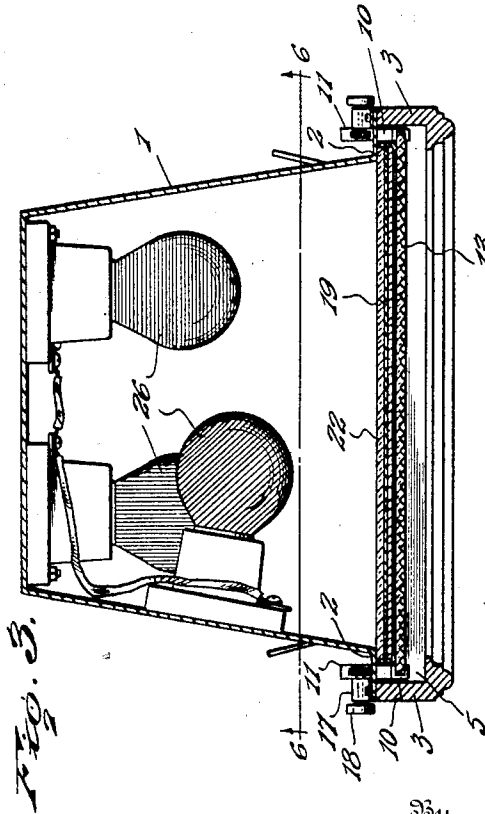


Fig. 3.

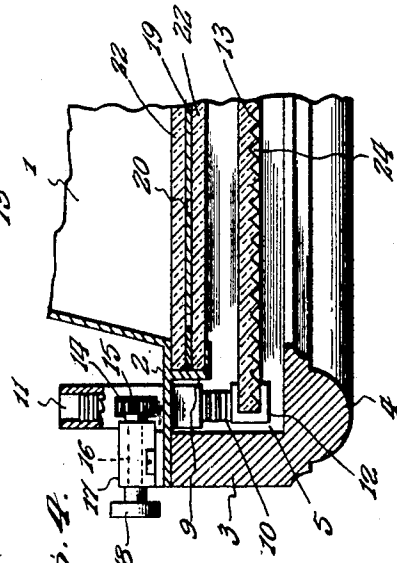


Fig. 4.

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Fig. 9.

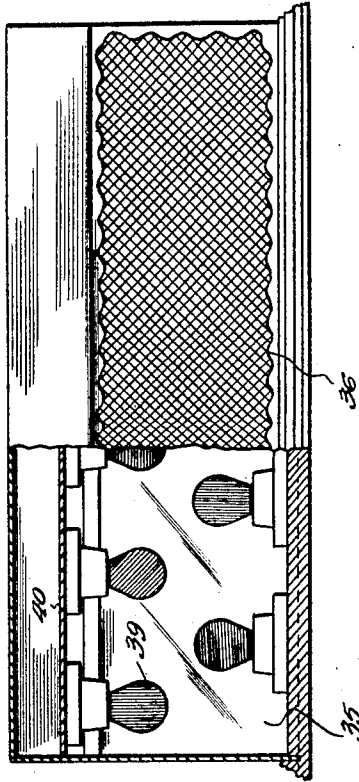


Fig. 8.

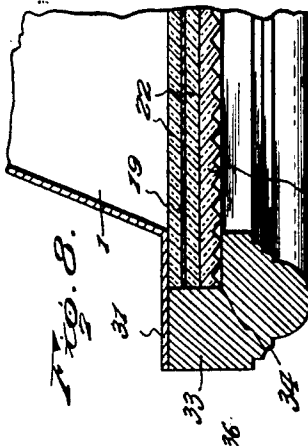


Fig. 11.

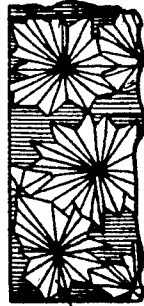


Fig. 10.

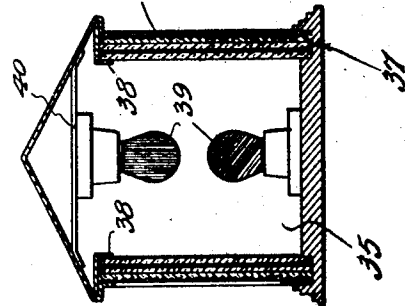


Fig. 6.

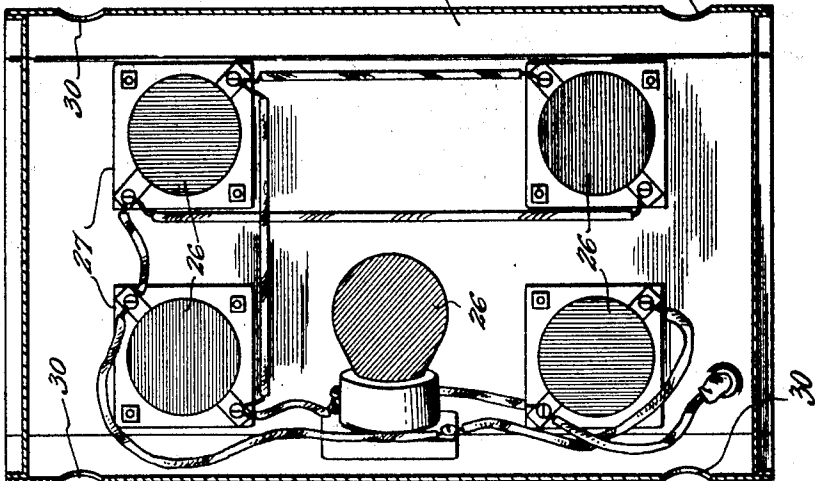
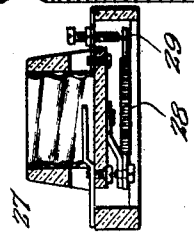


Fig. 12.



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## UNITED STATES PATENT OFFICE.

RICHARD M. CRAIG, OF SAN ANTONIO, TEXAS, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO MAGNOAD, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SIGN.

Application filed April 25, 1928. Serial No. 272,838.

This invention relates to signs of that type in which the advertising matter is illuminated and possesses apparent motion.

The present invention provides a sign in which the display elements are all stationary and the sign characters are displayed in constantly changing light effects, the order of the colors displayed being left to chance and the color combinations likewise being determined by chance.

The invention further aims to provide a sign of simple and compact construction in which the characters are displayed in scintillating color effects.

A further object is to provide an illuminated sign having a refractive plate which may be readily adjusted towards or away from the sign bearing sheet so as to increase or diminish the display area of the sign characters.

A further object is to provide a sign, the refracting plate of which is provided with a plurality of prisms which serve to collect the light rays and throw them out in parallel beams to the observer.

A still further object of the invention is to provide an illuminated sign which operates with equally good results either as a daylight sign or for night display.

The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings:

Figure 1 is a perspective view of a sign apparatus embodying the present invention; Fig. 2 is an enlarged front elevation thereof indicating the effect upon the eye when the sign characters are illuminated;

Fig. 3 is a horizontal section on the line 3-3 of Fig. 2;

Fig. 4 is an enlarged detail section showing a different position of some of the parts shown in Fig. 3;

Fig. 5 is an elevation of the sign sheet removed from the casing;

Fig. 6 is a transverse section on the line 6-6 of Fig. 3;

Fig. 7 is a fragmentary elevation of the prismatic or refractive light transmitting plate;

Fig. 8 is an enlarged detail horizontal section showing an arrangement of the sign sheet and the refractive plate varying in detail from the arrangement shown in Figs. 3 and 4;

Fig. 9 is a view, partly in elevation and partly in section, showing another embodiment of the invention;

Fig. 10 is a transverse section of the arrangement illustrated in Fig. 9;

Fig. 11 is a fragmentary elevation of a refractive plate having a design different from that shown in the other figures, and

Fig. 12 is a detail of a lamp socket.

In carrying out the invention, there is provided a casing 1 which will preferably be constructed of sheet metal in order to minimize weight, and this casing has an open front side, as clearly shown in Figs. 3 and 4. At its front side the casing is provided with lateral flanges 2 and secured in any convenient manner upon the front face of said flanges is a frame 3 which may be of wood and has its front side given an ogee formation, as shown at 4, whereby to impart an ornamental finish to the apparatus. This frame 3 extends around all four margins of the front of the casing and is rabbeted, as shown at 5, to receive and support the sign sheet and the refractive plate hereinafter more particularly described. The top member 6 of this front frame is preferably left free of the side members and connected thereto at one end by a hinge 7 and held thereto at the opposite end by any convenient form of latch, indicated at 8, this arrangement facilitating the insertion or removal of the sign sheet and the refractive plate. In the form of the invention shown more particularly in Figs. 3 and 4, a re-entrant flange 9 is formed on the front face of the flange 2 whereby to provide a groove receiving and holding the sign sheet, and the rabbet 5 of the front frame is of sufficient depth to accommodate rack bars 10 which are slidably mounted in sleeves 11 provided therefor and extending through the flanges 2, as clearly shown in Fig. 4. The front ends of the racks 10 are formed into grooved heads 12 receiving the refractive plate 13 and in the upper sides of the sleeves 11 are longitudinal slots 14 accommodating pinions 15 at the inner ends of shafts 16 mounted in bearings 17 provided therefor on the backs of the respective flanges 2 and equipped at their outer ends with knurled heads 18 whereby they may be easily turned. By rotating the heads 18, the pinions 15 will likewise be rotated and the refractive plate 13 will, consequently, be set closer to or farther from the sign sheet held in the re-entrant

flanges 9. The sign sheet is identified upon the drawings by the reference numeral 19 and consists of a sheet of opaque material having perforations 20 formed therethrough in any desired relation whereby to produce sign characters and, in addition to forming letters and words, these perforations may be so formed as to produce ornamental characters, as indicated at 21 in Fig. 5. The sheet 19 may be of paper or any other suitable material, and, in actual practice, I employ a type of partly perforated paper now on the market as a commercial article and produce the sign characters by completing selected perforations. Inasmuch as paper and like material will not stand on edge, I provide transparent plates 22 which are arranged against the opposite faces of the sign sheet and thereby keep the same flat and in an upright position when in the sign, it being understood that the transparent plates and the perforated sign sheet are assembled and then slid into the flanges 9, as will be fully understood upon reference to Figs. 3 and 4, it being noted upon reference to said figures that the combined thicknesses of these several sheets or plates is such that they will fit closely within the grooved flanges 9 and will be thereby held stationary when the apparatus is in use. The refractive plate may be either transparent or translucent and has its outer face covered with parallel diagonal lines 23, as shown most clearly in Fig. 7, the surfaces between the parallel lines being faceted so as to produce alternate depressions and projections, as shown at 24 in Fig. 4, whereby the front display face of this plate will constitute a plurality of prisms. Consequently, the light passing through the plate will be refracted and divided into colored rays. The diagonal disposition of the boundary lines 23 is preferable as I have found that thereby the desired effect is produced with certainty, whereas if these lines run parallel with the margins of the plate the effect produced is not so striking and is uncertain. The invention, however, is not confined to a refracting plate having regular prisms formed upon its display surface and I may use the plate indicated in Fig. 11 in which the surface is formed with depressions and raised portions having non-parallel boundaries whereby representations of flowers, as indicated at 25, or other ornamental designs may be produced.

Within the casing 1 at the rear of the sign sheet, a plurality of electric lamps 26 is mounted thereon, these lamps being of the usual formation but having colored bulbs, the adjacent lamps having different colors, as will be understood upon reference to Fig. 6, and it is also to be noted that the lamps are so arranged that no one lamp will extend into the path of the rays projected by any other lamp toward the sign sheet. The lamps are mounted within the casing in the usual man-

ner within sockets 27 which are secured to the walls of the casing and may be supplied with current from an ordinary house lighting system in a well known manner. The lamps are preferably of the intermittent flashing type in which the circuit is automatically alternately broken and closed in each lamp and any approved detail mechanism may be employed to accomplish this result, Fig. 12 illustrating a thermal switch element 28 mounted in the base of the lamp socket and of such a type that it will be very sensitive to heat changes. When the current passing to the lamp through the thermal element heats the element to a certain degree, said element will expand so that it will spring away from the coacting contact 29 and thereby break the circuit and when it cools it will re-engage said contact and the lamp will be again energized. It will thus be seen that the thermal element at each lamp is entirely independent of the corresponding element at every other lamp and, therefore, the flashing of the lamps will not occur in any predetermined sequence but will occur promiscuously so that infinite combinations of lightening and darkening effects will be attained. If desired, however, certain of the lamps may burn steadily and others flash intermittently. The casing entirely surrounds the lamps and is provided at various points with ventilating openings 30.

When the apparatus is in use, the light rays from all the lamps will pass to the sign sheet and thence through the character forming perforations of the same so as to meet the refractive plate 13, and as the lamp bulbs are colored and are differently colored there will be a commingling of rays in various combinations at the perforations, it very seldom occurring that only one lamp is illuminated but the color combinations are constantly varying inasmuch as the flashing of the lights is preferably promiscuous or indiscriminate. The characters displayed at the refractive sheet consequently have a scintillating effect, as indicated in Fig. 2, and this scintillating effect is enhanced by the prismatic action of the refractive plate. It is also to be noted that the action of the prismatic plate is to further vary the color combinations of the display light, and it will also be noted that the display area of the characters may be varied by properly adjusting the refractive plate 13. If this plate be moved away from the sign sheet, there will be a substantial enlargement of the effective display area of the characters but if the refractive plate be moved closer to or against the sign sheet the area of the displayed characters will be diminished and the characters stand out clear and distinct. If desired, the refractive plate may be arranged stationary and the sign sheet adjusted, the effect produced being the same in both cases.

While, for the reasons just stated, it is preferable to have the refractive plate adjustably mounted, such adjustment is not essential to the attractive display of the characters formed upon the sign sheet and the construction illustrated in Fig. 8 is within the scope of the invention. In this form of the invention, the casing 1 is provided with lateral flanges 31, corresponding to the lateral flanges 2 previously described, but the re-entrant flanges 9 are omitted and the transparent plates 22 and the sign sheet 19 are set directly against the flanges 31, the outer finishing frame 33, corresponding to the first described frame 3, being of less depth so that the rabbet 34 therein will accommodate the transparent plates, the sign sheet and the refractive plate 13 but will hold them firmly against the flanges of the casing.

While the sign will generally be embodied in a casing having one display side, as shown in Figs. 1 to 8, it may be embodied in an elongated casing 35, such as illustrated by way of example in Figs. 9 and 10. In this form of the invention, the casing is provided with closed ends but both sides are open, as shown at 36, and in the bottom of the casing are formed grooves, as shown at 37, to accommodate the sign sheet, the refractive plate and the sign sheet reinforcing transparent plates while at the top of the casing are formed overhanging flanges 38 to engage the upper edges of said several sheets and thereby hold them to the display openings. In this form of the invention, the electric lamps, indicated at 39, are mounted in sockets secured upon the bottom of the casing and upon a shelf 40 extending from end to end of the casing immediately below the roof of the same and supported by the roof. These lamps, of course, are of the intermittently flashing type and the same effects are attained as are attained in the first described form. It will be noted from the foregoing description, taken in connection with the accompanying drawings, that there are no moving parts in the present apparatus which are necessary to the display of the advertising matter but by employing vari-colored lights of the intermittently flashing type cooperating with an opaque sign medium having transparent character portions and a refractive medium disposed in front of the sign medium, I obtain a constantly changing color effect in the displayed matter and the color effect is not produced in any predetermined order. The prisms on the refractive plate 13 enlarge the holes or perforations in the sign sheet and blend or diffuse one into the other so that the separation between the perforations is invisible and cause the sign to display apparently solid cut characters.

While it is preferable to employ intermittent or promiscuously flashing vari-colored lights, it will, of course, be understood that any desired combination of lights may be

used. For instance, all of the lamps may be of the flashing type or certain of the lamps may flash while others burn steadily. If we let the green lamp burn steadily and flash the red and the blue alternately, the letter or character will apparently move from one side to the other and if we synchronize the lights so that they work alternately the letters or characters will apparently expand and contract.

It will thus be seen that by means of the prisms and the arrangement of vari-colored lights, endless beautiful color combinations may be obtained.

Having thus described the invention, I claim:

1. An illuminated sign comprising a sign sheet, a refractive light transmitting plate arranged in front of the sign sheet and having one face thereof provided with a plurality of pyramidal shaped prisms, and a plurality of vari-colored lights in position to throw the rays therefrom onto the sign sheet, whereby the characters thereon may be displayed through the refractive plate in different colors.
2. An illuminated sign comprising an opaque sign sheet having transparent characters thereon, a refractive light transmitting plate in front of the sign sheet and having its outer face provided with prismatic surface projections, and a plurality of promiscuously flashing lights at the rear of the sign sheet in position to illuminate the characters on the sign sheet, whereby said characters may be enlarged and displayed by the refractive plate.
3. An illuminated sign comprising a casing, a perforated sign sheet disposed within the casing, a plurality of flashing vari-colored lights arranged at the rear of the sign sheet, and a refractive light transmitting plate disposed in front of the perforated sheet and having its outer face provided with a plurality of prismatic surface projections, whereby the light rays may pass through the perforations of the sign sheet and display the characters formed thereby on the refractive plate in constantly changing colors.
4. An illuminated sign comprising a casing, a sign sheet disposed within the casing and perforated to represent characters, a plurality of vari-colored promiscuously flashing electric lamps arranged at the rear of the sign sheet, and a refractive light transmitting plate disposed in front of the sign sheet and having its exposed face provided with a plurality of pyramidal shaped surface projections, whereby the light rays may pass through the perforations and may be refracted to increase the display area of the characters on the sign sheet and illuminate said characters in constantly changing colors.
5. An illuminated sign comprising a casing, a sign sheet disposed within the casing

and having perforations forming characters to be displayed, a plurality of electric lamps arranged at the rear of the sign sheet, a translucent prismatic plate disposed in front of the perforated sheet, and means for varying the distance between the prismatic plate and sign sheet to increase or diminish the display area of the sign characters.

6. An illuminated sign comprising a casing, a sign medium arranged within the casing and having perforations constituting sign characters, a plurality of flashing electric lamps of different colors arranged in staggered relation at the rear of the sign medium, a translucent plate disposed in front of the sign medium and having its exposed face provided with diagonal lines defining a plurality of prisms, and means for adjusting the translucent plate with respect to the sign medium.

7. An illuminated sign comprising a casing, a sign medium disposed within the casing and having perforations therein constituting sign characters, an intermittently flashing electric lamp arranged at the rear of the sign sheet, a refractive light transmitting plate disposed in front of the sign medium and having its outer face provided with prismatic surface projections for refracting the light rays, whereby said light rays may pass through the perforations and prismatic surface projections to display the sign characters in scintillating effects.

8. An illuminated sign comprising a casing, a sign medium disposed within the casing and having perforations therein constituting display characters, a plurality of promiscuously flashing different colored lamps arranged at the rear of the sign medium, and a translucent plate disposed in front of the sign medium and having its exposed face formed with prismatic projections, whereby the light rays may pass through the perforations and magnify the size of the display characters and display said characters in scintillating color effects.

9. An illuminated sign comprising a casing having an open side, a rabbeted frame secured over the open side of the casing, a readily removable sign sheet disposed at said open side of the casing, a refractive light transmitting plate fitted in the frame and held to the casing in front of the sign sheet, said plate having its exposed face provided with pyramidal shaped prismatic projections, and a plurality of vari-colored promiscuously flashing lights mounted in the casing to throw light rays onto the sign sheet.

10. An illuminated sign comprising a casing having an open front, re-entrant flanges on the casing at said front, a sign sheet held in and by said flanges, a rabbeted frame secured to the casing around said flanges, a refractive light transmitting plate disposed within the rabbeted frame in front of the sign sheet, brackets supporting the refractive plate,

racks extending from said brackets to the rear of the rabbeted frame at the sides of the casing, and pinions rotatably mounted adjacent the racks and meshing with the racks whereby the refractive plate may be adjusted toward and from the sign sheet.

11. An illuminated sign comprising a casing open at its front and provided with a re-entrant flange, a sign sheet perforated to represent characters, transparent plates disposed on opposite sides of the sign sheet and engaging the re-entrant flange, a translucent plate disposed in front of the perforated sheet and having one face thereof provided with prisms, a plurality of intermittently flashing different colored electric lamps disposed within the casing, and means for supporting the translucent plate and adjusting said plate toward and from the sign sheet.

12. An illuminated sign comprising a casing having a seating groove, a sign sheet perforated to represent characters, transparent plates fitted within the groove and disposed on opposite sides of the perforated sheet, a refractive light transmitting plate in front of the perforated sheet, and a plurality of flashing lights arranged in the casing at the rear of the perforated sheet, whereby the characters may be displayed by the refractive plate in constantly changing colors.

13. An illuminated sign comprising a casing having a re-entrant flange, a frame surrounding the front of the casing and having its opposite walls rabbeted, a sign sheet perforated to represent characters, transparent sheets disposed on opposite sides of the perforated sheet and fitted within the re-entrant flange, a refractive plate disposed in front of the perforated sheet, a plurality of vari-colored flashing electric lamps arranged within the casing at the rear of the perforated sheet, bearing sleeves extending within the rabbeted portion of the frame, racks fitted in the bearing sleeves and provided with grooved heads receiving the refractive plate, shafts journaled on the casing and provided with pinions meshing with the teeth on the racks, and finger pieces carried by the shafts for rotating said shafts to adjust the refractive plate toward and from the sign sheet.

14. An illuminated sign including a casing closed at its rear end and open at its front and provided with laterally extending flanges, a frame secured to said flanges, there being a seating groove within the frame, one wall of which is formed by said flanges, a sign sheet perforated to represent characters, transparent plates arranged on opposite sides of the perforated sheet and holding said perforated sheet within the seating groove, a refractive plate disposed in front of the transparent plates, and a plurality of promiscuously flashing lights at the rear of the sign sheet and positioned to illuminate the characters on the sign sheet, whereby said charac-

ters may be displayed by the refractive plate in constantly changing colors.

15. An illuminated sign comprising a casing, a sign medium disposed within the casing and having openings therein constituting display characters, a plurality of intermittently flashing different colored electric lamps arranged the rear of the sign medium, and a translucent plate disposed in front of the sign medium and having its exposed face provided with prismatic surface projections, whereby the light rays may pass through the openings and magnify the size of the display characters and display said characters in scintillating color effects.

In testimony whereof I affix my signature.

RICHARD M. CRAIG. [L. S.]