

1,230,403.

Patented June 19, 1917.

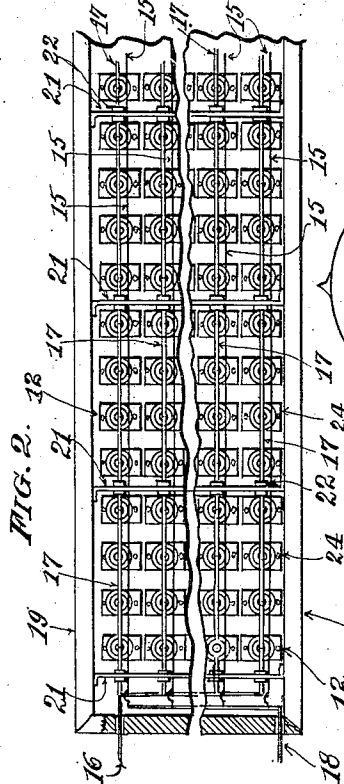
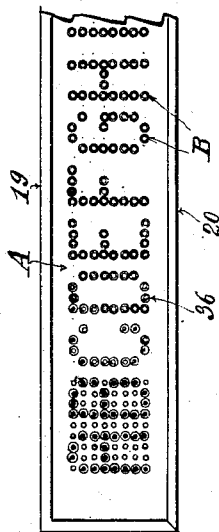


FIG. 1.



WITNESSES:
Ch. Stark
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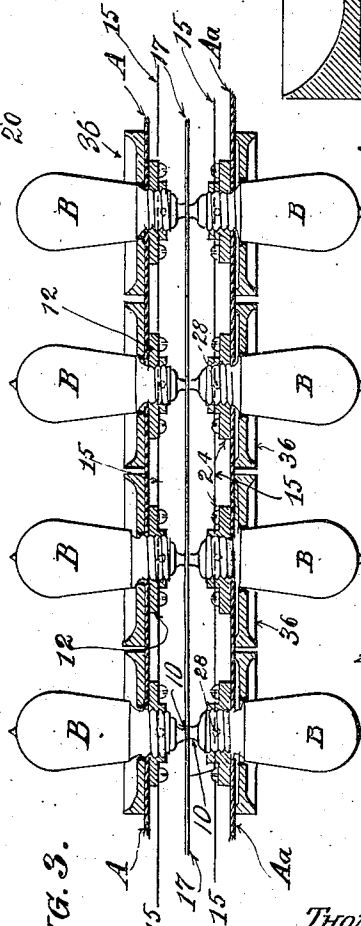
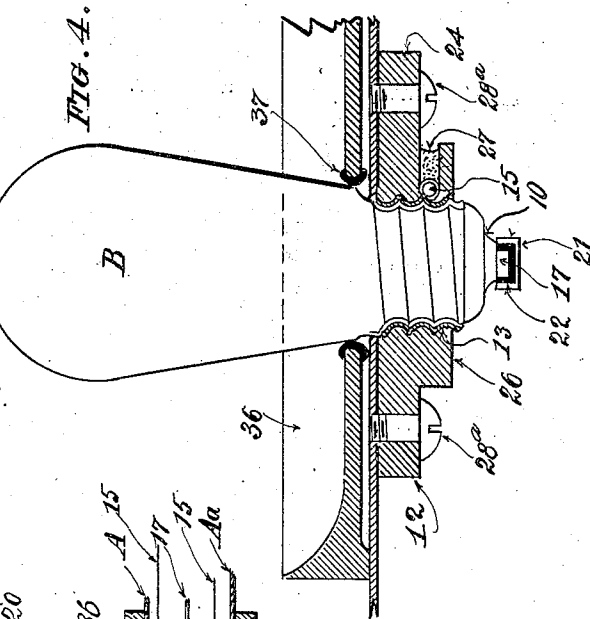


FIG. 3.

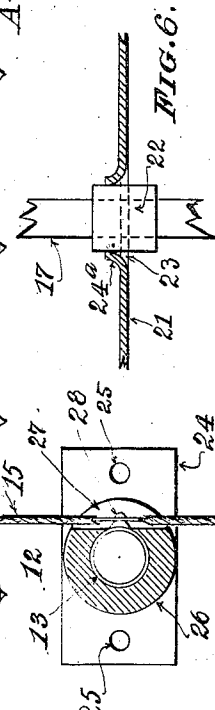


FIG. 5.

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CHANGEABLE ELECTRIC SIGN.

1,230,403.

Specification of Letters Patent. Patented June 19, 1917.

Application filed December 6, 1916. Serial No. 135,320.

To all whom it may concern:

Be it known that I, THOMAS C. HANSEN, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Changeable Electric Signs; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawing, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates generally to improvements in changeable electric signs and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claims.

It is the object of my invention to produce an electric sign, especially adapted for outdoor use, the reading matter of which can be changed in a very short space of time, the sign being so constructed that wind, rain, snow, or ice cannot affect its usefulness and efficiency.

Electric signs have come into extensive use, especially in the larger cities; and for theatrical, moving picture shows, etc. It is now considered necessary to change the signs quite frequently, and often daily. In order to accomplish these results, and at the same time produce an electric sign that is readable on both of its sides, I construct this sign substantially as shown in the drawings forming part of this specification, and in which Figure 1 is an elevation of a portion of an electric sign constructed in accord with my invention. Fig. 2 is a fragmental view, diagrammatic in nature, illustrating the various electric circuits and connections located in the sign. Fig. 3 is a sectional plan showing a number of incandescent lamps and their connections. Fig. 4 is a sectional view of a single lamp of approximately actual size, illustrating the construction thereof. Fig. 5 is a plan view of the socket retaining element and the electric conductor connected to the metallic thimble located therein. Fig. 6 is a fragmental view of a portion of a support that sustains the second electric conductor in proper position in the sign.

This sign is constructed of two, preferably metallic, side members A, A', of any width and length suitable for the object for which

it is to be employed. These two side members are spaced apart a sufficient distance to afford a space within which the electric wiring can be conveniently arranged, as will hereinafter more fully appear. These side members are removably secured to a frame structure of proper construction so as to afford access to the interior of the sign whenever necessary or desirable. Each of the two side members is punctured with a series of closely spaced rows of holes, the holes in these rows being in vertical alinement. The spacing of these holes is so planned that electric incandescent lamps B, can be placed into these holes so that when a sign has been set up by selecting the proper holes, only a certain number of these holes will be in use. Back of these holes and registering therewith, there are placed socket retainers 12, of insulating material, preferably porcelain, which socket retainers are removable from said back; and there is in each socket retainer a metallic, screw threaded thimble 13, which forms the socket proper, and as such, one of the electric connections between the lamp B and the source of supply of electric energy.

The lamps employed are generally of the smaller sizes, those of $7\frac{1}{2}$ amperes and less being usually employed which on account of the large number used, give a very intense illumination.

The sockets 13 are electrically connected by conducting wires or leads 15, said connections being so made that a certain number of lamps are included in one circuit, there being as many leads as are necessary to supply all the lamps with current, said leads being, preferably, soldered to the thimbles 13, as will hereinafter more fully appear.

An inspection of Fig. 3 will show that opposing lamps have their terminals 10, in opposition, and that all of the terminals 10 of the lamps in an electric circuit are in contact with an electric conductor 17, and that all the electric conductors 17 are connected to a return conductor 16. And in a like manner the leads 15 are all connected to the incoming wire 18. The electric conductors 17 are, preferably, metallic rods oblong in cross section, the longer axis of which is vertically disposed for the purpose of attaining greater stiffness.

It will now be observed that there are as many inleading conducting wires 15 as there are rows of openings in the side members

of the sign, and lamp sockets in the openings, but that there is but one outleading contact element for two adjacent or opposed rows of lamp-supplying inleading wires. In order to properly support these contact elements 17 in the sign, and at the same time insulate the horizontal rows thereof one from the other, I construct these supports in the following preferred and comparatively simple manner:

To the top and bottom members 19, 20, of the sign, I secure preferably metallic rods 21, which rods are punctured at proper intervals, there being as many of these punctures as there are horizontal rows of the contact wires 17; and each of these holes is lined with an insulator 22, shown in detail in Fig. 6, said insulator being perforated for the passage of the contact wire, and held to said bars by an outwardly extending flange 24^a, the marginal edge of which is forced against, and engages the insulator, and thus holds it in place. I provide a number of these supports 21 in the sign, as indicated in Fig. 2, said supports being spaced apart a proper distance to prevent deflection of the contact wires 17.

In this construction I prefer to connect the incoming leads (or the returns, for that matter) of each side of the sign to a switch 30, 31, respectively, so that when desired, but one side of the sign may be illuminated; and it is now to be observed that this sign may be so constructed as to be a one-side-illuminated sign only, by omitting the holes and their appurtenants for the lamps at the other side, or by plugging all the socket holes in the latter side member.

It is obvious that in order to arrange the lamps to spell different letters, characters, or words, there must be a much greater number of socketed openings in the sign than are required at any one time to make up the reading matter; and to prevent wind, rain, snow or ice from entering the interior space of the sign, I provide screw-plugs for all the sockets that are not used after the sign has been set up. These plugs are of generally well understood construction and need no detailed description.

Suffice it to say that they are provided with suitable means to enable them to be easily screwed into the sockets for the lamps, and that they are preferably of nonconducting material.

In order to make this sign readable in the day time, and at the same time increase the illumination in the night, I paint, or otherwise coat the outside surface of the sign in a dark color, and then place behind each lamp in use a cup-shaped reflector 36, the inner or curved surface of which is painted, or otherwise made, a light color, preferably white, which surfaces show plainly in daylight so that the letters spelled

by these cup-shaped bodies can be easily read, while at the night time they reflect light and thereby increase the intensity of the lights. These reflectors may be of metallic construction, but I prefer to produce them in glass or porcelain; and in order to protect the lamp bulbs from being scratched or broken by coming in contact with these reflectors, I line the central opening therein with an elastic medium 37, Fig. 4, such as soft rubber or the like, it being understood that these reflectors are used only wherever a lamp is being used, and that they are removably held in position by the lamps.

In order to insulate the lamp sockets from the metallic walls of the sign, and to provide for ready means for securing them to these walls, I form oblong members 24, shown in detail in Figs. 4 and 5, which oblong members have bosses 26, in which the screw threaded metallic thimbles 13 are securely fixed. These bosses are notched at 27, to receive the leads 15, which leads are preferably insulated wires laid bare at the spots where they are to contact with the thimbles, and then soldered to said thimbles, as indicated at 28 in Fig. 5. These insulating members are preferably made from glass or porcelain, and they are provided with holes 25, through which screws 28^a are passed to engage tapped holes in the front and rear walls of the sign, in an obvious manner.

Having thus fully described this invention, I claim as new, and desire to secure to myself by Letters Patent of the United States—

1. An electric sign, including, front and rear sides, there being in one or both of said sides a series of horizontally disposed rows of openings in parallel spaced relationship, the openings being in vertical alinement, a non-conducting element connected with each hole, said element being removably secured to said side, a lamp socket for each hole, said lamp socket being secured in said non-conducting element, an electrical conductor, connected to each lamp socket in one row, there being as many electrical conductors as there are rows of sockets, a second electrical conductor, said second electrical conductor being constructed to serve opposing lamps in said sign, and supports in said sign, to sustain the latter electrical conductor in prearranged position in said sign.

2. In an electric sign, the combination, of front and rear walls in parallel spaced relation, there being in each wall a series of rows of horizontally disposed openings, the openings in said rows being in vertical alinement, a lamp socket in each of said openings, an electrical conductor for each row of said openings, said conductors being in metallic contact with said lamp sockets, a sec-

ond series of horizontally disposed electrical conductors, one of the latter conductors being placed between two of the former electrical conductors, said latter conductors being constructed to contact with the terminals of electric incandescent lamps when placed in said openings, and vertically disposed supports in said sign, said vertically disposed supports being constructed to support said rows of second conductors in proper position, there being insulating members in each support insulating said horizontal rows of second conductors from one another.

3. In an electric sign, the combination, of front and rear walls, said walls being in parallel spaced relation, there being in one of said walls a series of horizontally disposed rows of openings, the openings in said rows being in vertical alinement, a lamp supporting member in each hole, said lamp supporting member including an oblong, non-conducting element removably secured to said wall in register with said opening, a metallic, screw-threaded bushing in said non-conducting element, there being a notch in said element reaching to said metallic bushing, a series of horizontally disposed electrical conductors, one for each horizontal row of openings, said conductors being in metallic contact with said bushings, and a

second series of horizontally disposed electrical conductors, said latter series being placed between two of the former rows of conductors, said latter conductors being constructed to contact with the terminals of lamps when placed into said openings.

4. In an electric changeable sign, the combination, of front and rear walls, said walls being in parallel spaced relationship, there being in said walls a series of horizontally disposed rows of openings, the openings in said rows being in vertical alinement, lamp sockets in said openings, electrical conductors in said sign and connected to said sockets, incandescent lamps in a multiplicity of said sockets but not in all of them, said lamps being so arranged as to spell letters and characters, a second series of horizontally disposed electrical conductors, connected to supply all of the openings, and a reflector for each of said lamps, said reflectors being removably held in position by said lamps, said reflectors being fitted with media of an elastic nature to separate said reflectors from said lamps.

In testimony that I claim the foregoing as my invention, I have hereunto set my hand.

THOMAS CHRISTIAN HANSEN.