No. 678,677. Patented July 16, 1901.

T. E. MURRAY.

ELECTRIC SIGN.

(Application filed Apr. 19, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

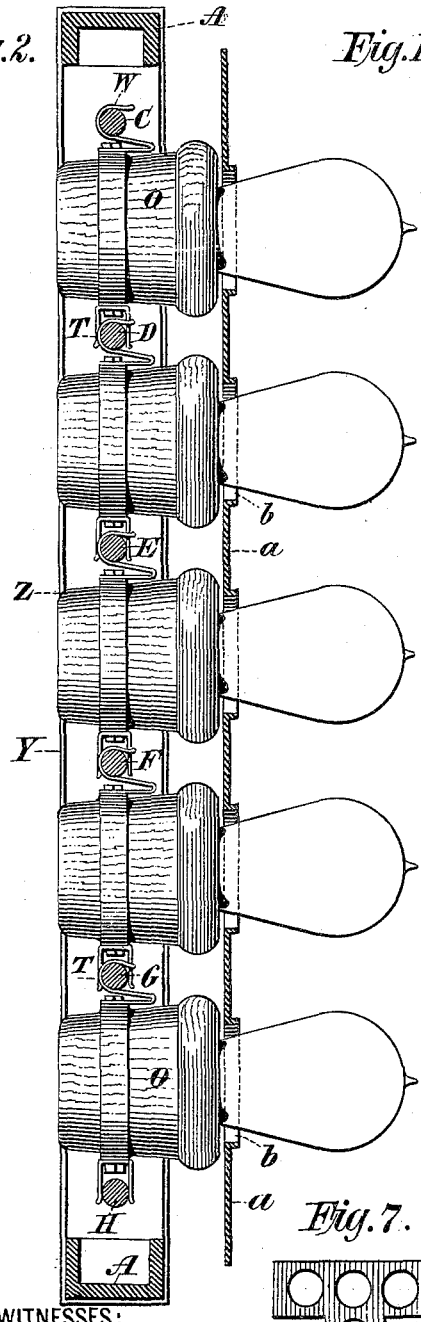

Fig. 1.

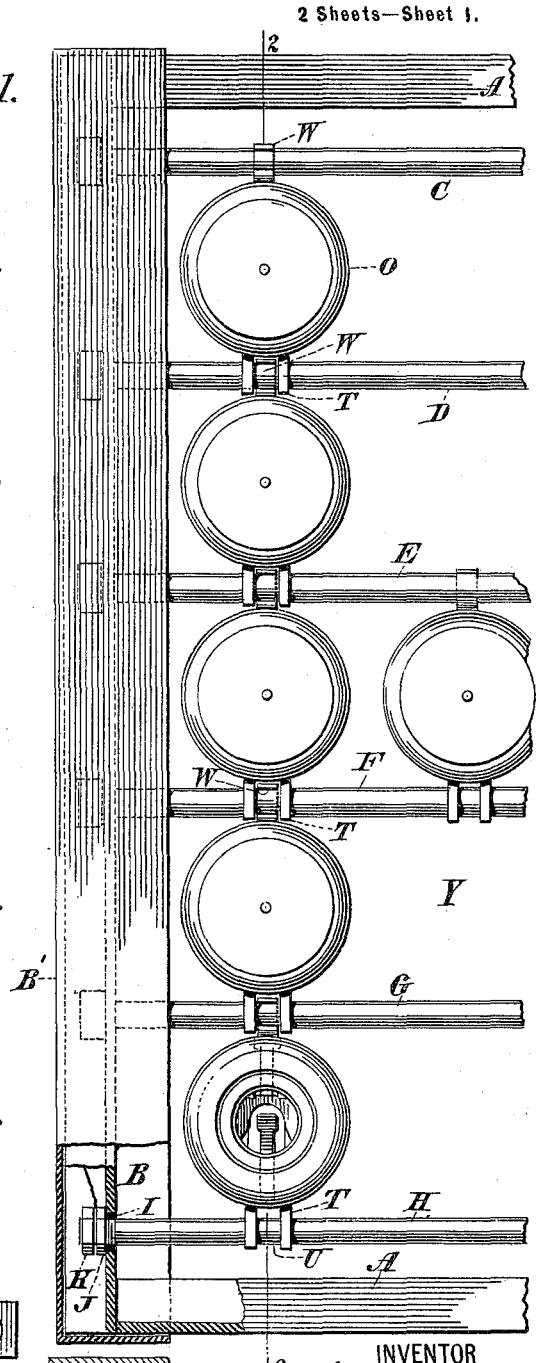

Fig. 7.

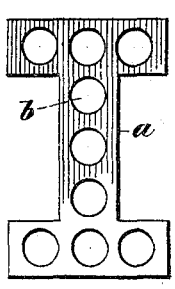

Fig. 8.

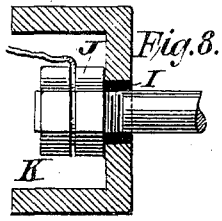

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Fig. 3.

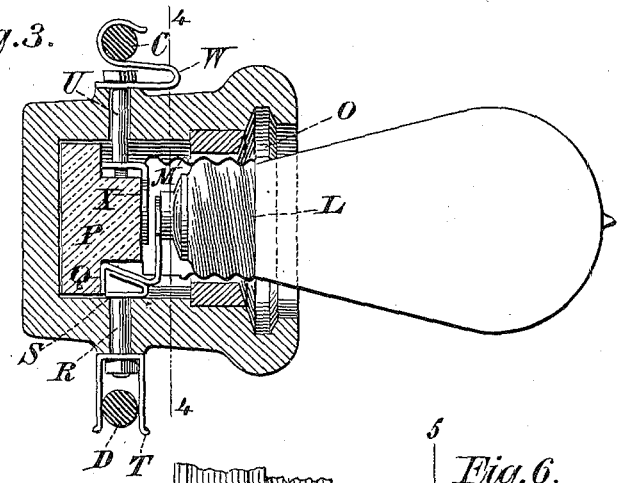


Fig. 5.

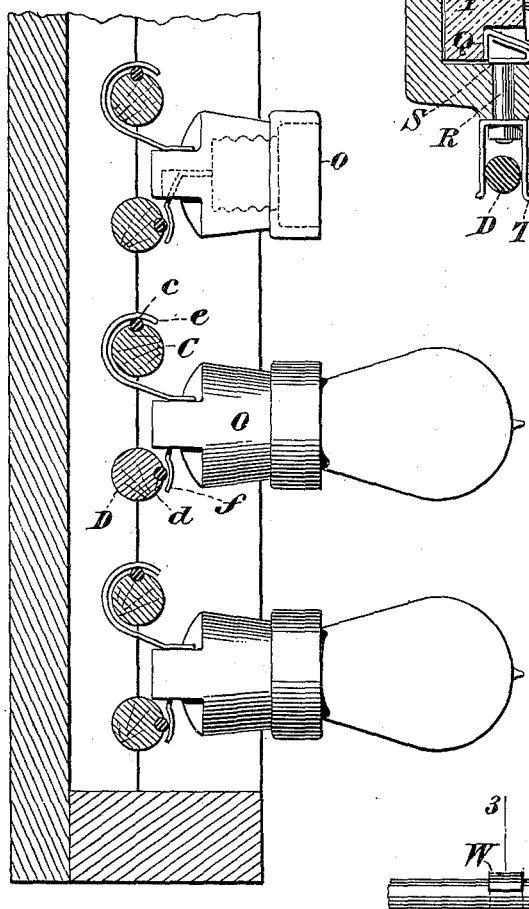


Fig. 6.

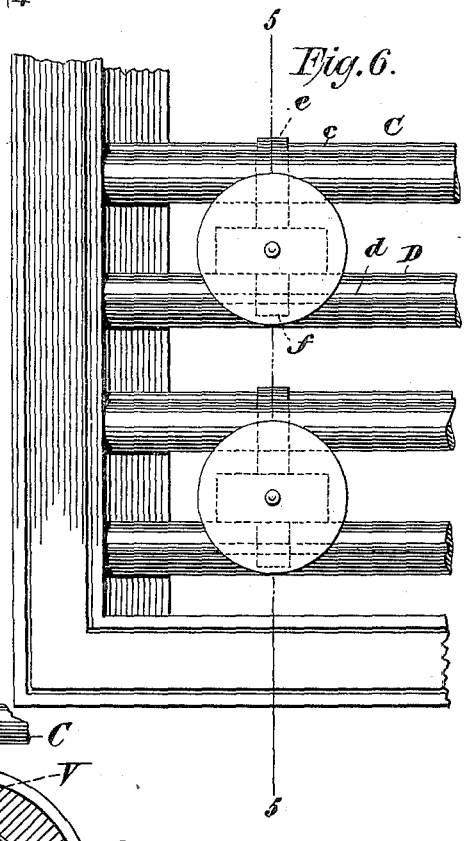
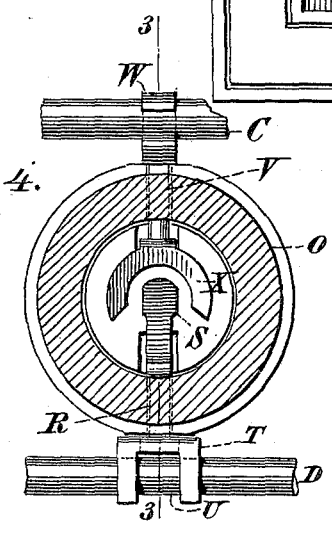


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

ELECTRIC SIGN.

SPECIFICATION forming part of Letters Patent No. 678,677, dated July 16, 1901.

Application filed April 19, 1901. Serial No. 56,537. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, of the city, county, and State of New York, have invented a new and useful Improvement in Electric Signs, of which the following is a specification.

My invention relates to that class of electric signs in which incandescent electric lamps are movably disposed on parallel conductors to form letters, characters, or designs.

My invention consists in the construction and arrangement of the lamp-holders, substantially as hereinafter described, to enable them to be readily attached to or detached from the parallel supporting-conductors and also electrically connected to the same at any desired points to form letters, characters, or designs; also, in a device for permitting the lamps to be accurately adjusted to form any desired figure and which also serves as a background or reflector for the lamps when in place; also, in the construction of said parallel conductors and frame.

In the accompanying drawings, Figure 1 is a front elevation of my improved sign. Fig. 2 is a vertical section of the frame on the line 2 2 of Fig. 1, showing the lamp-sockets in place. Fig. 3 is a section of a lamp-socket attachment and also of the parallel conductors to which the socket is attached, taken on the line 3 3 of Fig. 4. Fig. 4 is a section of the same on the line 4 4 of Fig. 3. Fig. 5 is a vertical section of a modification of my device, showing the lamps and sockets in place on the sign. Fig. 6 is a front view of the same. Fig. 7 represents a plate of metal perforated as shown and designed to be placed upon the conductors of the sign to serve as a background for lamps disposed in the perforations. Fig. 8 is a detail view showing the connecting circuit-wires to the conductor-terminals.

Referring first to Figs. 1, 2, 3, 4, and 8, the frame of the sign is preferably composed of metal bars of U-shaped cross-section, the upper and lower bars A being placed with the channeled portions inward, so as to produce a smooth exterior surface. The side bars B are disposed with their channeled portions outward. Within the frame are a number of rods C D E F G H, of conducting material and preferably of circular cross-section. The ends of each rod pass through insulating-sleeves I, Fig. 8, in the side bars B of the frame and are threaded to receive the fastening-nuts J, by which nuts said rods can be set up tightly in place. Outside of the nuts J are nuts K, so that the circuit-wires connecting with the rods may be clamped between said nuts J and K.

The lamps employed to form the letters or characters of the sign may be of the incandescent-filament type, each provided with the usual threaded plug L, adapted to enter the correspondingly-threaded metal sleeve M within the socket O. Said socket may be of wood or other non-conducting material and of suitable diameter, as shown in Fig. 2, to be inserted between adjacent conductor-rods, as C D, Fig. 3. In the bottom of the socket O is a shouldered block P of insulating material. Resting against this block is the bent plate Q, the extremity of which bears against the contact-plate in the bottom of the lamp-plug. R is a metal pin passing through the wall of the socket and connected within to the bent contact-piece S, which rests against the plate Q. Secured upon the pin R by means of the nut shown is the two-armed metal clip T. In each arm of said clip there is a recess U, as shown in Fig. 4. Passing also through the wall of the socket and disposed opposite to the pin R is a pin V, which carries on its inner end a bent contact-plate X, which is in electrical connection wiah the threaded sleeve M. Secured upon the pin V outside of the socket and by means of the nut shown is a one-armed bent metal clip W. The clips T and W are directly opposite one another and are so formed that when the socket is placed between two adjacent conductor-rods, as C and D, the outer bent-over end of clip W passes in rear of and around the rod C, while the rod D is received between the arms of clip T. The clips by their spring action thus tightly grasp the rods C and D and make close metallic and electrical contact with said rods. It will be observed that when the frame stands vertically and the lamp horizontally, as shown in Fig. 3, the weight of the lamp and socket also acts to hold the clips T and W down upon the rods C D, thus insuring said contact. Said clips are readily at-

tached and detached, so that a given lamp can be adjusted between any two of the conductor-rods and at any desired point along said rods. Hence it is easy to form letters or characters by simply placing a suitable number of lamps between the rods and in proper relative positions. When it is desired to place the lamps in line transversely the conductor-rods, as shown in Figs. 1 and 2, the end of clip W is received in the recesses formed in the arms of clip T, the width of the clip and of the recesses being relatively proportioned for this purpose.

A convenient means of accomplishing the placing of the lamps and also of providing a reflecting-background for a letter or character is illustrated in Figs. 7 and 2. As shown in Fig. 7, I provide a plate of metal *a*, here in the form of the capital letter I, in which are made a suitable number of circular openings *b*, each of which is large enough to allow of the insertion of the plug of a lamp through it. Lamp-sockets corresponding in number to the perforations *b* are then adjusted between the conductor-rods at the point where it is desired to produce the illuminated letter and so that each socket will come under a perforation in the plate. Then the lamp-plugs are inserted through the perforations and into the sockets, as shown in Fig. 2. The plate may be silvered or whitened on its exterior surface, so that it forms a reflector and background for the lamps and more clearly outlines the letter which they unitedly form.

It is of course to be understood that the circuit connections of the conductor-rods are to be such that when a lamp and socket are adjusted upon any two of them which are immediately adjacent circuit will be established through the lamp-filament. The path of the circuit (referring to Fig. 3) is from rod C to clip W, to pin V, to bent contact-plate X, to threaded sleeve M, to and through the lamp, to bent contact Q, plate S, pin R, clip T, and conductor-rod D, or vice versa.

In the modification illustrated in Figs. 5 and 6 the transverse rods C D in lieu of being of metal are of wood, carrying exposed conducting-wires *c* and *d*. The wires *d* are on the outer and the wires *c* are on the upper portions of the rod-peripheries and are placed on alternating rods, as shown. The lamp-sockets are not constructed to enter between the rods, but to remain outside of them, being suspended by the upper clips *e*. Each clip *e* is connected to one of the lamp-terminals and is bent over so as to be introduced behind the rod C, for example, and then hooked over said rod. The lower clip *f*, which is connected to the other lamp-terminal, rests against the wire *d*. The weight of the lamp and socket, as before, insures close contact between clips and conducting-wires *c d*.

The frame A B may be provided with a back Y, Fig. 2, in which there may be recesses or apertures Z to receive the ends of the lamp-sockets O, and thus to steady them more firmly in place. I also provide a metallic box B′, Fig. 1, constructed to receive the end bars B of the frame and to extend for some distance along the bars A, the object of which box is to protect the circuit connections from the effects of the weather.

I claim—

1. The combination with parallel supporting-conductors of a lamp-holder having as one terminal a hook whereby it may be suspended from a given conductor, and as the other terminal a contact-piece adapted to bear against the adjacent conductor.

2. The combination with parallel supporting-conductors of a lamp-holder having as one terminal a spring-clip in hook form and as the other terminal a bifurcated spring-clip, the said clips being adapted to connect said lamp-holder to said parallel conductors.

3. The combination with parallel supporting-conductors of a plurality of lamp-holders having terminal clips adapted to engage with adjacent conductors; one of said clips being in hook form and the other bifurcated and having a recess adapted to receive the hook-clip of an adjacent holder.

4. The combination with parallel supporting-conductors of a lamp-holder adapted to enter between said conductors and having, on one side, a hooked terminal clip provided with a spring-arm arranged to be compressed by the introduction of said holder between said conductors, and on the other side a bifurcated terminal clip; the hook-clip being constructed to engage one of said conductors from the rear side outwardly, and the said bifurcated clip to receive the adjacent conductor.

5. The combination in an electric sign having parallel conductors and lamp-holders movably secured thereto, of a loose plate having openings forming a letter or other character, and means for connecting said plate to the said holders through said openings.

6. The combination in an electric sign having parallel conductors and lamp-holders movably secured thereto of a loose plate having a reflecting exterior surface, and openings forming a letter or other character, and means for connecting said plate to the said holders through said openings.

7. The combination in an electric sign having parallel conductors and lamp-sockets movably secured thereto of a loose plate having openings forming a letter or other character and means for connecting said plate to said sockets by the insertion of the lamps in place therein.

8. The combination in an electric sign with parallel conductors and glow-lamp holders detachably secured thereto of a loose plate having a plurality of openings and a plurality of glow-lamps fitting said holders and having bulbs of greater diameter than said openings—whereby when said plate is placed upon said holders it may be secured thereto and the holders so retained in definite position by

the insertion of said lamps into said holders through the said openings.

9. In a lamp-holder for electric signs, the combination of the cylindrical socket O adapted to receive a lamp, insulating-block P thereon, contact-plate Q resting against said block and adapted to make contact with one of said lamp-terminals, bent contact-plate S, pin R and clip T carried by said pin, threaded sleeve M, contact-plate X, pin U connected thereto and clip W carried by said pin U.

10. In a support for an electric sign the combination of the metal frame having the U-bars B, parallel conductors C, D, &c., extending between said bars, and insulated therefrom, nuts J, K on the ends of said conductors, and circuit connections, substantially as set forth.

11. In a support for an electric sign the combination of the frame having the U-bars B, parallel conductors extending between said bars, circuit connections at the ends of said conductors and within the channels of said U-bars and a cover B′ constructed to inclose said bars and connections.

THOS. E. MURRAY.

Witnesses:
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N. F. BRADY.