No. 782,311. PATENTED FEB. 14, 1905.

E. L. ZALINSKI.

ELECTRIC DISPLAY APPARATUS.

APPLICATION FILED SEPT. 6, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

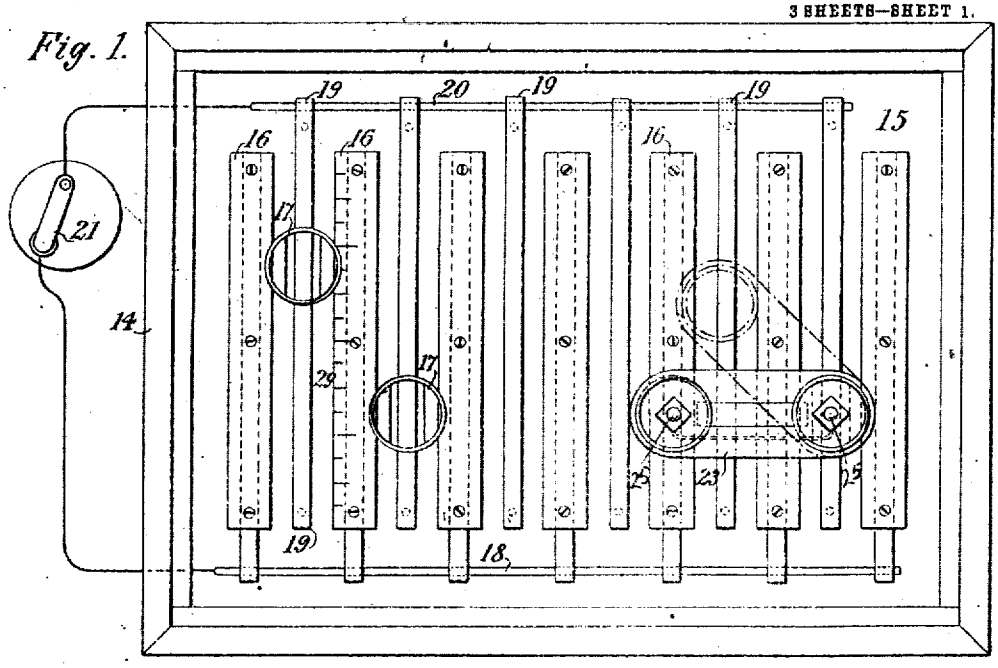


Fig. 2.

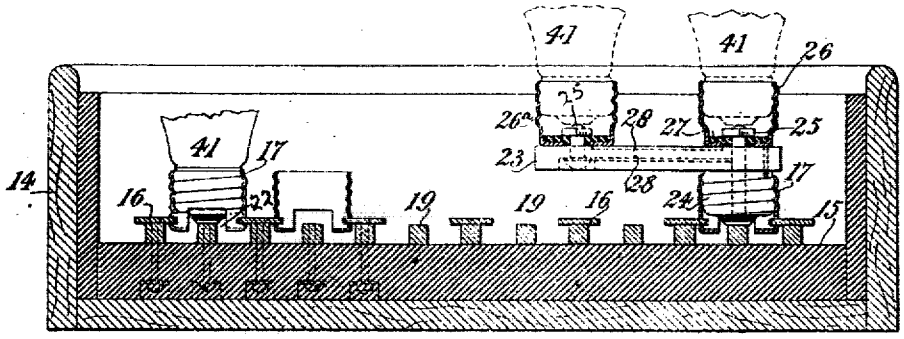


Fig. 3

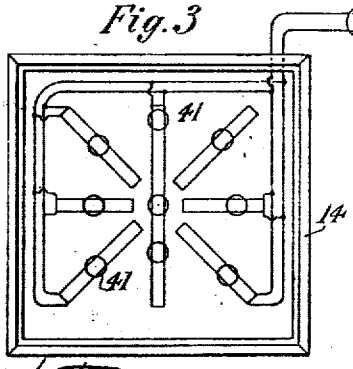
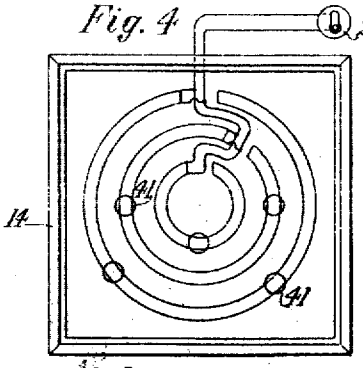


Fig. 4



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3 SHEETS—SHEET 2.

Fig. 5

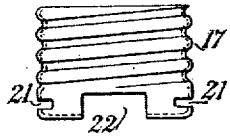


Fig. 6

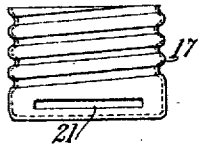


Fig. 7

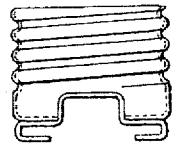


Fig. 8

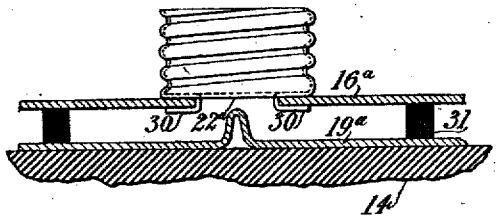


Fig. 9

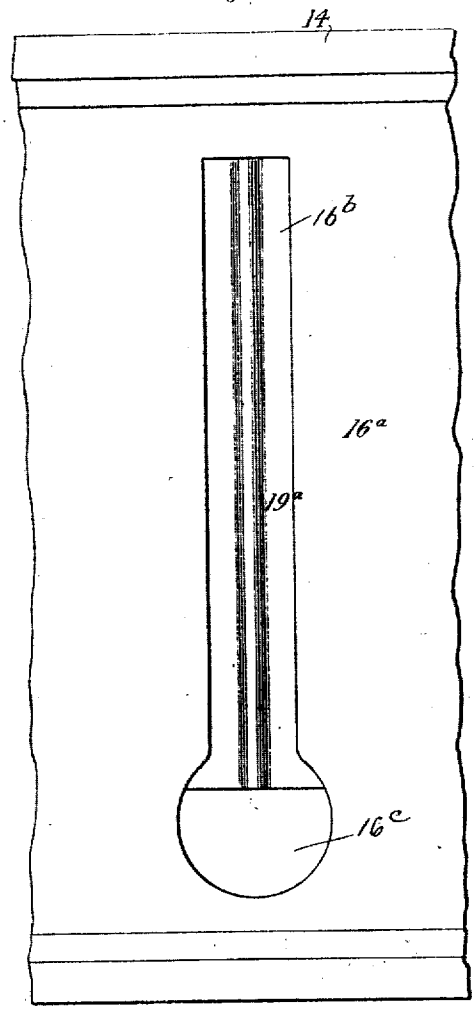


Fig. 10

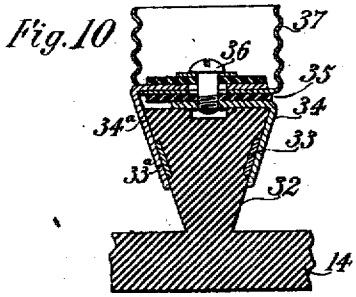
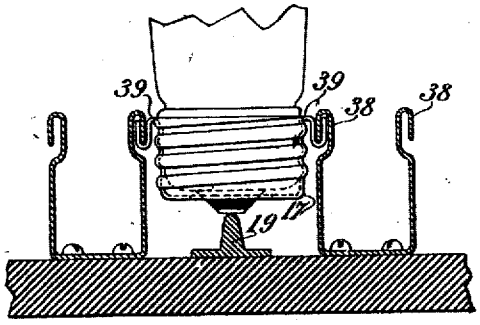


Fig. 11



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3 SHEETS—SHEET 3.

Fig. 12

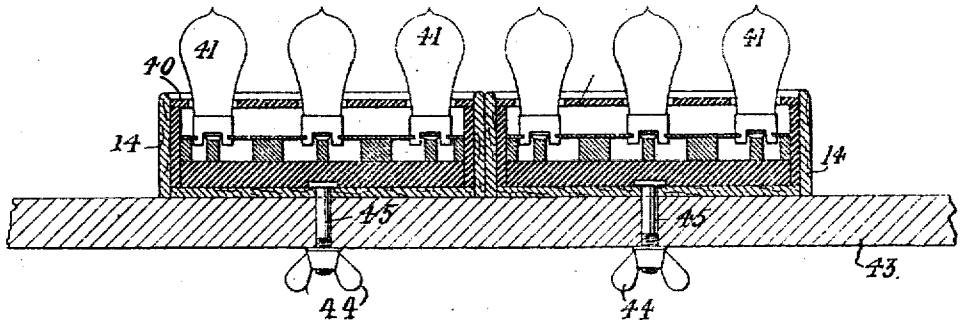
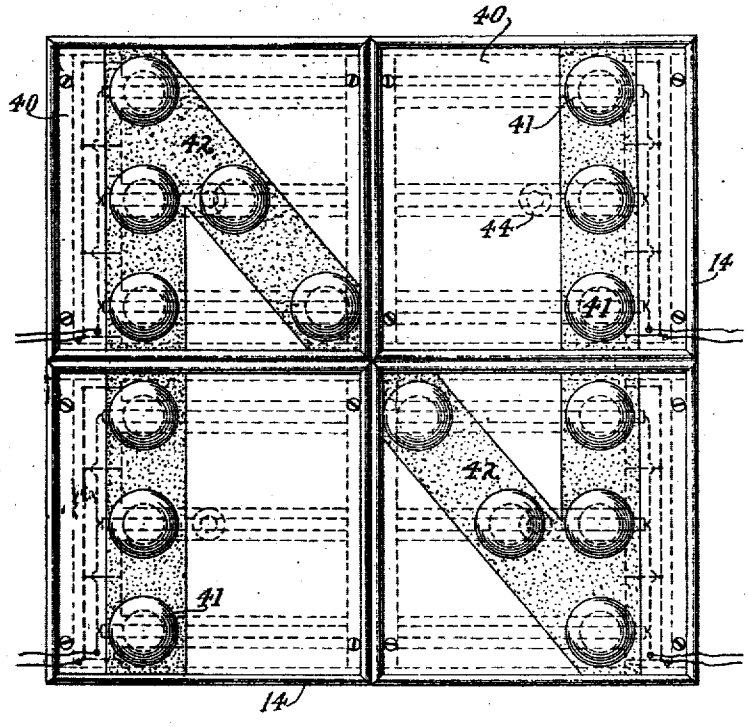


Fig. 13



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No. 782,311. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

EDMUND L. ZALINSKI, OF NEW YORK, N. Y

ELECTRIC DISPLAY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 782,311, dated February 14, 1905.

Application filed September 6, 1904. Serial No. 223,368.

To all whom it may concern:

Be it known that I, EDMUND L. ZALINSKI, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Electric Display Apparatus, of which the following is a specification.

My invention relates to electric display apparatus; and it consists in certain novel parts and combinations of parts particularly pointed out in the claims concluding this specification.

In the accompanying drawings I have shown my invention embodied in certain forms which are at present preferred by me; but it will be understood that various modifications and changes may be made without departing from the spirit of my invention and without exceeding the scope of my claims.

In the accompanying drawings, Figure 1 is a plan view of a unit-frame embodying certain features of my invention. Fig. 2 is a vertical section through the same. Figs. 3 and 4 show modified forms of the same, illustrated diagrammatically and on a smaller scale. Figs. 5 and 6 are detail views of a lamp-socket which may be employed in the practice of my invention viewed from different sides. Fig. 7 is a detail view of another form of lamp-socket. Fig. 8 shows a lamp-socket in place on its track. Fig. 9 is a top view of the base shown in Fig. 8. Fig. 10 shows another form of track and a lamp-socket in place thereon. Fig. 11 shows still another form of track and lamp-socket adapted to be used therewith. Fig. 12 is a sectional view of a plurality of unit-frames with lamps in position and with a cover or letter face-plate having perforations through which the bases of the lamps extend. Fig. 13 is a front view of the structure shown in Fig. 12.

In the drawings similar numerals refer to the same or corresponding parts in the different figures.

The following is a description of the structures shown in the accompanying drawings.

Referring to Fig. 1, 14 is a box or frame constituting one of the units of the display apparatus. It is provided with a floor or lined with insulating material 15, preferably non-inflammable, to which are attached T-shaped strips of conducting material 16 16, as more clearly shown in Fig. 2. 17 represents incandescent-lamp sockets which are movable longitudinally between adjacent strips 16 16, which form tracks for the travel of said sockets. The strips 16 16 are all electrically connected together in multiple by the conductor 18. 19 19 19 are bars of conducting material attached by suitable means to the insulating-base 15 and electrically connected together in multiple by the conductor 20. 21 indicates diagrammatically a switch by means of which the conductors 18 and 20 are connected and disconnected from a suitable source of electrical energy.

The lamp-socket 17, Fig. 1, is shown in detail in Figs. 2, 5, and 6. It is composed of a spun-metal screw-threaded cylinder adapted to receive the base of a lamp of the ordinary standard construction. The sides of the socket are provided with channels 21 21, forming grooves, which are adapted to engage with the edges of the tracks 16 16. At 22 a portion of the base is removed, as clearly shown in Figs. 2 and 5. Through the opening thus formed the central terminal of the lamp when screwed in place makes contact with the bar or rib 19 and simultaneously locks and holds the socket in its position by drawing the lower edges of the channels 21 21 up against the lower sides of the flanges of the tracks 16 16, so that the screw-threaded lamp-base not only acts as a support for one of the conducting-terminals of the lamp, but mechanically acts to prevent an accidental or undesirable longitudinal movement or displacement of the lamp on its track. These movable sockets afford the capacity of forming any desired letter, character, or symbol with a minimum number of sockets, rendering unnecessary the use of a large number of sockets, some of which are always idle, as in the well-known form of electrical-display unit composed of a monogram of lamp-sockets. The unit box or frame may be provided only with single sockets traveling on tracks such as above described, or it may be provided with a socket

or sockets carried on swinging supports in whole or in part, which swinging supports are also illustrated in Figs. 1 and 2. The arm 23 is carried by a screw-threaded plug 24 and swings about a pivot of conducting material 25, extending therethrough and projecting below the same, so as to form an electrical connection with a conductor 19. At its upper end this pivot extends through a lamp-socket 26, being insulated therefrom by a washer of non-conducting material 27. 26ª is a socket similar in construction to that last described, the central projection of which is electrically connected to the pivot 25 and the exterior screw-threaded part of which is electrically connected by conductor 28 with the shell or exterior part of the socket 26. The tracks 16 are preferably provided with scales, as 29, by means of which, as will be readily understood, the position of each lamp-socket in the frame can be determined beforehand to contribute to the formation of any desired letter or character. When so provided, instructions may be issued which will enable any one in the formation of letters to properly locate each of the lamps without the exercise of individual skill.

A slightly-modified form of lamp-socket is shown in Fig. 8, in which the material removed to form the opening 22ª in the bottom of the socket is turned back upon itself to form flanges 30, adapted to embrace the edges of the track. Instead of forming the tracks 16 of separate strips placed side by side, as shown in Figs. 1 and 2, I may form them of a continuous base-plate 16ª of conducting material, as shown in Fig. 8, the ribs forming the other terminal of the circuit being likewise, if desired, formed of a continuous plate 19ª, these plates being insulated from each other by the non-conducting material 31, all as shown in Figs. 8 and 9.

Figs. 8 and 9 show a portion of a box or frame including only one of the trackways, the rest of the box being broken away. 16ª is a metal plate extending over the face of the box or frame, said plate being cut away at suitable intervals to form longitudinal perforations 16ᵇ with enlarged ends 16ᶜ. The sides of these perforations form tracks for the traveling lamp-socket, and the enlarged end 16ᶜ permits the lamp-sockets to be inserted to slide on these tracks. The plate 16ª is connected to one of the terminals of the supply-circuit. It is provided with a plurality of such perforations, which are equivalent to the plurality of tracks shown in Fig. 1. The lamp-socket is inserted through the enlarged part 16ᶜ of the perforation and adjusted to its desired position on the trackway, as will be readily understood. 19ª is a continuous metal plate underlying the plate 16ª, and, if desired, it is, as shown, fashioned into ribs opposite the perforations 16ᵇ, as shown in Fig. 8, with which ribs the central terminal of the lamp when in position in its socket contacts. These ribs or the portion of the plate 19ª underneath the perforation 16ᵇ is therefore the equivalent of the strips 19, Fig. 1. The plate 19ª is connected to the other terminal of the supply-circuit, and the plates 16ª and 19ª are insulated from each other by non-conducting blocks 31, Fig. 8.

Still another form of trackway and lamp-socket is shown in Fig. 10. 32 is a V-shaped projection from the floor of the box 14, carrying conducting-strips 33 and 33ª, being respectively the positive and negative terminals of a suitable source of electrical energy. The lamp-base is provided with springs of conducting material 34 34ª, separated by an insulating-disk 35, which springs are in turn electrically connected to the two terminals (the shell and the central plug) of the lamp-socket 37, as clearly shown in the drawings.

In Fig. 11 I have shown still another form of trackway and lamp-socket. 33 38 are resilient strips of conducting material having downwardly-folded upper edges in which the upwardly-turned projections 39 from the lamp-base engage and travel. In this form, as in the form shown in Fig. 5 and other figures already described, the act of inserting the lamp-base into its socket and screwing it home not only effects electrical connection with the supply-circuit, but also locks the lamp and prevents longitudinal movement along the track.

In connection with the unit bases or boxes above described I may, if desired, employ any suitable form of a cover or letter-face plate such, for example, as that shown in Figs. 12 and 13, where 40 is a suitable letter-face plate having perforations in it outlining any desired letter or character, through which perforations the lamp-bases are inserted and screwed into the sockets below, and which plates may, if desired, form a reflecting background 42, outlining the letter or character.

The unit-boxes above described may be used each to form a single letter or character, or they may be combined, as shown in Fig. 13, to form a letter or character of larger size. In Fig. 13 I have shown them so applied in forming the letter N; but any other suitable arrangement or combination of them may be adopted, as will be readily understood. The units may be assembled and held in position by any suitable means. I have shown them attached to a board 43 by thumb-screws 44 and bolts 45.

The trackways instead of being arranged in straight and parallel lines, as shown in Figs. 1 and 2, may be arranged to form any suitable figures or designs, two of which forms I have shown diagrammatically in Figs. 3 and 4, the tracks being arranged radially in Fig 3 and spirally in Fig. 4.

I have shown screw-threaded sockets adapted to receive screw-threaded bases; but it is obvious that other engaging means such as a bayonet-joint, for example might be employed, if desired.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In electric display apparatus, the combination with a suitable trackway, a traveling lamp-socket and suitable electrical supply-conductors, one of said conductors being located below the traveling lamp-socket.

2. In electric display apparatus the combination with a suitable trackway, a traveling lamp-socket and suitable electrical supply-conductors, one of said conductors being located below the traveling lamp-socket and the track functioning as the other conductor.

3. In electric display apparatus the combination with a suitable trackway, of a lamp-socket wholly formed of conducting material.

4. In electrical display apparatus the combination with a suitable trackway, of a lamp-socket formed of a single piece of conducting material.

5. In electric display apparatus, the combination with a suitable trackway, of a lamp-socket formed entirely of conducting material having an opening through the bottom and provided with elements engaging with said trackway.

6. In electric display apparatus the combination with a suitable trackway functioning as one of the supply-conductors, a conductor located below the traveling lamp-socket, a traveling lamp-socket having an opening through the bottom, and an electric lamp in said socket, the lower terminal of which contacts with the last-named conductor.

7. In an electric display apparatus the combination with a suitable trackway functioning as one of the supply-conductors, a conductor located below the traveling lamp-socket, a traveling lamp-socket having an opening through the bottom, and a screw-threaded cavity, an electric lamp provided with a screw-threaded base, the lower terminal of which contacts with the last-named conductor and locks the socket in place.

8. In electric display apparatus, the combination with a suitable trackway, of a traveling contact engaging with said trackway, a pivotally-supported arm carried by said traveling contact, and a lamp-socket attached to said arm and electrically connected with said traveling contact.

9. In electric display apparatus, the combination with a suitable trackway, of a traveling contact engaging with said trackway, a pivotally-supported arm carried by said traveling contact, a lamp-socket concentric with the pivotal support of said arm, and a lamp-socket attached to said arm, both of said sockets being electrically connected with said traveling contact.

10. In electric display apparatus the combination with a plate of conducting material, a portion of which is cut away to form suitable trackways, conductors intermediate said cut-away portions, and lamp-sockets having open bottoms traveling in said trackways.

11. In electric display apparatus the combination of a plate of conducting material, a portion of which is cut away to form suitable trackways, a continuous sheet of conducting material intermediate said cut-away portions, and lamp-sockets having open bottoms traveling on said trackway.

12. In electric display apparatus the combination of a plate of conducting material, a portion of which is cut away to form suitable trackways, a continuous sheet of conducting material with ridges intermediate said cut-away portions, and lamp-sockets having open bottoms traveling on said trackway.

13. In electric display apparatus a letter or symbol unit composed of a plurality of substantially identical units provided with movable lamp-sockets placed side by side.

14. In electric display apparatus the combination with a suitable trackway, a traveling lamp-socket, suitable electrical supply-conductors, and a scale parallel with said trackway for determining the position of said lamp-socket.

15. In electric display apparatus the combination with a suitable trackway, a traveling lamp-socket, and suitable electrical supply-conductors, said trackway bearing a scale for determining the position of said lamp-socket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDMUND L. ZALINSKI.

Witnesses:
J. EDGAR BULL,
DORA LUNTZ.