

May 8, 1923.

1,454,566

C. E. SMITH

ELECTRICAL DISPLAY DEVICE

Filed Sept. 8, 1921

2 Sheets-Sheet 1

Fig. 1.

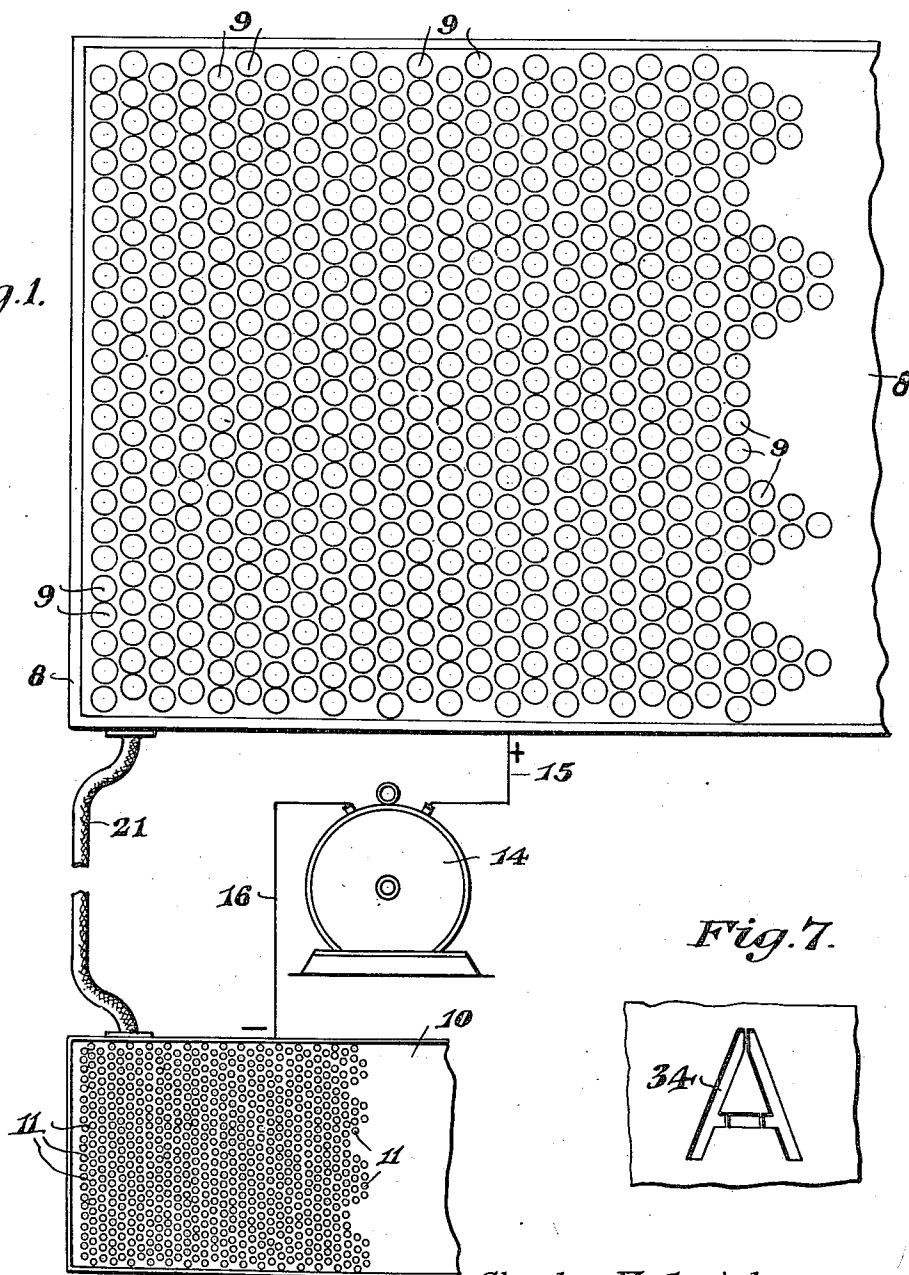


Fig. 7.

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Fig. 2.

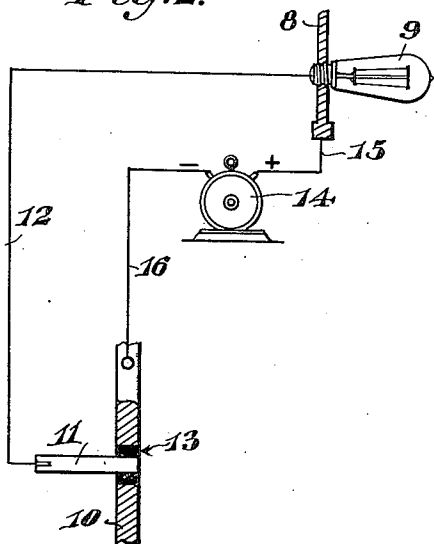


Fig. 5.

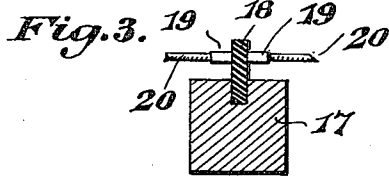
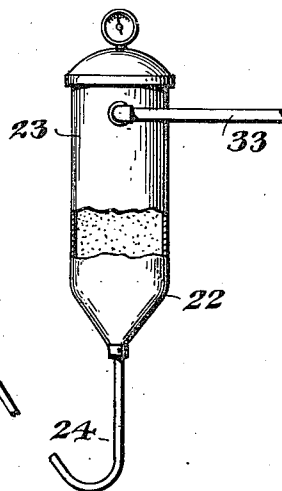


Fig. 4.

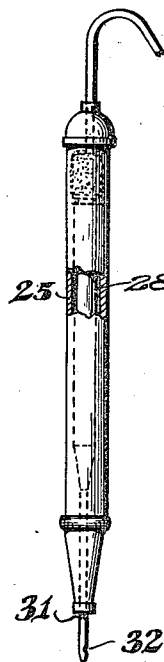
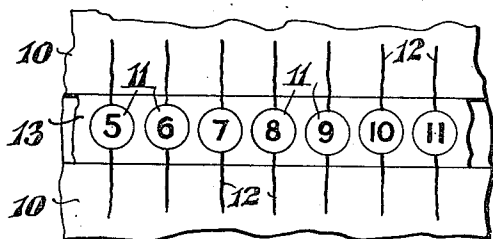
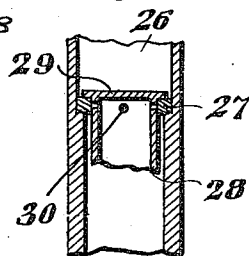


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES E. SMITH, OF JOHNSTOWN, PENNSYLVANIA.

ELECTRICAL DISPLAY DEVICE.

Application filed September 3, 1921. Serial No. 499,125.

To all whom it may concern:

Be it known that I, CHARLES E. SMITH, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Display Devices, of which the following is a specification.

This invention consists of an electrical display device having for an object the use of a display body comprising a plurality of incandescent lamps one or more of which may be lighted in correspondence with the engagement of companion contacts, in circuit with the lamps, by any desired conductor of electricity.

Co-ordinate objects of the invention are to provide an electrical display member which may be lighted to visualize any numbers, letters, words, objects, etc., clearly and distinctly thereby eliciting attention and adapting the device for use as a successful advertising medium; to provide a contact table or body, in circuit with the lamps, which, by its especial construction, permits use of any kind of an electrical conductor which may be deposited on the table, at any point, to depict subject matters on the display member identical with the configuration of the conductor; to provide a device of this character which may employ a temporary, removable conductor as a circuit closer to permit instantaneous changing of the indicia on the display member thereby adapting the device for use as a bulletin board or the like; and to provide a device of this character which is simple in construction and operation thereby insuring accurate functioning at all times and permitting use of the device by anyone even though unskilled in the art to which the invention relates.

Other objects of the invention will be more fully understood from the following description of the invention taken in connection with the accompanying drawings wherein:

Fig. 1 is a fragmentary front elevational view of a display device constructed in accordance with this invention.

Fig. 2 is a diagrammatical view of the device showing the lamp frame or body and contact table or base fragmentarily and illustrating to advantage the manner in which the circuit includes the lamp frame and contact table with the generator.

Fig. 3 is a detail enlarged cross sectional view of a rack engageable with the lamp frame and contact table illustrating the manner of connecting the wires thereto.

Fig. 4 is a fragmentary plan view thereof.

Fig. 5 is a side elevational view of the means used for applying conductive material to the contact base.

Fig. 6 is a detail enlarged fragmentary sectional view of the scribing member which comprises a part of the conductive material applying means, and

Fig. 7 is an elevational view of a form of conductor applicable for use on the contact table.

In the drawings to illustrate the application of this invention a portion of a lamp frame or body 8 is shown which may be of any desired material. However, it is preferred that the base of this body be made of copper to receive a multiplicity of electric lamps 9. The lamps may be arranged in any desired manner but preferably are so located that each series thereof may be lighted to depict numbers, letters, curved figures or objects distinctly and of any desired height and thickness.

The device of the invention also embodies a table or base 10 preferably made of lead and likewise of any desired configuration. The table is equipped with a plurality of contacts 11 which are in circuit with the lamps 9. Each contact preferably consists of a cylindrical body one end of which is solid and preferably terminates in the plane with the top of the table 10 while the opposite end is tubular and receives one end of one of the circuit wires 12. Each contact is mounted in an insulated sleeve 13 arranged in the table as shown in Fig. 2 of the drawings. Each contact preferably extends for an appreciable distance beyond one face of the table 10, as shown in Fig. 2, for convenience in attaching the circuit wire thereto.

A generator 14, of conventional design, is in circuit with the body 8 and table 10 through the instrumentality of circuit wires 15 and 16. The circuit wire 15 has one end thereof grounded to the body 8 and the opposite end connected to the generator. The wire 16 has one end thereof grounded to the table 10 and the opposite end engaged with the generator. The lamp circuit diagrammatically illustrated in Fig. 2 shows the circuit wire leading from one of the lamps 9 to one of the contacts 11. Conse-

quently, when an electrical conductor is engaged with the contact 11 and bridges the insulator 13 to engage the table 10, the circuit is closed and the lamp lighted in an obvious manner.

Preferably the lamp wires are all engaged with a wire rack generally designated 17, as shown in Figures 3 and 4, which is mounted on the inside of the frame 8 and secured thereto in any desired manner. In the same way the contact wires are engaged with a rack on the inside of the table 10.

In Figs. 3 and 4 a conventional type of rack is shown consisting of a wood base having mounted therein an insulating strap 18 which carries pins 19 to which wires 20 are soldered in a manner well known in the art. Preferably, the pins are numbered to facilitate singling out of any lamp or contact which is not functioning. The lamp wires and the contact wires pass through a cable 21 which is secured to the display body and contact table in any desired manner.

The device is adapted to function for lighting one or more of the lamps when a conducting material is engaged with one or more of the contacts embodied in the table 10. Any desired conducting material may be used but it is preferred to use a scribing element which can be used to write any numbers, letters, figures, etc., on the contact table. The scribing element contains a conductive fluid engageable with the contacts to cause one or more of the lamps 9 to be lighted in harmony with the contact or contacts over which the conductive material is passed. In the furtherance of this end, I employ a conductive material applying apparatus generally designated 22 which embodies a receptacle 23 of any desired shape in which the conductive material may be placed. The lower end of the receptacle is open and is in communication with one end of a flexible tube 24 the opposite end of the latter being in engagement with one end of a scribing element 25. The scribing element in the present instance simulates a pencil so as to be conveniently manipulated in the same manner as an ordinary pencil. This element embodies an outer casing the upper end of which is formed to provide a conductive material receiving chamber 26 in one end of which a valve seat 27 is mounted. The valve seat is engaged by one end of a floating tube 28, the upper end of said tube having a head 29 formed thereon which engages the valve seat 27. Below the head a plurality of openings 30 are formed which, when the tube is forced upwardly in the casing, will permit the conductive material in the chamber 26 to flow through the openings 30 and into the tube 28. However, when the tube is closed the openings 30 will register with the inner periphery of seat 27 thereby closing communication through said

openings. The lower end of the tube 28 is reduced as indicated at 31 and projects through one end of the casing 25. The end of the casing through which the tube projects is preferably tapered so as to be conveniently grasped by the fingers of the user. The tube is provided with a lateral aperture 32 adjacent the terminal of the tube. Said terminal is preferably closed and rounded to facilitate movement of the same over the contact table 10. The receptacle 23 is in communication with an air pipe 33 which permits introduction of air into the receptacle to force the contents thereof into the tube 24 and thence into the chamber 26. Pressure on the outer terminal of the tube 31 causes the head 29 of the tube to be raised from the valve seat 27, against the resistance of the air pressure, thereby permitting the conductive material to be forced through the openings 30 into the tube 28, thence downwardly into the reduced end 31 and passing through the aperture 32. As soon as pressure is relieved from the tube, the head 29 will be automatically forced into engagement with the valve seat by the pressure of air.

If desired other means may be used for closing the circuit to light the lamps 9 in correspondence with the contacts engaged. For instance stenciled letters or numbers such as the stenciled letter A in Fig. 7, as indicated at 34 may be used. When this type of conductor is used, it is only necessary to lay the letters on the table thereby lighting lamps on the body 8 corresponding to the contacts engaged by the letter 34.

In using this device the display body 8 may be positioned any place desired such as on the top or front of a building, arranged in the open on hills, etc., depending entirely upon the use to which the device is to be put. The contact table 10 may be positioned in proximity to the display body or remote therefrom dependent upon the use of the device. The conductive material heretofore referred to has been found to be preferable for use in this capacity because of its flexibility permitting it to be conveniently applied to the contacts. The material used may be a metallic paste, is of a consistency equivalent to the consistency of a tooth paste and after having been applied to the contacts may be quickly removed therefrom permitting the display member to be used for successively depicting different indicia. If desired the conductive material may be re-used. It is likewise found preferable to use 6 volt lamps in view of the large numbers in which they will necessarily be used. It is to be understood that the display body 8 and table 10 may be arranged vertically, horizontally, or otherwise in order to best obtain the results endeavored to be accomplished by use of the device.

Various changes may be made in this device especially in the size and materials used as well as in the arrangement and construction of the lamps, contacts, etc. However the structure herein described is illustrative of the principle and sets forth what now seems to be the preferred manner of using the device. Various other changes may be made within the scope of the appended claims.

What is claimed is:

1. An electrical display device including a field of electrical lamps, a series of corresponding contacts in circuit with the lamps and remote therefrom, a tank carrying a mass of conductive paste, a scribing element in connection with the tank to receive said paste, a terminal carried by said element adapted for wiping engagement over said contacts and movable into said element for releasing the paste from the latter for engagement with said contacts substantially as described.

2. An electrical sign including a field of lamps and a stationary base equipped with a corresponding number of contacts remote from said lamps and in circuit with the latter, said base and contacts forming a substantially flat surface, and a conductor for engaging said contacts comprising a semi-solid mass reducible to a stringy form for engagement with said contacts and removable from said base en masse for re-use.

3. An electrical display device including a multiplicity of incandescent lamps and a stationary table equipped with a similar number of contacts, said table and contacts forming a substantially flat surface, an electrical circuit including said lamps and contacts, a flexible conductor engageable with any one or all of said contacts to close the circuits and light the lamp or lamps corresponding to the contacts engaged, and scribing means for applying the conductor to the contacts.

CHARLES E. SMITH.