No. 726,328. PATENTED APR. 28, 1903.

D. McF. MOORE.

FIXTURE FOR VACUUM TUBE LIGHTING.

APPLICATION FILED APR. 15, 1898.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

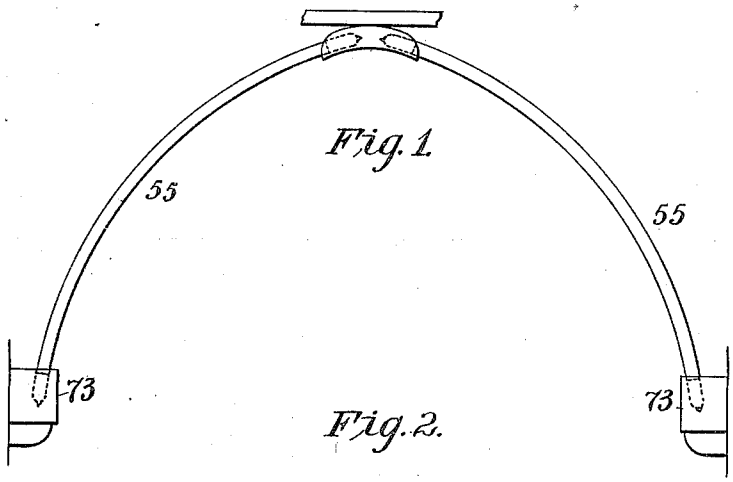


Fig. 2.

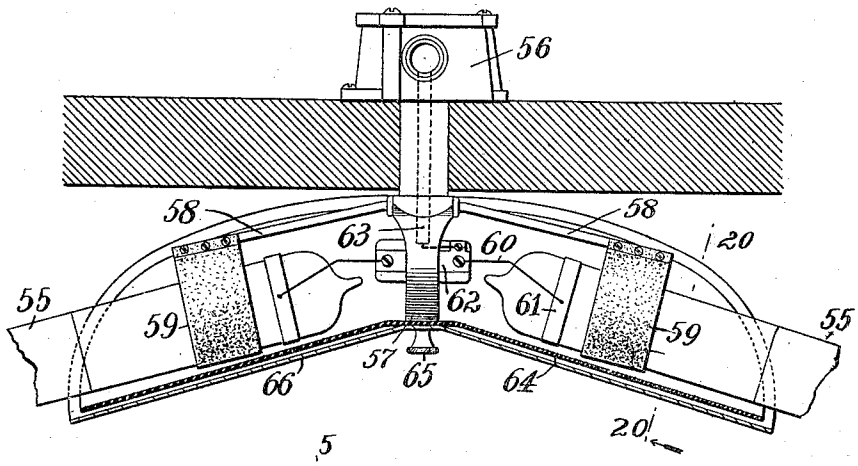


Fig. 4.

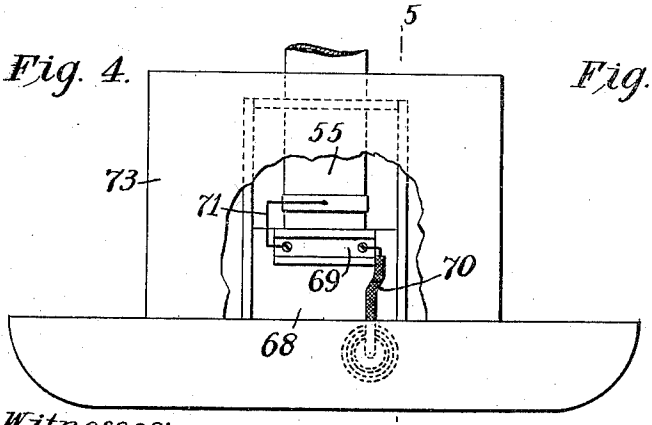
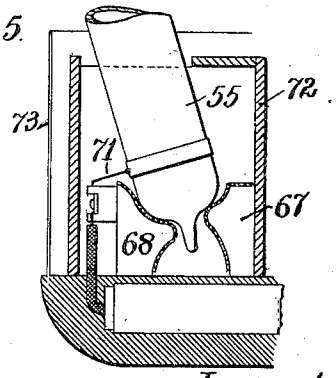


Fig. 5.



Witnesses:
C. L. Belcher
H. C. Capel.

Inventor
D. McFarlan Moore
By
H. C. Townsend
Attorney

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 6

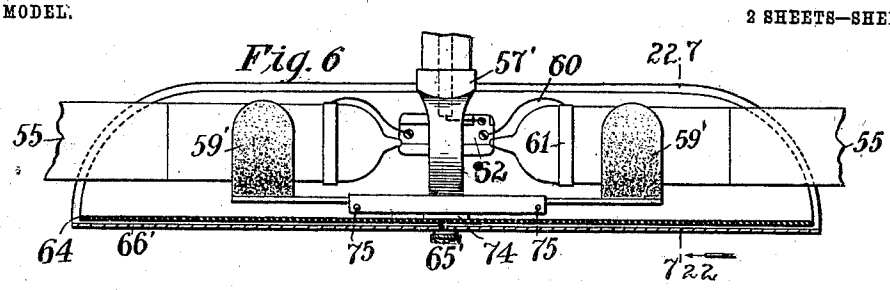


Fig. 3.

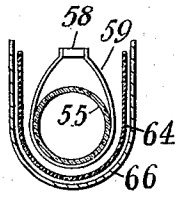


Fig. 8.

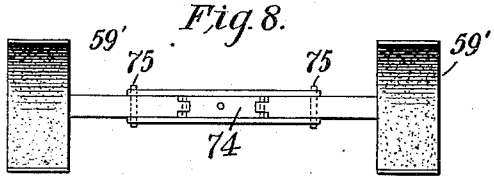


Fig. 7.

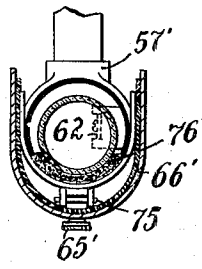
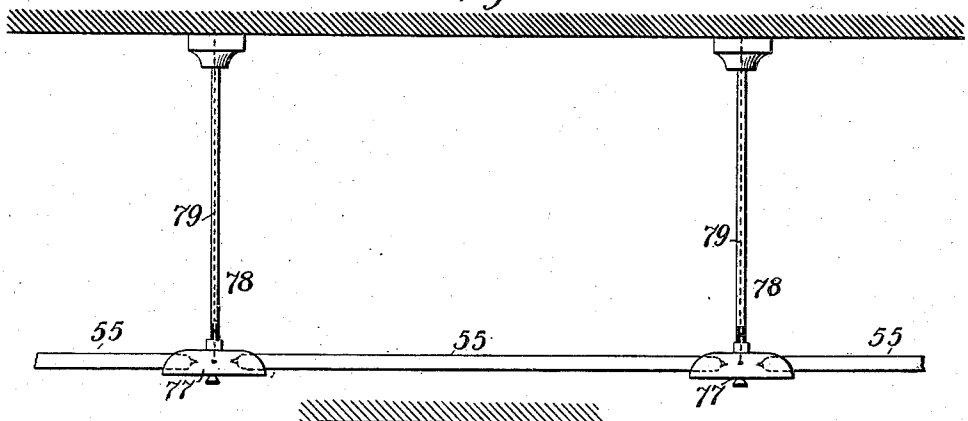


Fig. 9.



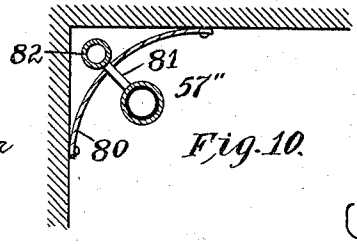


Fig. 10.

Witnesses:
C. L. Belcher
H. H. Capel.

Inventor
D. McFarlan Moore
By
H. G. Townsend
Attorney

UNITED STATES PATENT OFFICE.

DANIEL McFARLAN MOORE, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE MOORE ELECTRICAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FIXTURE FOR VACUUM-TUBE LIGHTING.

SPECIFICATION forming part of Letters Patent No. 726,328, dated April 28, 1903.

Application filed April 15, 1898. Serial No. 677,707. (No model.)

To all whom it may concern:

Be it known that I, DANIEL McFARLAN MOORE, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fixtures for Vacuum-Tube Lighting, of which the following is a specification.

This invention relates to fixtures for electric lights, and particularly to fixtures adapted for vacuum-tube lights or lamps, such as are disclosed in patents heretofore issued to me, chief among which is Patent No. 548,127, granted October 15, 1895.

The object of the invention is to provide for supporting vacuum-tube lamps by their extremities and in a manner such that they will be readily removable.

Another object is to provide for electric insulation and against sparking from the lamp-terminals to the fixture and also to conceal and protect the interior parts of the fixture and give the whole a finished appearance.

With these ends in view the invention consists in the construction, combination, and arrangement of parts hereinafter fully described, and set forth in the claims.

For the purposes of illustration the fixtures will be first described in connection with their adaptation to lamps employed in the illumination of a building with arched ceiling.

Figure 1 of the accompanying drawings therefore graphically represents a pair of vacuum-tubes as they would be supported along or under the arches of the building to be illuminated. Fig. 2 is a sectional view through the central fixture, taken longitudinally of the tubes. Fig. 3 is a transverse section through one end of said fixture, taken in the plane indicated by the line 18 18, Fig. 2. Fig. 4 is a front view of one of the lateral or supporting fixtures with a portion of the shield therefor broken away. Fig. 5 is a vertical section through said lateral fixture, taken on the line 20 20, Fig. 2. Fig. 6 is a vertical central section taken longitudinally of a fixture intended to support lighting-tubes when arranged horizontally against the ceiling or along the walls of a room. Fig. 7 is a vertical section taken transversely of the fixture represented in Fig. 6 and in the plane indicated by line 22 22. Fig. 8 is a plan view of a portion of the fixture shown in Figs. 6 and 7. Fig. 9 is a representation of a modified form of fixture for supporting the tubular lights horizontally. Fig. 10 is a further modification.

Vacuum-tubes may be shaped or fastened into any desired form which adapts them for association with any style of architecture and enables them to be located in any desired place. In lighting a cathedral or other building having arched ceiling they may follow the contour of the arches or be located in any artistic manner the mind may suggest.

55 indicates curved tubes as arranged in an arched ceiling. The central fixture for tubes thus arranged may be variously constructed. One form especially adapted to such an arrangement has been carefully worked out and is illustrated in Fig. 2. The junction-box 56 is there shown as applied to a beam or other part of the ceiling, and from this box depends a pipe, on the lower end of which is attached a ring 57, a side view of one substantially the same being shown in Fig. 7 at 57'. From the upper portion of this ring there extend laterally the arms 58, and to the ends of these arms are attached slings 59, of insulating material, which receive the upper ends of the vacuum-tubes. The ends of these tubes are provided with metallic caps or terminals, preferably electroplated thereon, to which current is led over conductors 60, which are connected to said terminals by means of bands 61 and to a contact-plate or circuit-terminal 62, mounted in a block of insulation secured within the ring 57. To this plate 62 a conductor is led from the junction-box 56, as indicated at 63.

To protect the vacuum-tubes from surrounding parts, a fiber shield or other insulating material 64 is placed about it and connected to the ring 57 in any suitable way, as by means of a screw 65, which may also serve to connect to the said ring a metallic or other casing, (indicated at 66,) which may also be

lined with fiber or other insulating material, by which all of the supporting parts of the tubes 55 are hidden. By thus insulating the lamp from all surrounding parts the possibility of sparking from its terminals to proximate metallic parts is prevented. The positive connection of the lamp in the circuit is also insured by the use of the special conductor 60. The lower ends of these arched tubes may be supported substantially as indicated in Figs. 4 and 5. Therein are shown two blocks of wood or other suitable material 67 68, which are preferably faced with asbestos, as indicated. Upon the face of one of these blocks, as 68, there is secured a block of porcelain or other insulating material carrying a metal plate 69, to which is connected one of the circuit-terminals 70 and to which also the lower terminal of the tube 55 is connected, as by conductor 71. This support or fixture is preferably surrounded by a box or inclosure of wood or other insulating material, as indicated at 72, one or more sides of which may be made removable for the ready insertion and removal laterally of the vacuum-tube. About this box and its contents is by preference placed a shield, as 73, which may be made in any ornamental manner.

When it is desired to arrange the vacuum-tubes horizontally against a ceiling and so close to parts above that they cannot readily be lifted out of their supports, the construction of fixture illustrated in Fig. 6 may be adopted. Therein the slings or supports 59′, which carry the ends of the tubes, are shown as hinged to a block 74, which is secured to the ring 57′, and are maintained in their horizontal position by means of pins, as 75, which pass through plates attached to said blocks 74, as indicated. A metallic or other ornamental shield, as 66′, is likewise secured to said ring, as indicated, by screw 65′. Upon the removal of this screw the shield 66′ may be taken away, when by the withdrawal of a pin 75 the yoke 59′ sustained thereby may be swung down laterally from said tube, allowing the tube supported thereby to be readily removed. Circuit is led to the tubes in this fixture substantially in the manner shown in Fig. 2.

To further insure the insulation of the tubes 55 in the fixture just described, a pillow of asbestos or fiber may be located in the slings 59′, as indicated at 76, Fig. 7. The rings 57 and 57′ are also preferably lined with insulation to avoid any possibility of the tube-terminals engaging the rings.

Where the horizontal tubes can be supported at some distance from the ceiling, as indicated in Fig. 9, they may be simply dropped into the fixture from above and as readily removed therefrom, and the fixtures in this instance may consist simply of metallic troughs 77, suitably insulated from the supporting-rods 78, said rods being tubular and serving as conduits for conductors leading to the said troughs, such conductors being indicated by the dotted lines 79. These troughs may, if desired, be protected by fiber shields, substantially as in the fixtures above described.

To remove one of the curved tubes 55 from its fixtures, it is simply necessary to detach its terminal conductors 60 and 71 from the plates 62 and 69, remove the shield 73, open the side of the box 72, when the tube may be moved laterally along its seat on blocks 67 and 68 until free therefrom, at which time it may be readily drawn from the saddle 59. This may be facilitated in some instances by the removal of the shields 64 and 66.

Other changes in and modifications of the fixtures aside from those above described may be made without departing from this invention. For instance, as indicated in Fig. 10, supporting-rings 57″ may be attached to a curved plate or reflector 80, as by tubes 81, which may connect on the rear side of the reflectors with a conduit, as 82. Through the conduit the conductor may be led to the vacuum-tubes supported in the rings 57″. The reflector or curved plate may be placed in any of the angles of a room whence light is desired.

The invention claimed is—

1. A fixture for tubular electric lamps, consisting of a bracket fixed to the wall, an insulated support attached thereto and from which the lamp is readily removable, a circuit terminal plate attached to the bracket to which the lamp-terminal may be connected, and a removable shield for hiding and protecting the said support and plate.

2. The combination with a tubular electric lamp, of a support for one end thereof and means for connecting it at that end to the lighting-circuit, a sling of insulation for supporting the other end, means for removably connecting this latter end to the lighting-circuit, and a shield for hiding and protecting the sling and the terminal of the lighting-circuit.

3. A support for the adjacent ends of two tubular electric lamps, consisting of a bracket carrying an insulated terminal plate, slings of insulation supported at either side of said bracket, and a shield for concealing and protecting the said bracket and its appurtenances.

4. A support for the adjacent ends of two tubular electric lamps, consisting of a bracket carrying an insulated terminal plate, slings of insulation supported at either side of said bracket, a shield of insulating material removably connected to the bracket, and an ornamental protecting-shield inclosing the shield of insulation and also removably connected to said bracket.

5. A support for the end of a horizontally-disposed electric lamp, consisting of a sling

borne upon a hinged arm, means for sustaining said arm and sling in a horizontal position or allowing them to drop from that position for the insertion or removal of the lamp, and a shield secured to said support for protecting and concealing said support and its appurtenances.

Signed at New York, in the county of New York and State of New York, this 25th day of March, A. D. 1898.

DANIEL McFARLAN MOORE.

Witnesses:

WM. H. CAPEL,

DELBERT H. DECKER.