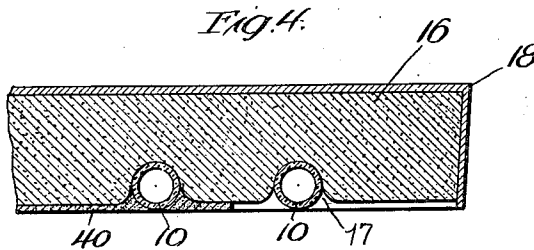
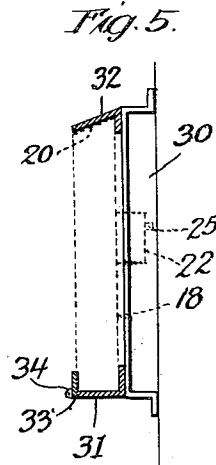
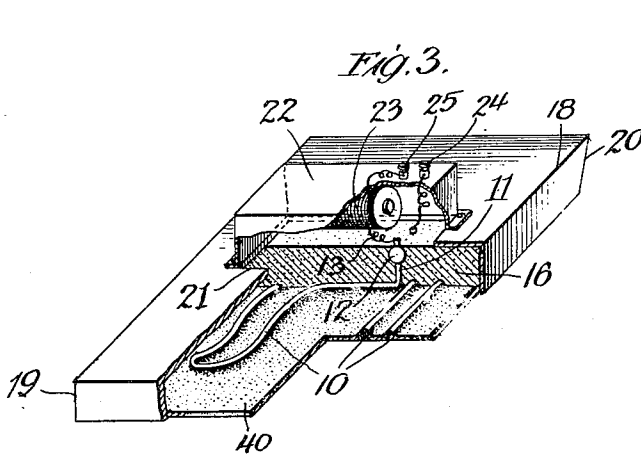
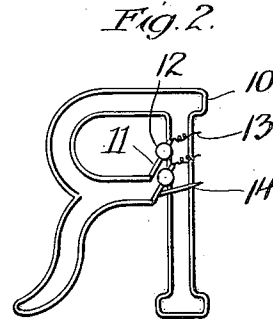
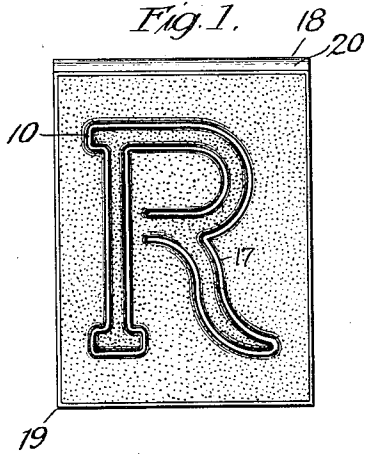


H. A. SCHMIDT.
ELECTRIC SIGN AND METHOD FOR MAKING THE SAME.
APPLICATION FILED JAN. 31, 1910..

1,005,482.

Patented Oct. 10, 1911.



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UNITED STATES PATENT OFFICE.

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TO AARON M. SEARLES, OF CHICAGO, ILLINOIS.

ELECTRIC SIGN AND METHOD FOR MAKING THE SAME.

1,005,482.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed January 31, 1910. Serial No. 541,099.

To all whom it may concern:

Be it known that I, HERMAN A. SCHMIDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric Signs and Methods of Making the Same, of which the following is a specification.

My invention relates to improvements in electric signs and methods of making the same, and has for its general object to produce a cheap and attractive luminous electric sign and a simple and convenient method of its manufacture.

One of the salient objects of my invention is to provide a sign of a construction which permits of the use, as a luminous element, of long Crookes tubes, well exposed for luminous effect, adequately supported, and protected against fracture by expansion and contraction or by vibration.

A further object of my invention is to generally improve luminous-sign construction, wherein letters or groups of letters may conveniently be made in unit-formation for convenient assemblage, and with each unit a structure for direct connection with a lighting circuit.

Another object of my invention is to provide a process of manufacture rendering possible the cheap and substantial construction of such luminous signs.

In the drawings, wherein I have illustrated a particular embodiment of my invention, Figure 1 is a front elevation of a luminous sign-unit in the form of a single letter; Fig. 2 is an isometric view showing the formation of the Crookes tube employed in said letter; Fig. 3 is a broken perspective view showing the construction of such letter illustrated in Fig. 1; Fig. 4 is an enlarged sectional view showing the relative arrangement of the foundation or base material and the Crookes tube; and Fig. 5 is a detail showing a convenient manner of assemblage of the sign-unit or -units.

In the construction of luminous signs, I employ for each sign-unit, preferably, a single Crookes tube, contorted in any suitable fashion for the presentation in a single plane, which I will term the "face plane," of the outline of the letter or letters desired, such a tube, in the drawings, being bent to form the outline of a block letter, R. The ends of the tube, and such other parts

as it may be desirable to conceal, are deflected out of the face plane, the ends being carried back for a distance approximating the thickness of the sign-unit, as at 11, and provided with bulb enlargements, 12, for the reception of the terminal or leading-in wires, 13. A pumping and sealing neck, 14, may conveniently be provided projecting from one of the leads, 11. Such a Crookes tube outline is partially embedded in a body, 16, of plastic composition while the compound is soft, the compound thereafter being permitted to harden to form a substantially solid base, having its surface conforming to the surface plane of the tube outline, and said body having formed therein a groove, 17, following, on each side of the tube, the contour of the tube outline, so leaving free and exposed at the sign surface about half of the circumference of the tube lying in a tapering groove.

The arrangement just described is particularly advantageous, among other things, in that it frees the tube from such close embrace of the supporting plastic base as to render the tube liable to breakage owing to the difference in contraction and expansion of the tube and base, the frictional engagement between the tube and base being confined to such a relatively small, curved surface of the tube that differences of expansion and contraction cannot break or crush it. Furthermore, the provision of the groove coincident with, and flanking on both sides, the tube outline, provides a reflection space particularly affected by the luminosity of the Crookes tube when in operation, and serving to accentuate the display of the sign-unit. The body 16 as a whole is embraced within a metallic frame, 18, in the form of an open-faced box or pan, preferably having its side and bottom edges square or at right angles to its rear surface, as shown at 19, and its upper edge beveled from rear to front, as indicated at 20. The casing 18 has in its rear face an opening, 21, registering with the position of the terminal bulbs 12, 12' embedded within the body and through which the leading wires 13 may protrude. This opening is preferably overlain and covered by a casing extension, 22, detachably but rigidly secured in covering relation to the aperture 21, and affording support and protection to an induction coil or transformer, 23, having its primary coil connect-

ed with binding post, 25, at the exterior of the casing extension 22 and its secondary coil connected with the leading-in wires of the Crookes tube.

It is my preference that for every sign-unit there be provided such an induction coil in direct connection with the casing and that every unit supplied by such induction coil should consist in a single length of tube, 10 where uniformity of color in the display of a unit is desired. The several units constituting a sign may readily be assembled in a frame, 30, constructed to provide a flat supporting ledge, 31, and an inclined retaining 15 flange, 32, at its top, the flat lower flange, 31, being provided with a locking strip, 33, detachably secured thereto, as by screws, 34, so that their beveled upper edges inserted in the correspondingly shaped portions 32 in the frame 30 and the flanged bottoms of the 20 sign-units may rest upon the lower member, 31, of the frame and be maintained against displacement by the locking member, 34. Other methods of support, however, may obviously be adopted. 25

In the construction of the luminous sign described, I proceed by initially forming the glass outline of the sign-letter, placing the same with its surface plane downward upon 30 a suitable flat surface, overlaying the outline with the casing 18, flooding the interior of the casing 18 with a body 40 of melted paraffin, or like body readily hardening and capable of forming upon glass a distinctly 35 concave meniscus, the body of paraffin 40 thus provided being only of suitable depth, as illustrated in Fig. 4, to cause the paraffin to creep up the sides of the glass to about its horizontal diameter. As soon as 40 this mold surface has hardened, forming naturally, by its physical coöperation with the glass, a curved fillet, extending up the sides of the glass and leaving exposed only the upper half thereof, I pour into the casing 45 upon the paraffin a plastic material, such as Portland cement or plaster of Paris, in which the glass is finally to be embedded, in this latter operation completely filling the casing 18, to leave exposed only the leading- 50 in wires which protrude through the openings 21. When this body mass has set, I lift the casing, which carries with it the body 16 and the glass partially embedded therein, the entire structure readily separating 55 from the paraffin and usually leaving it free upon the table or other support. Thus quickly, economically, and with a minimum amount of labor, I secure a plastic surface encompassing the Crookes tube, which is 60 smooth and ready for finishing, and which presents a uniform smooth channel following every contortion of the Crookes tube and leaving exposed at the sign surface a large proportion of the cylindrical surface of the 65 tube, preferably about half thereof.

In finishing the sign, the planar surface of the body may be finished in colors, if desired, and the grooves, 17, left white or finished in contrasting color, as preferred.

In practice, the units may be made up in 70 quantities for assemblage according to order in the frame of simple angle-bar construction and each unit has associated therewith its own induction coil for ready connection with the source of alternating current 75 supply, so that any letter may be readily removed and replaced without effecting the balance of the letters physically or electrically.

While I have herein described in some detail 80 a particular embodiment of my invention and process, it will be apparent to those skilled in the art that changes in the details might be made without departure from the spirit and scope of the invention. 85

What I claim is:

1. A luminous sign consisting of a Crookes tube, appropriately contorted, embedded directly in a primarily plastic and subsequently set body with the axis of the tube 90 lying below the surface of said body, said body having a groove flanking the tube throughout its length to expose portions of the tube below the surface of the said body.

2. In a luminous sign structure, a Crookes 95 tube appropriately contorted, and a body of plastic material into which said tube is embedded more than half the distance of its diameter, said body providing an inturned curve of convex meniscus shape along the 100 edge of said tube to expose substantially half of said embedded tube, whereby light may freely pass from said tube and said curved meniscus portion of the plastic material may act as a reflector, the remaining 105 half of said tube having engaging contact with said body.

3. A luminous sign unit comprising a casing, a primarily plastic and subsequently set body retained therein, a Crookes tube contorted in the surface plane of said body to 110 form a desired outline and exposed to the surface of said body with its axis below said surface and half of its diameter exposed, said Crookes tube having a bulb embedded 115 within the body.

4. A luminous sign-unit comprising a casing having an opening in one side thereof and an open face, a body of primarily plastic and subsequently rigid material exposed 120 to the open face of the casing, a Crookes tube suitably contorted to form a character outline and embedded more than half way into said body and with substantially half 125 its diameter exposed at the surface of said body, having terminals registering with the openings in said body and embedded in the material, and means for covering said openings.

5. The method of forming a luminous 130

sign which consists in contorting a Crookes
tube to a desired surface outline, partially
investing the plane surface of said tube with
a softened material adapted in hardening
5 sufficiently to adhere to the glass to form a
concave meniscus, permitting said body to
harden to constitute a fillet flanking the tube
throughout its presentation in the plane sur-
face, and embedding the portions left ex-
10 posed by said fillet in a primarily plastic

and subsequently set body capable of effect-
ing adhesion to the glass and adapted per-
manently to carry the glass.

In testimony whereof I hereunto set my
hand in the presence of two witnesses.

HERMAN A. SCHMIDT.

In the presence of—

W. LINN ALLEN,
MARY F. ALLEN.